U.S. Department of the Interior
Bureau of Land Management | Idaho

Rare Plants of Idaho

Front cover: *Astragalus amnis-amissi, flowers*, Lynn Kinter (IDNHP)

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Rare Plants of Idaho

Idaho State Office

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Boise, ID 83709

Written by

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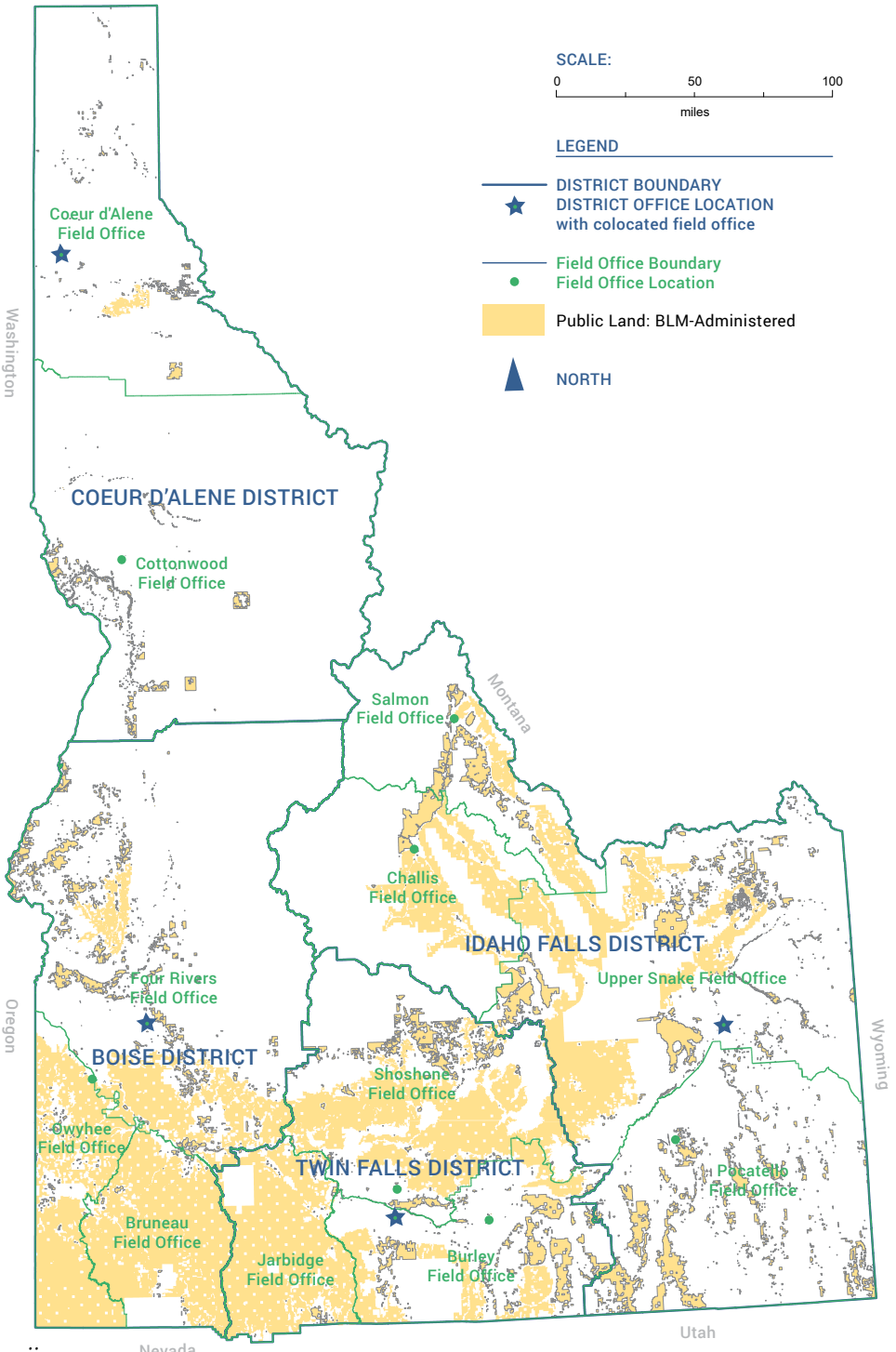
BLM DISTRICT AND FIELD OFFICES IN IDAHO



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INTRODUCTION

Idaho Bureau of Land Management (BLM) staff need information about Special Status Plant Species to assist with field surveys, setting data collection priorities, making conservation management decisions, and assessing conservation actions. To meet this need, the Idaho BLM State Office has initiated a project to produce an on-line field guide to Idaho BLM Special Status Plant Species. The purpose of this web-based field guide is to help users recognize and identify Special Status Plant Species in the field. The first installment includes 35 Special Status Plant Species. Additional taxa are planned for the future. The guide provides one-stop access to general description, field identification tips, and similar-looking species summaries, as well as basic taxonomic, conservation status, distribution, habitat, and phenology information. The field guide also includes an Idaho distribution map and color images for each species.

The field guide is intended to assist agency, academic, consultant, and other biologists charged with conducting field surveys or other conservation-related work for Special Status Plant Species in Idaho. The field guide can also serve members of the public and citizen scientists interested in learning more about Idaho BLM Special Status Plants Species. The guide's digital, on-line format allows for ready down-loading of hard copies that can be taken into the field or shared with colleagues. Making the guide available in a digital format will enable the species account information to reach a wider audience and be available more quickly compared to print media. The digital format also makes it easier to add more species accounts in the future and to update information about the species already in the guide in a more timely and inexpensive manner.

Idaho Distribution Maps

Idaho distribution maps in the field guide are based on Element Occurrence locations for each species in the Idaho Fish and Wildlife Information System database (Idaho Department Fish and Game 2018). Distributions are mapped at the Township scale; each Township depicted on the map contains one or more Element Occurrence locations. Occupied Townships are shaded red on the distribution maps.

Taxonomy

Scientific plant names in the field guide follows the *Flora of the Pacific Northwest*, 2nd Edition (Hitchcock and Cronquist 2018). Nomenclature for species not included in this book follows the *Intermountain Flora* (Cronquist et al. 1972, Cronquist et al. 1977, Cronquist et al. 1984, Cronquist 1994, Barneby 1989, Cronquist et al. 1997, Holmgren et al. 2005, Holmgren et al. 2012).

Conservation Category and Rank Definitions

The field guide includes BLM conservation category and NatureServe conservation status ranks for each Special Status Plants Species.

BLM Special Status Plant Species Conservation Categories

Type 1: Federally listed as threatened and endangered.

Type 2: Rangewide/Globally Imperiled Species - High Endangerment. These are species that have a high likelihood of being listed in the foreseeable future due to their global rarity and significant endangerment factors. This category also includes USFWS Proposed and Candidate species, Endangered Species Act (ESA) species delisted during the past 5 years, ESA Experimental Non-essential species with ESA Proposed Critical Habitat.

Type 3: Range-wide or State-wide Imperiled - Moderate Endangerment. These are globally rare or very rare in Idaho, with moderate endangerment factors. Their global or state rarity and the inherent risks associated with rarity make them imperiled species.

Type 4: Species of Concern. These are generally rare in Idaho with small populations or localized distribution, and currently have low threat levels. However, due to the small populations and habitat area, certain future land uses in close proximity could significantly jeopardize these species.

NatureServe Conservation Ranks

NatureServe conservation ranks are assessed at both the global and subnational (e.g., state) scales.

G = Global rank indicator; denotes rank based on rangewide conservation status.

T = Trinomial rank indicator; denotes global conservation status of infraspecific taxa.

S = State rank indicator; denotes rank based on conservation status within Idaho.

NatureServe Global Conservation Status Ranks

GX: Presumed Extinct.

GH: Possibly Extinct.

G1: Critically Imperiled - at very high risk of extinction due to extreme rarity, very steep declines, or other factors.

G2: Imperiled - at high risk of extinction or elimination due to very restricted range, very few populations, steep declines, or other factors.

G3: Vulnerable - at moderate risk of extinction due to a restricted range, relatively few populations, recent and widespread declines, or other factors.

G4: Apparently Secure - uncommon but not rare, some cause for long-term concern due to declines or other factors.

G5: Secure - common, widespread and abundant.

G#G#: Range Rank—range rank (e.g., G2G3, G1G3) is used to indicate uncertainty about the conservation status.

T#: Infraspecific Taxon (subspecies or varieties) status is indicated by a "T-rank" following the species' global rank. Rules for assigning T-ranks follow the same principles for global conservation status ranks. For example, the global rank of a critically imperiled subspecies of an otherwise widespread and common species would be G5T1.

NatureServe State Conservation Status Ranks

SX: Presumed Extirpated.

SH: Possibly Extirpated.

S1: Critically Imperiled - at very high risk of extirpation in the jurisdiction (state) due to a very restricted range, very few populations or occurrences, very steep declines, severe threats, or other factors.

S2: Imperiled - at high risk of extirpation in the jurisdiction (state) due to a restricted range, few populations or occurrences, steep declines, severe threats, or other factors.

S3: Vulnerable - at moderate risk of extirpation in the jurisdiction (state) due to a fairly restricted range, relatively few populations or occurrences, recent and widespread declines, threats, or other factors.

S4: Apparently Secure - at a fairly low risk of extirpation in the jurisdiction (state) due to an extensive range and/or many populations or occurrences, but with possible cause for some concern as a result of local recent declines, threats, or other factors.

S5: Secure - at very low or no risk of extirpation in the jurisdiction (state) due to a very extensive range, abundant populations or occurrences, with little to no concern from declines or threats.

S#S#: range rank (e.g. S2S3) used to indicate uncertainty about the conservation status.

U.S. Fish and Wildlife Service—
Endangered Species Act Status Categories Taxonomy

Listed Endangered: Taxa in danger of extinction throughout all or a significant portion of their range.

Listed Threatened: Taxa likely to be classified as Endangered within the foreseeable future throughout all or a significant portion of their range.

Proposed Endangered: Taxa proposed to be listed as Endangered (formal rulemaking in progress).

Proposed Threatened: Taxa proposed to be listed as Threatened (formal rulemaking in progress).

Candidate species: Taxa for which the USFWS has on file sufficient information on biological vulnerability and threats to support issuance of a proposed rule to list, but issuance of the proposed rule is precluded.

BLM DISTRICT AND FIELD OFFICE SPECIES GUIDE

For the species location table on the following page, the field office acronyms are listed as follows:

Boise District Office

FR = Four Rivers Field Office
BP = Morley Nelson Snake River Birds of Prey National Conservation Area
BR = Bruneau Field Office
OW = Owyhee Field Office

Twin Falls District Office

JB = Jarbidge Field Office
BU = Burley Field Office
CR = Craters of the Moon National Monument and Preserve
SH = Shoshone Field Office

Idaho Falls District Office

US = Upper Snake Field Office
PO = Pocatello Field Office
CH = Challis Field Office
SA = Salmon Field Office

Coeur d'Alene District Office

CD = Couer d'Alene Field Office
CW = Cottonwood Field Office

SPECIES NAME	COMMON NAME
Abronia mellifera var. *pahoveorum*	Boise sand-verbena
Allium aaseae	Aase's onion
Astragalus amblytropis	Challis milkvetch
Astragalus amnis-amissi	Lost River milkvetch
Astragalus anserinus	Goose Creek milkvetch
Astragalus aquilonius	Lemhi milkvetch
Astragalus asotinensis	Asotin milkvetch
Astragalus atratus var. *inseptus*	Camas milkvetch
Astragalus packardiae	Packard's milkvetch
Astragalus sterilis	barren milkvetch
Astragalus jejunus var. *jejunus*	starveling milkvetch
Astragalus mulfordiae	Mulford's milkvetch
Astragalus oniciformis	Picabo milkvetch
Calamagrostis tweedyi	Cascade reedgrass
Carex aboriginum	Indian Valley sedge
Carex idahoa	Idaho sedge
Chaenactis cusickii	Cusick's pincushion
Eriogonum capistratum var. *welshii*	Welsh's buckwheat
Howellia aquatilis	Water howellia
Lepidium papilliferum	slickspot peppergrass
Mentzelia mollis	smooth stickleaf
Mirabilis macfarlanei	Macfarlane's four-o'clock
Monardella angustifolia	narrow-leaf monardella
Oenothera psammophila	Saint Anthony evening primrose
Oxytropis besseyi var. *salmonensis*	Challis crazyweed
Phacelia inconspicua	obscure phacelia
Physaria didymocarpa var. *lyrata*	Salmon twin bladderpod
Pinus albicaulis	whitebark pine
Polemonium elusum	elusive Jacob's-ladder
Silene spaldingii	Spalding's catchfly
Spiranthes diluvialis	Ute ladies-tresses
Stanleya confertiflora	Malheur princesplume
Thelypodium repandum	wavy-leaf thelypody
Trifolium owyheense	Owyhee clover

Boise				Twin Falls				Idaho Falls				Coeur d'Alene	
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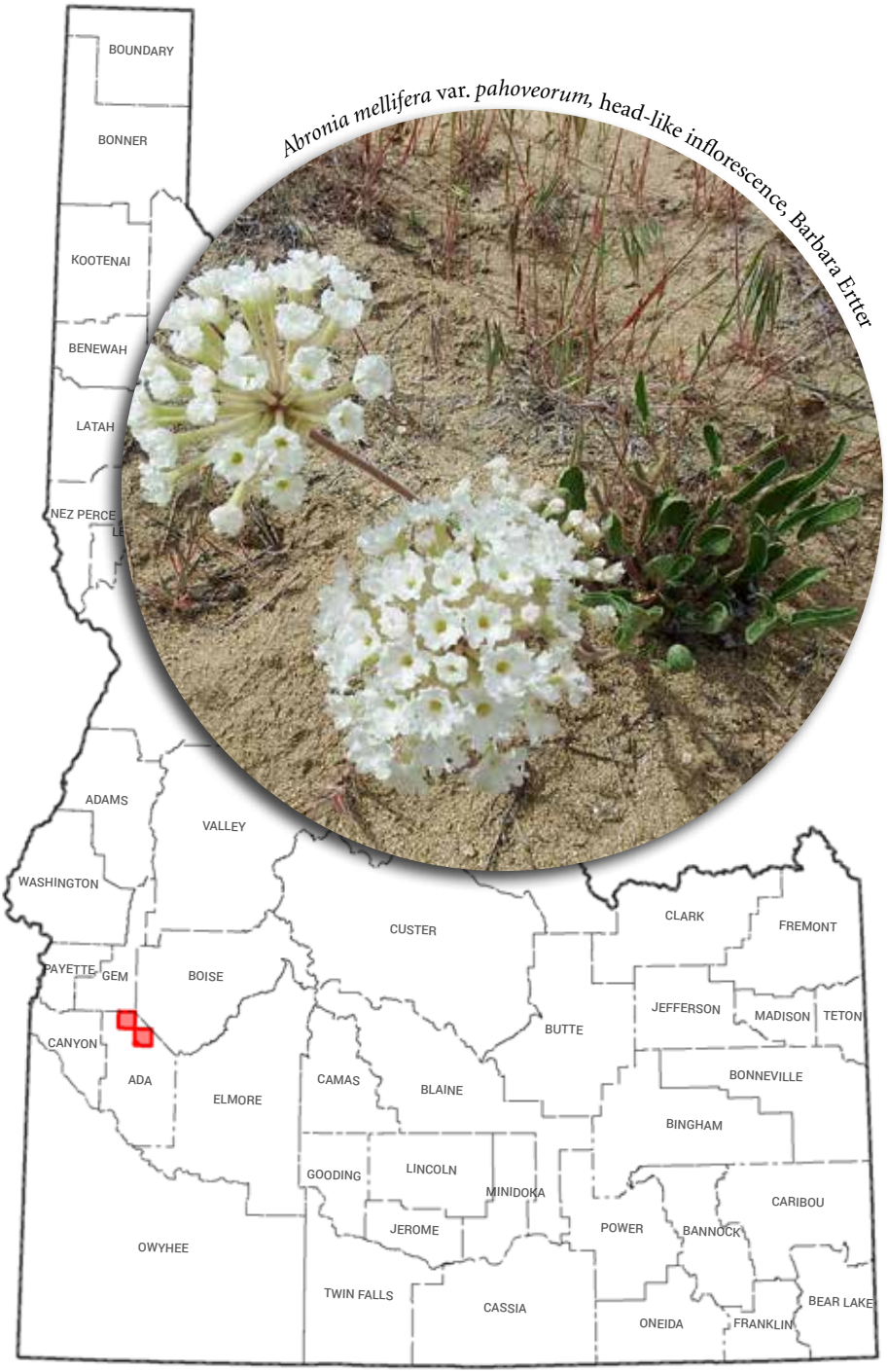
Idaho Location Map: Boise sand-verbena



Abronia mellifera var. *pahoveorum*, head-like inflorescence, Barbara Ertter

BOISE SAND-VERBENA

Abronia mellifera Douglas ex Hook. var. *pahoveorum* Ertter & Nosratinia
Nyctaginaceae (Four-o'clock family)
Conservation ranks: NatureServe G4T1/T2 S1/S2; BLM Type 2

Description

Perennial herb with decumbent to more often ascending stems up to 55 cm long. Well-developed plants form mounds 10+ dm in diameter. Leaves green, flexible, narrowly to broadly elliptic-lance shaped, 1-8 cm long and 0.5-2.5 cm wide. Inflorescence with abundant (sometimes sparse) glandular hairs, consisting of 25-35 mildly fragrant, whitish to pinkish flowers in a showy, head-like arrangement. Flowers with a slender tube 12-25 mm long and an abruptly spreading limb. Bracts subtending the inflorescence usually broadly ovate to nearly round, sometimes narrowly ovate in older plants, usually strongly overlapping, and mostly 10-25 mm long and 8-12 mm wide. Fruits with well-developed wings, except the outermost wingless or with only irregular rudimentary wings. The winged fruits more or less with glandular hairs.

Field Identification Tips

Flowers for *Abronia* are borne in sessile (stalkless) heads subtended by 4-5 distinct (not fused) involucral bracts. The funnel-shaped flowers abruptly expand to a 5-lobed limb. Mature to near-mature fruits are often required for positive identification of *Abronia* species because of the variation of vegetative structures within each taxon.

Similar Species

Differs from other components of the *Abronia mellifera* complex in the larger inflorescence bracts that are often broadly ovate or even nearly round, and in the combination of lack of rhizomes, relatively narrow, green, flexible leaves, glandular-septate hairs in the inflorescence, and moderately hairy fruit with relatively large wings.

Phenology

Flowers April to September.

Habitat

Hills and slopes on sand and lake bed sediment substrates below 1100 m.(3600 ft) elevation.

Distribution

Endemic to southwestern Idaho on the north side of the western Snake River Plain, extending in sporadic fashion along the lower foothills from Boise to Horseshoe Bend, and west in the sandy ridge complex separating the Boise and Payette river drainages.

Taxonomy

Boise sand-verbena was described as a new variety in 2016. It is included in the *Flora of the Pacific Northwest*, second edition published in 2018. However, plants would have keyed and been identified as *Abronia fragrans* using the earlier, 1973 edition of *Flora of the Pacific Nortwest*. As currently circumscribed, *A. fragrans* is absent from the Pacific Northwest. A full analysis and revision of the *A. mellifera* complex is in preparation.

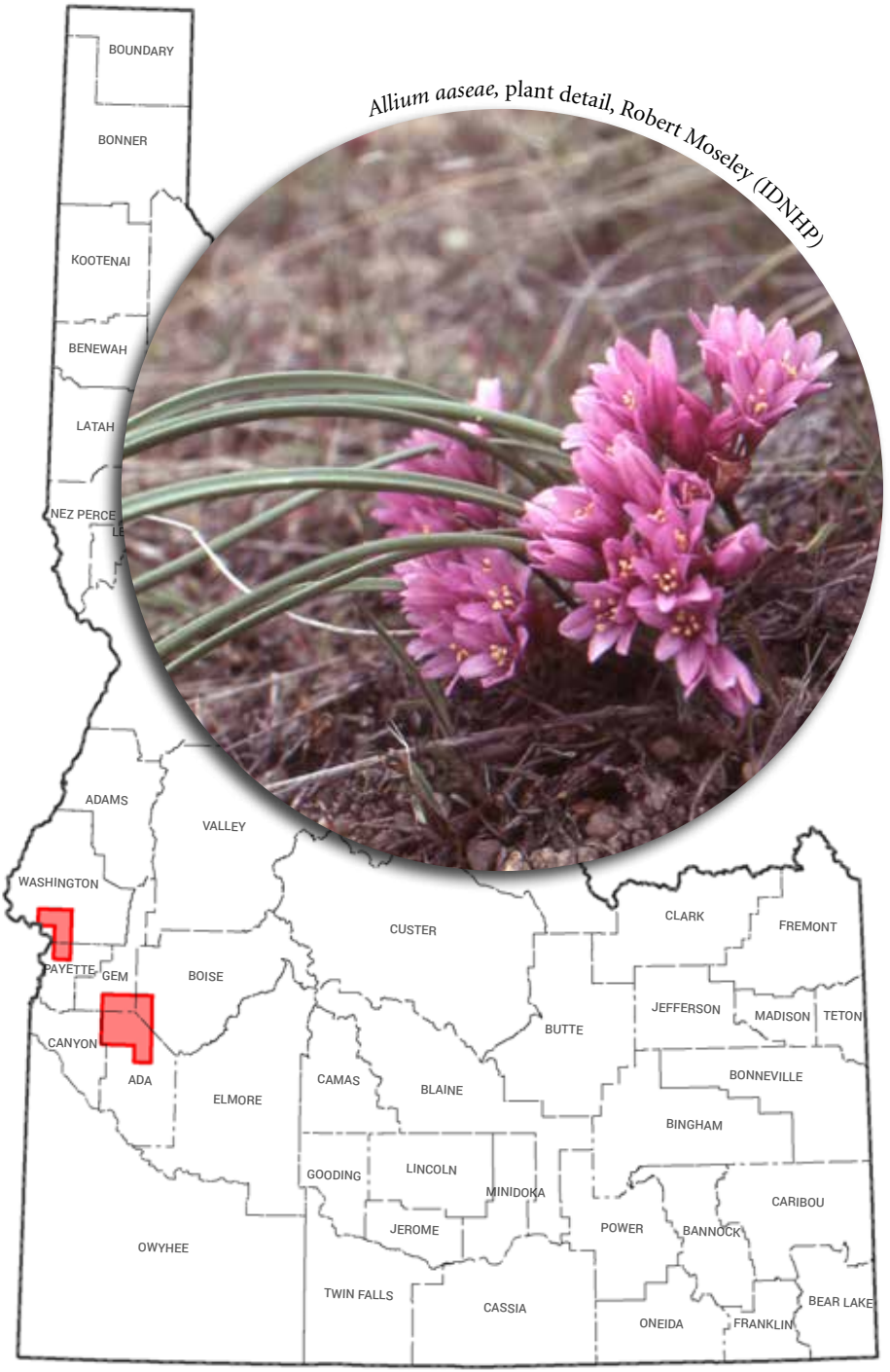
References

Ertter, B., and S. Nosratinia. 2016. A new variety of *Abronia mellifera (Nyctaginaceae)* of conservation concern in southwestern Idaho. Phytoneuron 2016-20: 1–4. Published 3 March 2016.

Spellenberg, R. 2012. *Abronia*. Pages 593–600. In: Intermountain Flora: Vascular Plants of the Intermountain West, U.S.A. Vol.2, Part A. By N.H. Holmgren, P.K. Holmgren, J.L. Reveal, and collaborators. The New York Botanical Garden, Bronx, NY.

Abronia mellifera var. *pahoveorum,* plant (above) and habitat (below), Barbara Ertter

Idaho Location Map: Aase's onion



Allium aaseae, plant detail, Robert Moseley (IDNHP)

AASE'S ONION

Allium aaseae Ownbey
Amaryllidaceae (Amaryllis family)
Conservation ranks: NatureServe G2 S2; BLM Type 2

Description

Perennial from an underground bulb. Leaves 2 for each flowering stem, linear, 1-4 mm wide, at least twice as long as the flower stalk, and often arching towards or lying on the ground. The flower stalk only 1-3 cm above ground level, round to slightly flattened, and not winged. Inflorescence a tight umbel of a few to >20 flowers subtended by 2 or 3 bracts. Flowers pink, often vividly so, and consisting of 6 tepals 6-10 mm long, with margins that may or may not have tiny, irregularly distributed teeth. The flowers fade to white and become papery as the fruit matures. Stamens shorter than the tepals, the anthers and pollen yellow.

Field Identification Tips

The combination of its low stature, relatively long, narrow leaves, deep pink flowers, yellow anthers and pollen, and confinement to coarse sand soils generally below 1130 m (3700 ft) elevation help distinguish Aase's onion. The leaves remain green during flowering, but tend to lose their color and become deciduous as the fruits mature. Above-ground plant parts break, blow away, and disappear after the seeds mature.

Similar Species

Several species of *Allium* occur within the range of Aase's onion. The one most likely to cause confusion is *A. simillimum*. It differs by having white tepals with a green or reddish midvein, although some individuals or populations may be flushed with pink; tepal margins that have tiny, regularly distributed teeth when viewed under a hand lens; and anthers that are purple or mottled purple and with white or grayish pollen. *Allium brandegeei* is another small, low-growing onion. It differs in having whitish tepals with entire margins and shorter leaves mostly less than twice as long as the flowering stem.

Phenology

Flowering as early as late February into April, depending on elevation and seasonal weather patterns. Middle March is often peak flowering, but this can vary year to year.

Habitat

Coarse sandy soil on dry, open, gentle to steep slopes, often along upper slopes near ridgelines, most commonly on southerly exposures, but ranging from east to west aspects. Usually associated with open, relatively sparsely vegetated bitterbrush/bunchgrass or bitterbrush-sagebrush/bunchgrass communities. Much of this habitat within the range of Aase's onion has been altered by wildfire and weed invasion. Associated species may include *Purshia tridentata*, *Artemisia tridentata*, *Aristida purpurea* var. *longiseta*, *Pseudoroegneria spicata, Hesperostipa comata*, *Bromus tectorum, Balsamorhiza sagittata,* and *Erodium cicutarium*. Most populations occur between 820-1310 (2700-4300 ft) elevation, with the majority below 1130 (3700 ft).

Distribution

Endemic to southwestern Idaho, occurring in the lower foothills from the Boise to Emmett area and also near Weiser in Ada, Boise, Gem, Payette, and Washington counties.

Taxonomy

No synonyms. Hybridization is suspected between Aase's onion and *A. simillimum* in places.

References

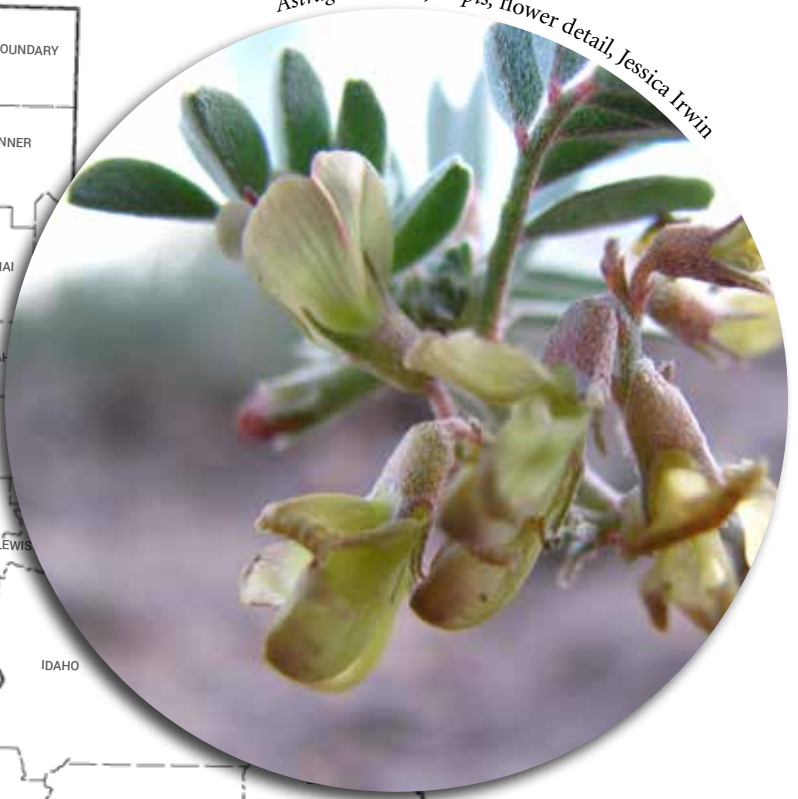
McNeal, D.W. 1993. Taxonomy of *Allium aaseae – Allium simillimum* in Idaho. Report prepared for Idaho Conservation Data Center, Idaho Department of Fish and Game, Boise, ID. 10 pp.

Moseley, R.K., M. Mancuso, and J. Hilty. 1992. Rare plant and riparian vegetation inventory of the Boise Foothills, Ada County, Idaho. Idaho Conservation Data Center, Idaho Department of Fish and Game, Boise, ID. 20 pp.

Smith, J.F., and T. Vuong Pham. 1996. Genetic diversity of the narrow endemic *Allium aaseae* (Alliaceae). American Journal of Botany 83(6):717-726.

Allium aaseae, plant habitat, Michael Mancuso

Idaho Location Map: Challis milkvetch



Astragalus amblytropis, flower detail, Jessica Irwin

CHALLIS MILKVETCH

Astragalus amblytropis Barneby
Fabaceae (Pea or Legume family)
Conservation ranks: NatureServe G3 S3; BLM Type 3

Description

Low herbaceous perennial with stems 10-30 cm long, often prostrate, and with a divaricate branching pattern. Leaves pinnately compound, divided into 7-13 oblong-ovate leaflets, each 5-10 mm long and usually with a small notch at the tip. Leaves have a grayish cast due to a dense covering of minute, appressed hairs. Flowers pea-like, pale yellow to cream, often tinged with purple, 6-8 mm long. Fruit pods inflated, membranous, 2-celled, up to 4 cm long, not red-mottled, but with numerous minute appressed hairs.

Field Identification Tips

The divaricately branching stems, neat silvery-gray leaves, small flowers with petals of nearly equal length, and, bladdery, 2-celled pods distinguish this species. The pods are initially pale green suffused with purple, then become straw-colored and somewhat lustrous when ripe, and seem oversized in proportion to the leaves and flowers.

Similar Species

Multiple species of *Astragalus* occur within the range of Challis milkvetch, with most being readily distinguished from Challis milkvetch by some combination of a taller more upright habit, larger or different color flowers, or much different fruit pods. Challis milkvetch may be confused with *A. aquilonius* because of their similar habit and greatly swollen fruit pod. *Astragalus aquilonius* differs by having greenish-white flowers and a one-chambered pod that is hairless or minutely pubescent with soft hairs. *Astragalus platytropis* and *A. whitneyi* are two other low-growing milkvetches with inflated fruit pods found in east-central Idaho. However, the pods are red- to purple-mottled for both species.

Phenology

Flowering begins as early as mid-May and may extend into early August. Fruit pods may be found from late May into early September.

Habitat

Usually associated with salt desert shrub or Wyoming big sagebrush communities; often on relatively unstable volcanic ash, talus, or shaley substrate that have low vegetation cover. Sites are often steep, with southerly to west aspects being most common. Associated species may include *Atriplex confertifolia, Artemisia tridentata* spp. *wyomingensis, Leymus salina* spp. *salmonis, Pseudoroegneria spicata, Cryptantha spiculifera, Penstemon eriantherus, Phacelia glandulosa, Chaenactis douglassii,* and *Hymenopappus filifolius* var. *idahoensis.*

Distribution

Endemic to east-central Idaho in Custer and Lemhi counties, centered along the Salmon River Canyon and its tributaries from the Clayton area northward. Populations are also known from sites south of Challis on the west slope of the Pahsimeroi Mountains. Elevations at known populations range from approximately 1400-2200 m (4600-7220 ft), with most located between 1675-1980 m (5500 - 6500 ft).

Taxonomy

No synonyms.

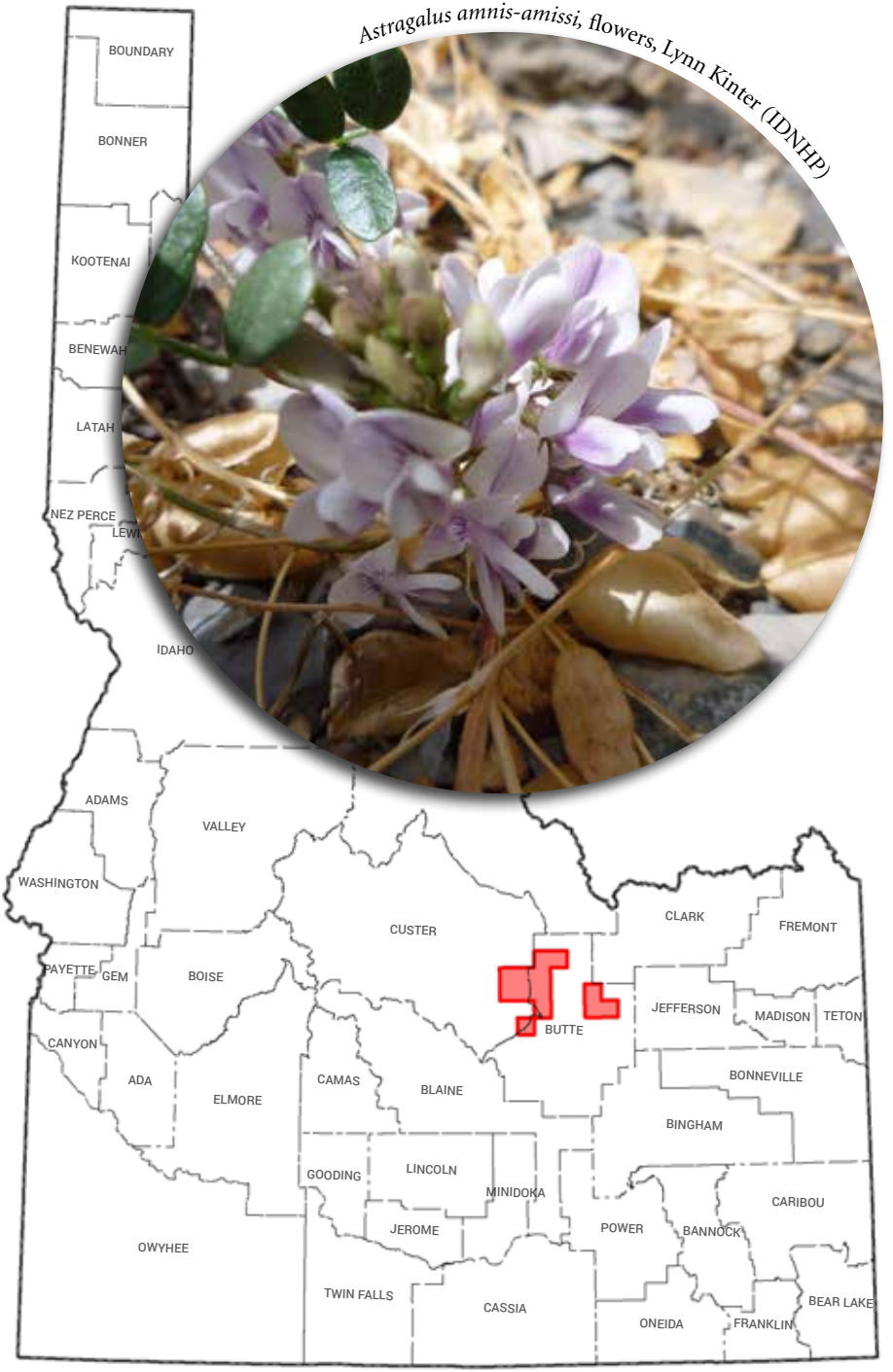
References

Rittenhouse, B. and R. Rosentreter. 1994. The autecology of Challis milkvetch, and endemic of east-central Idaho. Natural Areas Journal 14 (1):22-30.

Moseley, R.K. 1989. Field investigations of four astragali, all Region 4 sensitive species, on the Salmon National Forest, with notes on two others. Idaho Natural Heritage Program, Idaho Department of Fish and Game, Boise, ID. 19 pp plus appendices.

Allium amblytropis, fruits and foliage (above) and sprawling habit (below), Jessica Irwin

Idaho Location Map: Lost River milkvetch



Astragalus amnis-amissi, flowers, Lynn Kinter (IDNHP)

LOST RIVER MILKVETCH

Astragalus amnis-amissi Barneby
Fabaceae (Pea; Legume family)
Conservation ranks: NatureServe G3 S3; BLM Type 3

Description

Slender, weakly ascending, thinly pubescent, perennial forb up to 25 cm tall. Leaves pinnately compound with 7-13 leaflets, each 3-15 mm long, elliptic to broadly egg-shaped, thin-textured, medium to dark semi-glossy green, and usually tipped with an apical notch. Inflorescence a loose raceme of spreading, pea-like white flowers faintly marked with purple and about 10 mm long. Calyx 4-6 mm long with black, or in part white, short appressed hairs. Fruit pods sessile, moderately inflated, about 15-17 mm long, green or purplish, and with short appressed hairs.

Field Identification Tips

Distinguished by its slender, weakly ascending habit, semi-glossy, relatively dark green, apically notched leaflets, small whitish flowers faintly marked with purple, moderately inflated pods, and limestone cliff and associated talus habitat.

Similar Species

Astragalus amblytropis differs in its more divaricately branched habit, thicker-textured, silvery leaflets, slightly smaller, dull yellowish flowers, and larger, more inflated fruit pods. *Astragalus alpinus* superficially resembles Lost River milkvetch, but has a slender, subterranean, adventitious root system, and narrower, pendulous, stipitate fruit pods.

Phenology

Flowering begins in early to mid-June and continues into July.

Habitat

Ledges, crevices, and outcrops on steep limestone cliffs, and talus along cliff bases; often in partial shade. Populations known from approximately 1675-2440 m (5500-8000 ft) elevation, with most between 1950-2195 m (6400-7200 ft). Associated species may include *Cercocarpus ledifolius, Petrophytum caespitosum, Draba oreibata, Erigeron caespitosus, Leymus cinereus,* and *Pseudotsuga menziesii.*

Distribution

Endemic to Custer and Butte counties in east-central Idaho, on the eastern and western slopes of the southern half of the Lost River Range, the lower slopes of Hawley Mountain, and the southern end of the Lemhi Range.

Taxonomy

No synonyms.

References

Hitchcock, C.L. 1961. *Astragalus amnis-amissi* Barneby. Pages 219-221 In: Vascular Plants of the Pacific Northwest, Part 3: *Saxifragaceae* to *Ericaceae*, By C.L. Hitchcock, A. Cronquist, M. Ownbey, J.W. Thompson. University of Washington Press, Seattle, WA..

Moseley, R.K. 1989. Field investigations of four astragali, all Region 4 sensitive species, on the Salmon National Forest, with notes on two others. Idaho Natural Heritage Program, Idaho Department of Fish and Game, Boise, ID. 19 pp plus appendices.

Astragalus amnis-amissi, habit with glossy leaves, Anne Halford (BLM)

Astragalus amnis-amissi, Fruits and foliage (above) and habitat (below), Lynn Kinter (IDNHP)

Idaho Location Map: Goose Creek milkvetch

Astragalus anserinus, flowers and fruit, IDNHP

GOOSE CREEK MILKVETCH

Astragalus anserinus Atwood, Goodrich & Welsh
Fabaceae (Pea, Legume family)
Conservation ranks: NatureServe G2 S1; BLM Type 2

Description

Low perennial herb from a slender taproot that forms compact mats up to approximately 15 cm diameter. Herbage with dense, soft, bent to tangled hairs that gives the plant a grayish-green color. Leaves small, pinnately compound with 5-15 leaflets, each 3-6 mm long. Inflorescence a few-flowered raceme not elevated above the plant. Calyx 5-7 mm long with white hairs. Petals pink-purplish, the banner 9-11 mm long. Fruit pods reddish-brown, 9-12 mm long with a prominent beak and typically lying on the ground near or under the edge of the low-spreading stems. Thin hairs of the pods do not conceal the surface of the fruit.

Field Identification Tips

Distinguished by its low, tufted habit, densely hairy foliage, small leaves, small flowers, and beaked, reddish-brown pods with hairs not so dense as to conceal the fruit surface.

Similar Species

Most likely to be confused with varieties of *Astragalus purshii*, a species that usually has larger leaflets (2-14 mm long), flowers (9-25 mm long), and calyx (6-16 mm long); plus fruits with dense silky hairs that conceal the pod's surface. Flower color is variable for Pursh's milkvetch, ranging from whitish, to pale yellowish, to pink-purple. Two other similar-looking species are *A. newberryi* and *A. calycosus*. *Astragalus newberryi* differs from Goose Creek milkvetch by its larger leaflets (5-16 mm long), flowers (17-32 mm long), and calyx (9-20 mm long); plus fruits with dense silky hairs that conceal the pod's surface. *Astragalus calycosus* has mostly appressed, straight, silvery hairs, usually larger leaflets (2-19 mm long), and usually larger flowers (10-15 mm long) that range from whitish to purple. Hairs on the 2-chambered pods do not conceal the fruit surface. Clear differences in habit, size, and features of the leaves, flowers, or fruits, readily distinguish other species of *Astragalus* that occur within the range of Goose Creek milkvetch.

Phenology

Flowering occurs from middle or late May into most of June. Fruit set begins in early June, and pods can remain on the plants for several months.

Astragalus anserinus, plant, Michael Mancuso

Habitat

Open, dry, relatively sparsely vegetated outcrops of silty to sandy soils weathered from tuffaceous rocks of the Salt Lake Formation. Soils are usually a light gray and often have abundant gravels and/or rocks at the surface. Plants may also occupy sandy loam and gravelly sandy loam soils surrounding these tuffaceous outcrops. Sites vary from flat to steep, and can include all aspects, although plants are uncommon on northerly-facing exposures. Goose Creek milkvetch occurs within or adjacent to *Juniperus osteosperma* or *Artemisia tridentata* ssp. *wyomingensis* plant communities. Other commonly associated species include *Chrysothamnus viscidiflorus*, *Hesperostipa comata*, *Achnatherum hymenoides*, *Poa secunda*, *Chaenactis douglasii*, *Cryptantha humilis*, *Eriogonum ovalifolium*, and *Ipomopsis congesta*. Elevations at known occurrences range from approximately 1495-1790 m (4900-5885 ft).

Distribution

Goose Creek milkvetch is largely endemic to the Goose Creek drainage in Cassia County, Idaho; Elko County, Nevada; and Box Elder County, Utah. At least one population is located a short distance outside the watershed.

Taxonomy

No synonyms.

References

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Astragalus anserinus, habitat, Michael Mancuso

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Utah Native Plant Society. 2003-2016. Utah rare plant guide. Frates, A.J., editor/coordinator. Salt Lake City, UT: Utah Native Plant Society. Available on-line: http://www.utahrareplants.org.

Astragalus anserinus, plant with fruits, Michael Mancuso

Astragalus anserinus, habitat, Michael Mancuso

Astragalus anserinus, habitat, Michael Mancuso

Idaho Location Map: Lemhi milkvetch

Astragalus aquilonius, foliage detail, Jessica Irwin

LEMHI MILKVETCH

Astragalus aquilonius (Barneby) Barneby
Fabaceae (Pea; Legume family)
Conservation ranks: NatureServe G3 S3; BLM Type 2

Description

Herbaceous perennial with greenish-ashy colored herbage due to short, fine hairs, and with numerous, decumbent or trailing stems up to about 35 cm long that are often reddish to purplish-tinged. Leaves pinnately compound with 9-23 oblong or oblanceolate, rounded to apically notched leaflets, each 5-16 mm long. Inflorescence a lose raceme of greenish-white, pea-like flowers about 1 cm long. The keel petal often purplish tipped, while the calyx has white and gray-brown, more or less straight, appressed hairs. Fruit pods sessile, one-celled, large (2.5-4 cm long), inflated, ellipsoid, membranous, green and not mottled, and hairless to minutely hairy.

Field Identification Tips

The large, not-mottled, bladdery, one-chambered fruit pod distinguish Lemhi milkvetch from other milkvetches in east-central Idaho, especially in combination with the reddish- purplish-tinged stems and greenish-gray color of the herbage. Robust plants with numerous stems can have a low, rounded shape.

Astragalus aquilonius, flower and fruit, Jessica Irwin

Similar Species

The range of Lemhi milkvetch partly overlaps and is most likely to be confused with *A. amblytropis* because of its similar habit and greatly swollen fruit pod. *Astragalus amblytropis* differs, by having flowers dull yellow to cream color and a two-chambered fruit.

Phenology

Plants flower from mid- to late May into July. Fruits may still be present into September.

Habitat

Dry, gentle, to often steep and unstable slopes, talus, washes, gullies, and flats. It occurs on various, but often southerly aspects having gravelly and sandy, to ashy and occasionally clayey soils within shrub-steppe vegetation. Elevation ranges from approximately 1525-2530 m (5000-8300 ft), with most populations below 2135 m (7000 ft). Associated species my include *Artemisia tridentata* ssp. *wyomingensis*, *Atriplex confertifolia*, *Pseudoroegneria spicata*, *Elymus elymoides,* and *Leymus salina* spp. *salmonis*. Along the Salmon River it may be associated with two other Challis region endemics, *Astragalus amblytropis* and *Oxytropis besseyi* var. *salmonensis*.

Distribution

Endemic to Custer, Butte, and Lemhi counties in east-central Idaho. The main center of distribution includes the lower slopes of the Salmon River valley from near Clayton downstream to near Ellis, and the East Fork Salmon River upstream to the vicinity of Herd Creek. Populations are also known from the southern end of the Lemhi Range, parts of the Lemhi River valley, and scattered locations in the Pahsimeroi and Lost River valleys.

Taxonomy

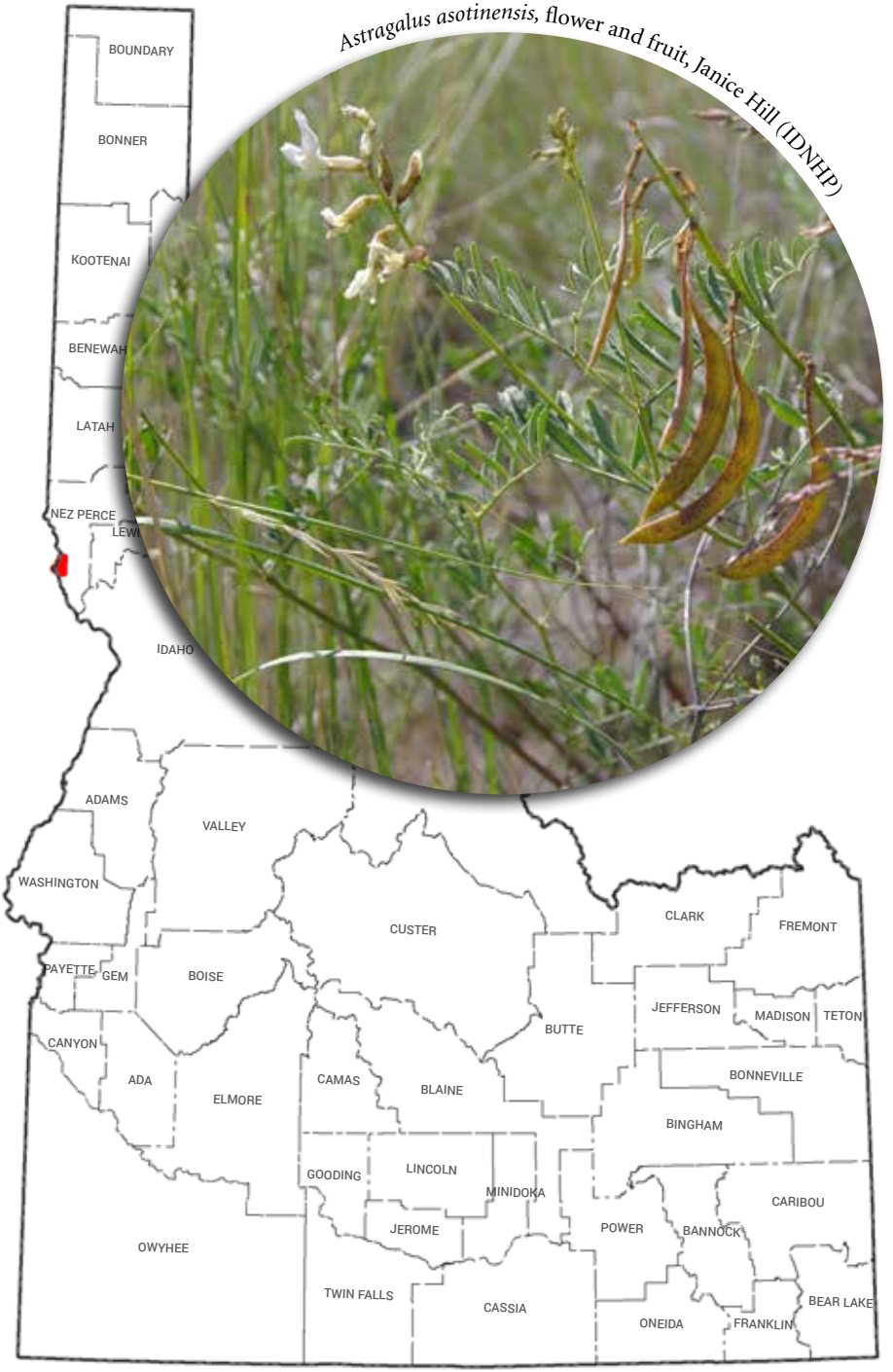
Synonym = A*stragalus wootonii* Sheld. var. *aquilonius* Barneby

References

Moseley, R.K. 1989. Field investigations of four astragali, all Region 4 sensitive species, on the Salmon National Forest, with notes on two others. Idaho Natural Heritage Program, Idaho Department of Fish and Game, Boise, ID. 19 pp plus appendices.

Astragalus aquilonius, plant with flower and fruit(above) and habitat (below), Jessica Irwin

Idaho Location Map: Asotin milkvetch



Astragalus asotinensis, flower and fruit, Janice Hill (IDNHP)

ASOTIN MILKVETCH

Astragalus asotinensis Bjork & Fishbein
Fabaceae (Pea; Legume family)
Conservation ranks: NatureServe G1 S1; BLM Type 2

Description

Perennial herb having a bushy appearance from numerous stems up to 50 cm tall. Leaves pinnately compound with 15-23 linear to narrowly oblong leaflets that have short, straight hairs on the lower surface and in some cases, short hairs along the midrib on the upper surface. Inflorescence an axillary raceme with 7 to 20 creamy to yellowish-white flowers with a purple-tipped keel. Calyx about 6-7 mm long. Fruit pods curved or sickle-shaped, with a stipe and sparse, white, appressed hairs. The 1-chambered pods usually straw-colored at maturity, sometimes also reddish, and usually held more or less horizontal from the stem.

Field Identification Tips

Most readily distinguished by its distinctive curved pods. Before current season pods are available, pods from the previous year can sometimes be found at the base of the plant to help verify identification. The stems and pods may have a reddish color.

Similar Species

Several other species of *Astragalus* occur with or in the vicinity of Asotin milkvetch, but most do not have curved pods. Exceptions include *A. collinus* and *A. arthuri* which have straight to slightly curved pods. However, pods for both species are pendant rather than held at a more horizontal angle. Furthermore, *A. collinus* has a calyx 7-10 mm long with a slightly, but plainly swollen/enlarged base; while the pods for *A. arthuri* are 2-chambered.. *Astragalus sheldonii* differs from Asotin milkvetch in its upright pods and calyx teeth that taper to a long point. *Astragalus cusickii* has inflated, pendant pods and linear leaflets. *Astragalus inflexus* has rose-purple flowers, and the leaves, calyx and pods are all densely hairy.

Phenology

Flower from late March to May; mature pods May and June. Most plants are senescent by the end of July.

Astragalus asotinensis, plant, Janice Hill (IDNHP)

Habitat

Canyon grasslands dominated by bunchgrasses, sparse forbs and small shrubs between 400-900 m (1310-2950 ft) elevation. Asotin milkvetch tends to occur most commonly on southwest to northwest slopes of approximately 20-30° steepness, in good ecological condition vegetation lacking substantial cover of non-native weed species. *Pseudoroegneria spicata* and *Festuca idahoensis* are the characteristic bunchgrass species in the canyon grasslands. Asotin milkvetch is known only from limestone and calcareous shales mapped as Martin Bridge Limestone Formation or Hurwal Formation metasedimentary rocks.

Astragalus asotinensis, habitat, Janice Hill (IDNHP)

Distribution

Narrowly endemic to a small area within the Snake River Canyon near the Idaho/Washington border, south of Asotin, Washington, in Asotin County, Washington and Nez Perce County, Idaho.

Taxonomy

No synonyms.

Astragalus asotinensis, fruit detail, Janice Hill (IDNHP)

References

Björk, C.R., and M. Fishbein. 2006. *Astragalus asotinensis* (Fabaceae), a newly discovered species from Washington and Idaho, United States. Novon 16: 299-303.

Björk, C.R. 2010. Results of 2010 *Astragalus asotinensis* surveys. With notes on floristics of Hells Canyon, Idaho, Oregon and Washington. Report prepared for the U.S. Fish & Wildlife Service Region 1. 101 pp.

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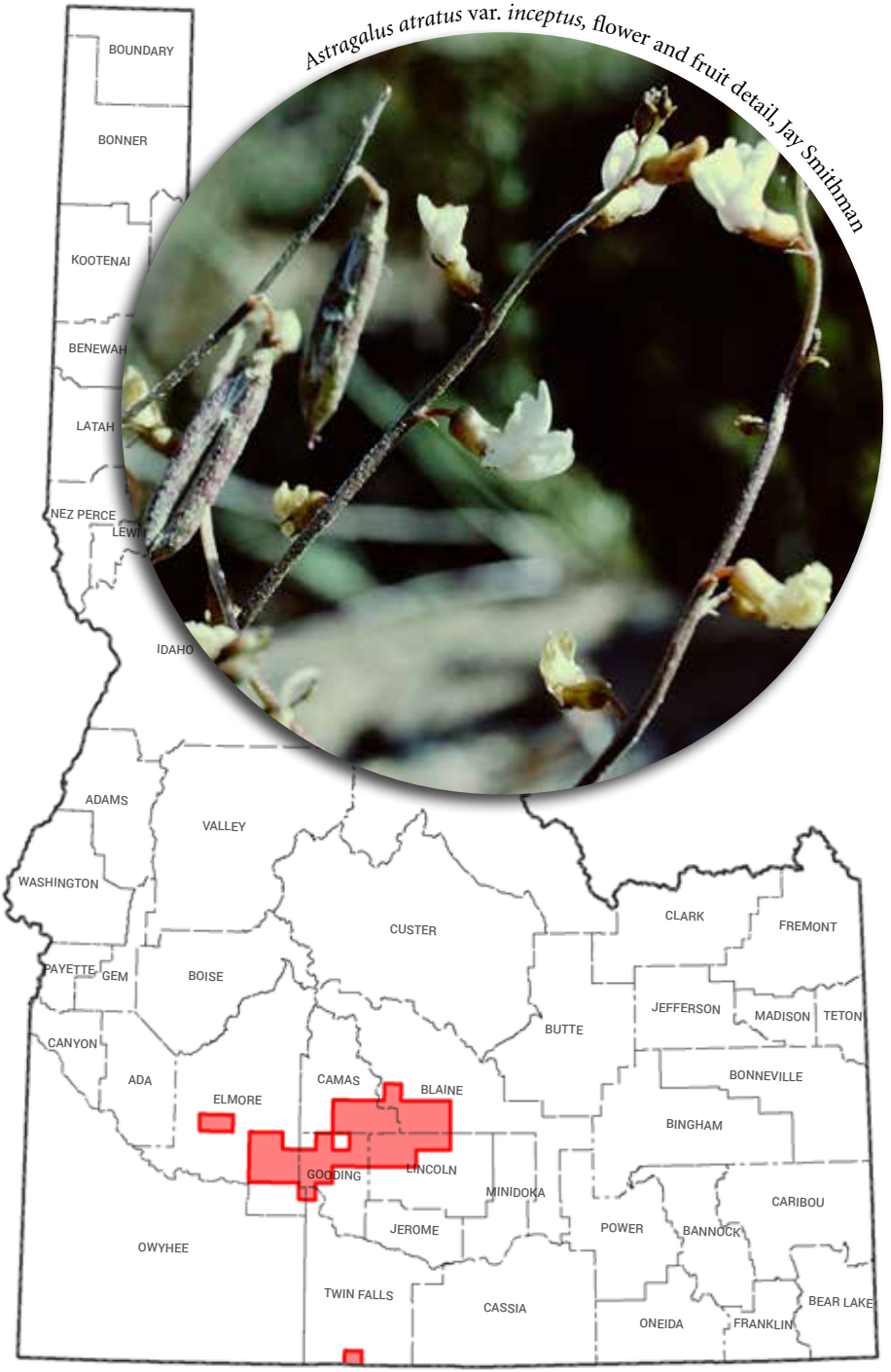
Gray, K., J. Hill, and J. Lichthardt. 2011. 2010 field surveys for *Astragalus asotinensis* (Asotin milkvetch) near Billy Creek and Camp Creek, lower Snake River Canyon, Idaho: Interim report. Idaho Natural Heritage Program, Idaho Department of Fish and Game, Boise, Idaho. 14 pp plus appendices.

Astragalus asotinensis, habitat, Janice Hill (IDNHP)

Idaho Location Map: Camas milkvetch



Astragalus atratus var. *inceptus*, flower and fruit detail, Jay Smithman

CAMAS MILKVETCH

Astragalus atratus S. Wats. var. *inseptus* Barneby
Fabaceae (Pea; Legume family)
Conservation ranks: NatureServe G4G5T3 S3; BLM Type 4

Description

Loosely tufted or diffuse perennial herb with slender, often prostrate, wiry stems up to 30 cm long. Leaves pinnately compound with 7-15 linear-oblong leaflets, all jointed to the rachis. Inflorescence a loose raceme of nodding, pea-like flowers. Corolla whitish, sometimes purplish tinged, up to 13 mm long. Fruit pod pendulous, with a short stipe, compressed, and leathery when mature.

Field Identification Tips

The multiple, slender, often prostrate stems, loosely-flowered raceme of nodding flowers, and pendulous, slender, flattened pod with a leathery texture when ripe help distinguish Camas milkvetch. In addition, the stems often acquire a reddish color later in the season.

Similar Species

Astragalus atratus var. *owyheensis* tends to have smaller, more scattered leaflets with the terminal leaflet not jointed to the rachis, and its fruit pod becomes papery at maturity.

Phenology

Flowering late May into July.

Habitat

Sagebrush-grass communities on flats and hillsides in shallow, often clayey, stony soil over basalt, between 950-1740 m (3100-5700 ft.) elevation. Associated species may include *Artemisia tridentata* ssp. *wyomingensis*, *A. tridentata* ssp. *vaseyana*, *A. arbuscula, Eriogonum thymoides, Allium acuminatum, Ionactis alpina, Balsamorhiza hookeri, Lomatium* spp., *Penstemon cusickii, Trifolium macrocephalum*, and *Poa secunda*.

Astragalus atratus var. *inceptus,* plant, IDNHP

Distribution

Endemic to the northern edge of the Snake River Plain in southern Blaine, southern Camas, northern Lincoln, and Gooding counties, Idaho, centered around the Mount Bennett Hills.

Taxonomy

Camas milkvetch passes into *Astragalus atratus* var. *owyheensis* in Gooding county.

References

Barneby, R.C. 1989. *Astragalus atratus* S.Wats. Pages 97-99 *In*: Intermountain Flora, Vascular Plants of the Intermountain West, U.S.A. Volume 3, Part B, by A. Cronquist, A.H. Holmgren, N.H. Holmgren, J.L. Reveal, and P.K. Holmgren. The New York Botanical Garden, Bronx, NY.

Astragalus atratus var. *inceptus,* plant, BLM

Idaho Location Map: Starveling milkvetch

Astragalus jejunus var. *jejunus*, plant with fruits, Lynn Kinter (IDNHP)

STARVELING MILKVETCH

Astragalus jejunus S. Wats. var. *jejunus*
Fabaceae (Pea; Legume family)
Conservation ranks: NatureServe G3T3 S2; BLM Type 2

Description

Dwarf, compact, multi-stemmed perennial herb from a taproot; the herbage with short, appressed, straight hairs. Leaves pinnately compound with 9-15 linear to elliptic, small leaflets, each < 5 mm long and 1.5 mm wide. The old, stiffly erect or recurving leaf stalks persist after the leaflets have been shed. Inflorescence about equaling or shorter than the leaves with 3-7 small, pea-like flowers. The calyx 2-3 mm long with white or partly black appressed hairs. Corolla pink or lavender-purple, with the wing-tips paler or white; the banner 5-7 mm long. Fruit pod bladdery-inflated, papery, purplish or red-mottled, 10-17 mm long, almost spherical.

Field Identification Tips

Distinguished by its diminutive, tufted habit, tiny leaflets, stiff, persistent leaf stalks, small purplish flowers, and papery, inflated, roundish, red-mottled pods. Starveling milkvetch often grows in highly localized colonies.

Similar Species

Most other *Astragalus* species found in southeastern Idaho can be readily distinguished from starveling milkvetch by their larger size, larger flowers, larger leaflets, and very different pods. *Astragalus kentrophyta* is a small, tufted milkvetch, but has leaves with 3-9 spine-tipped leaflets. The barren, white shale habitat where starveling milkvetch occurs is distinctive. *Astragalus jejunus* var. *articulatus* is known only from Big Horn County in north-central Wyoming and differs by having white flowers and longer stems.

Phenology

Flowers late May and June, into July at higher elevations.

Astragalus jejunus var. *jejunus,* plant with flowers and fruits, Lynn Kinter (IDNHP)

Habitat

In Idaho, starveling milkvetch occurs on knolls, ridges, and other exposures of raw, loose, sparsely vegetated, light-colored, shaley exposures of Twin Creek Limestone geology. These bright outcrops stand out visually on the landscape, with starveling milkvetch being absent from adjacent habitats characterized by more soil development and greater vegetation cover. Plants found on all aspects, usually on gentle to moderately steep slope areas. Associated species at Idaho sites may include *Artemisia tridentata*, *Eriogonum brevicaule* var. *laxifolium, Stenotus acaulis, Ivesia gordonii, Phlox hoodii*, *Mahonia repens, Achnatherum hymenoides*, and *Pseudoroegneria spicata*.

Distribution

Southwestern Wyoming and adjacent portions of northeastern Utah, very northwestern Colorado, and very southeastern Idaho, with disjunct populations in east-central Nevada. In Idaho, starveling milkvetch is confined to the southeastern corner of the state, in the southern Preuss Range, Sheep Creek Hills, and Bear Lake Plateau, all in Bear Lake County.

Taxonomy

Synonyms = *Tragacantha jejuna* (Wats.) Kuntze and *Phaca jejuna* (Wats.) Rydb. have not been used for many years.

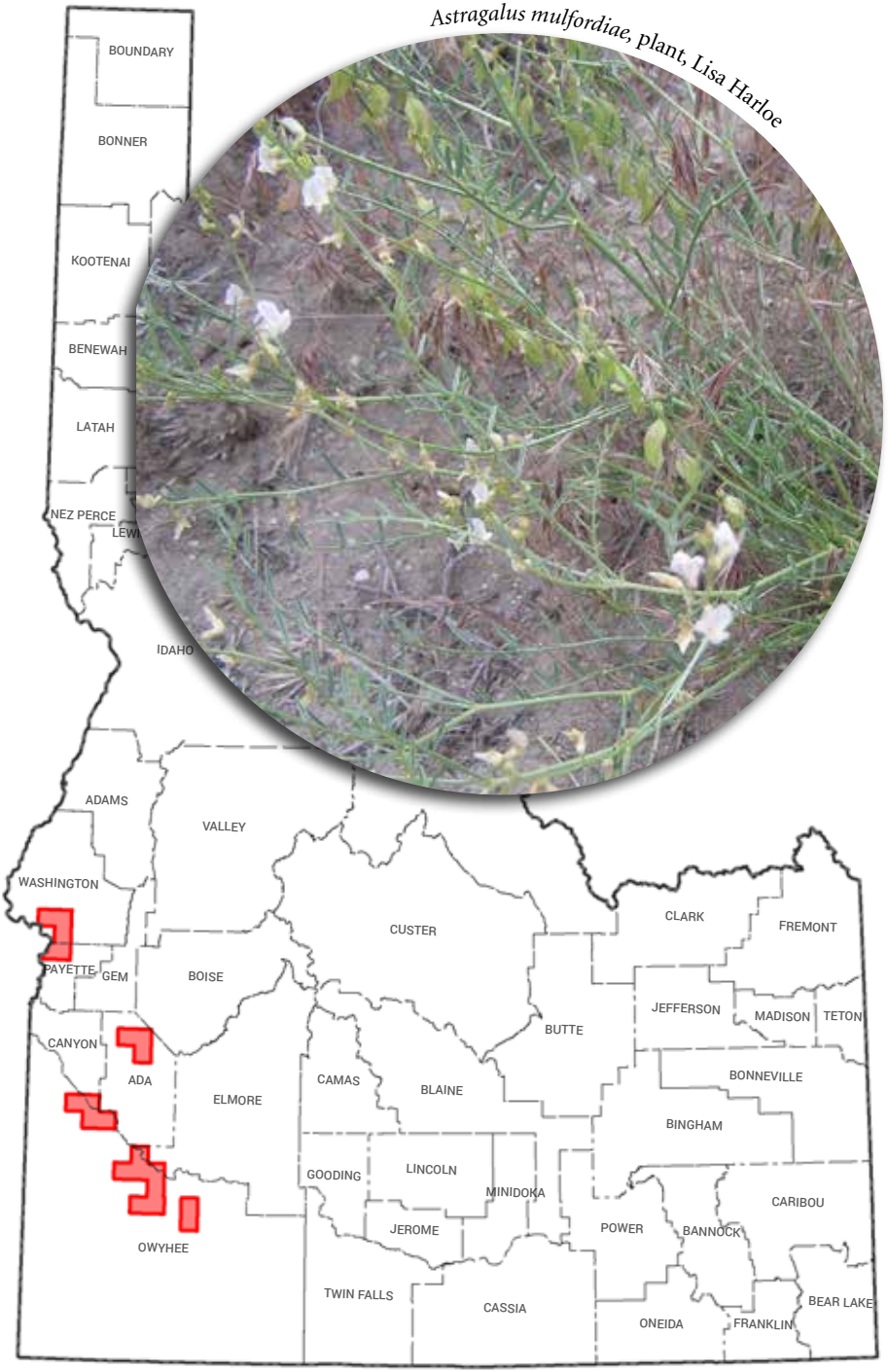
References

Barneby, R.C. 1989. *Astragalus jejunus* S. Wats. Pages 84-85 *In*: Intermountain Flora, Vascular Plants of the Intermountain West, U.S.A. Volume 3, Part B, by A. Cronquist, A.H. Holmgren, N.H. Holmgren, J.L. Reveal, and P.K. Holmgren. The New York Botanical Garden, Bronx, NY.

Mancuso, M., and R.K. Moseley. 1990. Field investigations of *Astragalus jejunus* (starveling milkvetch), *Cryptantha breviflora* (Uinta basin cryptanth) and *Eriogonum brevicaule* var. *laxifolium* (varying buckwheat) on the Caribou National Forest. Idaho Natural Heritage Program, Idaho Department of Fish and Game, Boise, ID. 18 pp plus appendices.

Astragalus jejunus var. *jejunus,* habitat, Lynn Kinter (IDNHP)

Idaho Location Map: Mulford's milkvetch



MULFORD'S MILKVETCH

Astragalus mulfordiae M.E.Jones
Fabaceae (Pea; Legume family)
Conservation ranks: NatureServe G2 S2; BLM Type 2

Description

Freely-branching perennial herb up to 25 cm tall with slender, wiry, thinly hairy stems and a long taproot. Leaves pinnately compound with 11-25 linear, nearly hairless, relatively well-spaced leaflets, each <1 cm long. Inflorescence a loose raceme of pea-like flowers. Corolla usually white, drying yellowish, the banner petal often bluish to purple lined or tinged, 5-9 mm long. Fruit pods 10-16 mm long, with a short stipe, pendulous, papery, 3-sided/edged and triangular in cross-section, thinly short hairy, initially light green, but becoming straw-colored and shiny in ripening.

Field Identification Tips

Distinguished from the other *Astragalus* species with which it might occur by its diffuse growth habit; small whitish flowers; connate, sheath-forming lower stipules; and small, papery, pendulous, three-faced pods.

Similar Species

Astragalus oniciformis looks similar but has a more prostrate habit. It also differs in several characters that require inspection of technical features such as having free stipules versus fused stipules for Mulford's milkvetch; and hairs generally wavy versus straight for Mulford's milkvetch. The ranges of *Astragalus oniciformis* and Mulford's milkvetch do not overlap, being separated by at least 90 miles.

Phenology

Plants generally begin regrowth by mid-March; flowering may begin in April, but usually peaks in May, and sometimes extends into June. Fruits mature during late spring to middle of summer. Plants may remain green throughout the summer or may begin to senesce shortly after fruits mature.

Astragalus mulfordiae, fruit, Lisa Harloe

Habitat

Loose, sandy substrates including unconsolidated sands, decomposed sandstone, and oolitic limestone; primarily on southerly and westerly aspects, on gentle to steep slopes, or on ridges. Populations occur within shrub-steppe and desert shrub vegetation from approximately 670-1100 m (2200-3600 ft) elevation. Associated species may include *Purshia tridentata, Artemisia tridentata, Ericameria nauseosa, Atriplex canescens, Tetradymia* spp., *Hesperostipa comata, Achnatherum hymenoides, Aristida purpurea* var. *longiseta, Bromus tectorum, Linanthus pungens, Chaenactis douglasii, Oenothera pallida*, and *Erodium cicutarium*.

Distribution

Endemic to the western Snake River Plain in southwestern Idaho and adjacent eastern Oregon. Within the Idaho portion of its range, Mulford's milkvetch occurs in three distinct geographic areas – the Boise foothills in Ada County; the Owyhee Front south of the Snake River in Owyhee County from near the towns of Bruneau in the east to Murphy in the west; and east and southeast of the town of Weiser and east of the town of Payette in Payette and Washington counties.

Taxonomy

Synonym = *Onix mulfordae* (Jones) Rydb.

References

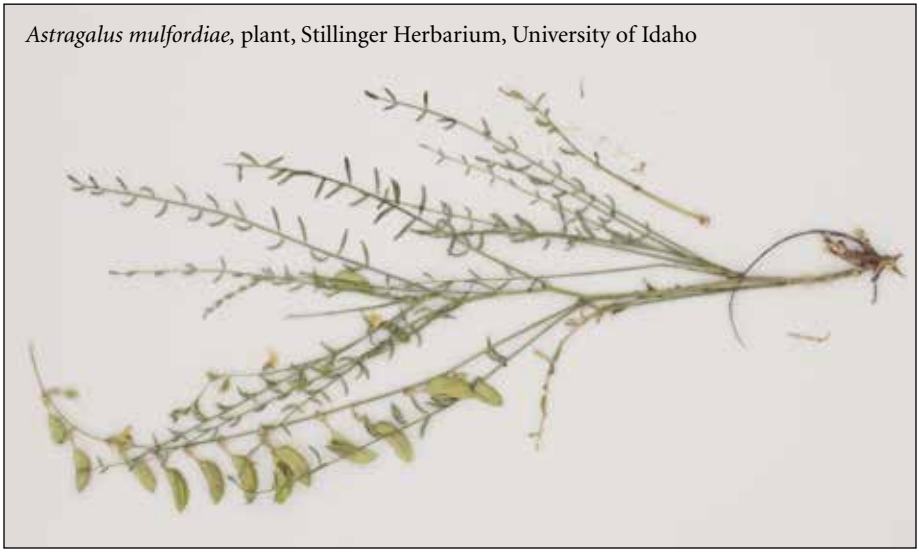
Barneby, R.C. 1989. *Astragalus mulfordiae* M.E. Jones. Pages 96-97 In: Intermountain Flora, Vascular Plants of the Intermountain West, USA. Volume 3, Part B, by A. Cronquist, A.H. Holmgren, N.H. Holmgren, J.L. Reveal, and P.K. Holmgren. The New York Botanical Garden, Bronx, NY.

Mancuso, M. 1999. A review of *Astragalus mulfordiae* (Mulford's milkvetch) in Idaho, and results of field investigations in the Owyhee Front and Boise Foothills. Idaho Conservation Data Center, Idaho Department of Fish and Game, Boise, ID. 26 pp plus appendices.

Moseley, R.K. 1989. Report on the conservation status of *Astragalus mulfordiae* in Idaho. Idaho Natural Heritage Program, Idaho Department of Fish and Game, Boise, ID. 27 pp plus appendices.

Oregon Department of Agriculture. n.d. Mulford's milkvetch (*Astragalus mulfordiae*). Available online: http://www.oregon.gov/ODA/shared/Documents/Publications/PlantConservation/AstragalusMulfordiaeProfile.pdf.

Astragalus mulfordiae, plant, Stillinger Herbarium, University of Idaho



Idaho Location Map: Picabo milkvetch

PICABO MILKVETCH

Astragalus oniciformis Barneby
Fabaceae (Pea; Legume family)
Conservation ranks: NatureServe G3 S3; BLM Type 3

Description

Wiry perennial herb with several to numerous prostrate to decumbent, relatively sparsely leafy stems 10-25 cm long from a slender taproot. Short white hairs cover the herbage. Leaves pinnately compound with 17-25, elliptic to oval, well-spaced leaflets, each <1 cm long. Inflorescence a loose raceme of 6-12 small, pea-like, cream-yellow flowers; the banner 5-7 mm long. Fruit pods 7-12 mm long, with a short stipe, pendulous, papery, 3-sided/edged and more or less triangular in cross-section, light green, and covered with short hairs.

Field Identification Tips

Recognized by its wiry, prostrate, multi-stemmed habit, small leaflets, small cream-yellow flowers, and small, hanging, greenish, 3-sided fruit pods.

Similar Species

Astragalus purshii and *A. lentigenosus* can occur with Picabo milkvetch. Both are readily distinguished by their larger leaflets, flowers, and fruits. The distribution of *Astragalus atratus* var. *inseptus* partly overlaps that of Picabo milkvetch. It has small leaflets like Picabo milkvetch, but differs in having larger whitish flowers and a larger, leathery-textured pod that is not conspicuously 3-sided. *Astragalus mulfordiae* looks similar to Picabo milkvetch, but their known ranges are separated by at least 90 miles.

Phenology

Flowering begins during mid-May most years. Fruit maturation proceeds through June, with most seed dispersal probably sometime in July. There can be wide variation in these dates, possibly by as much as 3-4 weeks, depending on temperature patterns during the spring.

Astragalus oniciformis, habitat, Lynn Kinter (IDNHP)

Habitat

Picabo milkvetch occurs in basins, bowls, and flats within rolling basalt topography having deep, stable, well-drained, sandy or sandy-loam soils. It occurs almost exclusively within the *Artemisia tridentata* ssp. *wyomingensis*/*Hesperostipa comata* habitat type. *Hesperostipa comata* and *Achnatherum hymenoides*, grass species indicative of sandy soils in the Snake River Plain, are the best indicators of Picabo milkvetch habitat within the sagebrush-steppe. Other associated native species may include *Artemisia tridentata* ssp. *tridentata*, *A. tripartita*, *Ericameria nauseosa*, *Chrysothamnus viscidiflorus*, *Astragalus purshii*, *Gymnosteris nudicaulis*, *Sphaeralcea munroana*, and *Chaenactis douglasii*. Populations are known from between approximately 1130-1585 m (3700-5200 ft) elevation. Picabo milkvetch does not occupy unstable sand dune sites.

Distribution

Endemic to the north-central portion of the eastern Snake River Plain in Lincoln, Minidoka, and southern Blaine counties, Idaho.

Taxonomy

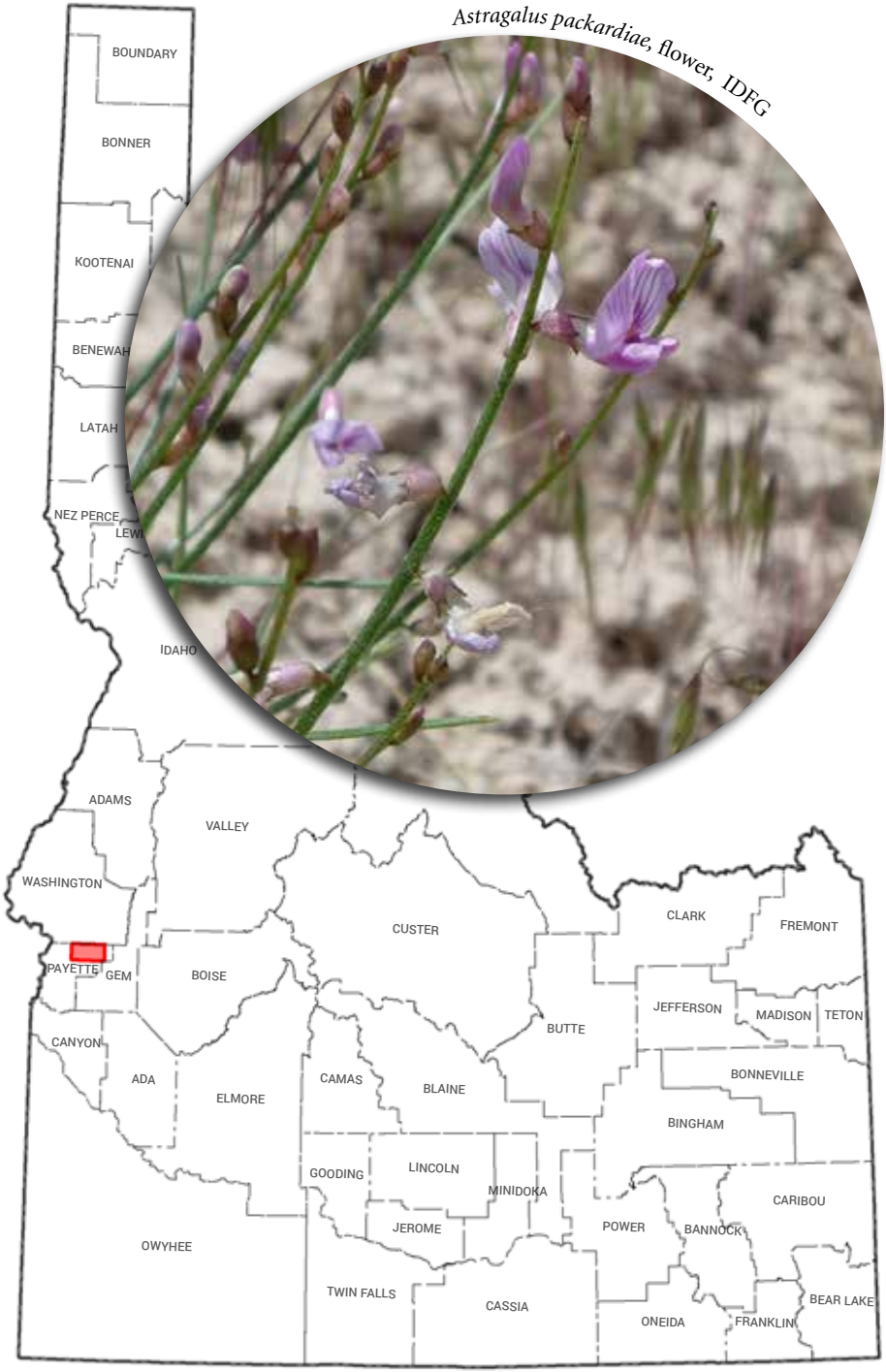
No synonyms.

References

Barneby, R.C. 1989. *Astragalus oniciformis* Barneby. Pages 94-95 *In*: Intermountain Flora, Vascular Plants of the Intermountain West, U.S.A. Volume 3, Part B, by A. Cronquist, A.H. Holmgren, N.H. Holmgren, J.L. Reveal, and P.K. Holmgren. The New York Botanical Garden, Bronx, NY.

Moseley, R.K., and S.J. Popovich. 1995. The conservation status of Picabo milkvetch (*Astragalus oniciformis* Barneby). Idaho Conservation Data Center, Idaho Department of Fish and Game, Boise, ID. 27 pp plus appendices.

Idaho Location Map: Packard's milkvetch



PACKARD'S MILKVETCH

Astragalus packardiae (Barneby) J.F. Sm. & Zimmers
Fabaceae (Pea, Legume family)
Conservation ranks: NatureServe G1 S1; BLM Type 2

Description

Erect perennial herb with most plants 15-40 cm tall and having multiple stems arising from the root crown. Plants have a dull green color due to appressed whitish hairs. Leaves pinnately compound with only a few, small, well-spaced leaflets generally no more than 1 mm wide and 7 mm long; or reduced to a naked rachis (no leaflets). Inflorescence a raceme of light purplish, pea-shaped flowers approximately 1 cm long. Sepals about 4 mm long with black hairs. Fruit pods pendulous, slightly inflated, narrowly ellipsoid in shape, lustrous, yellow-green with or without red mottling, and up to approximately 4 cm long.

Field Identification Tips

Distinguished by its erect, multi-stemmed habit, leaves with only a few small leaflets or the rachis leafless, small, light purplish flowers, and hanging, shiny, slightly inflated, yellowish-green to almost light gold pods that sometimes have red mottling. Be aware that in dry years many plants may be reduced to a single stem <20 cm tall (even <10 cm) and not produce flowers/fruits. Furthermore, a percentage of plants may remain dormant and not produce above ground stems in dry years.

Similar Species

Astragalus is a large, but distinctive genus in southwestern Idaho. Six other species of *Astragalus* are known to occur within the range of Packard's milkvetch. *Astragalus purshii*, *A. lentiginosus*, *A. beckwithii*, and *A. nudisiliquus* are readily distinguished from Packard's milkvetch by their matted to decumbent habit, larger, more numerous and evenly distributed leaflets, larger flowers, and much different pods. *Astragalus eremiticus* has an erect habit, but differs by having leaves with numerous leaflets, larger, yellowish flowers, and erect, stiff pods. Superficially, *A. filipes* looks the most similar, but differs by tending to be a taller

plant with a brighter green color, and having larger, more numerous leaflets, larger, cream-colored flowers, and a compressed pod hanging from an elongated stipe.

Phenology

Flowering period varies, but usually begins around the middle of May and peaks by the end of the month. Flowers and developing fruits often occur on the same inflorescence.

Astragalus packardiae, habitat, Michael Mancuso

Habitat

Restricted to light-colored, sparsely vegetated sedimentary outcrops with high bare ground cover between approximately 825-975 m (2700-3200 ft) elevation. These visually distinct, edaphic outcrops vary in size, with the majority covering <1 acre. Packard's milkvetch occurs on all aspects, but southeastern to westerly exposures are the most common. Unburned outcrops typically support an open canopy of *Artemisia tridentata*.

Astragalus packardiae, habitat, Michael Mancuso

Distribution

Narrowly endemic to an approximately 26 km2 (10 mi2) area in north-eastern Payette County, Idaho, approximately 14 miles east of the town of Payette.

Taxonomy|

Synonym = *Astragalus cusickii* Gray var. *packardiae* Barneby. Packard's milkvetch was recently elevated to the rank of species based on a molecular phylogenetic analysis of the *Astragalus cusickii* complex.

Astragalus packardiae, habitat, Michael Mancuso

Astragalus packardiae, fruits red mottled, Michael Mancuso

References

Barneby, R.C. 1989. *Astragalus cusickii* A. Gray. Pages 78-80 *In*: Intermountain Flora. Vascular Plants of the Intermountain West, U.S.A. Vol. 3 Part B, by A. Cronquist, A.H. Holmgren, N.H. Holmgren, J.L. Reveal, P.K. Holmgren. The New York Botanical Garden, Bronx, NY.

Mancuso, M. 1999. The status of *Astragalus cusickii* var. *packardiae* (Packard's milkvetch). Idaho Conservation Data Center, Idaho Department of Fish and Game, Boise, ID. 15 pp plus appendices.

Smith, J.F., and J.C. Zimmers. 2017. New combination in *Astragalus* (Fabaceae). Phytoneuron 2017-38: 1–3. Published 1 June 2017.

Astragalus packardiae, fruits not red mottled, Tom McGinnis (BLM)

Idaho Location Map: Barren milkvetch

Astragalus sterilis, flower and fruit, IDFG

BARREN MILKVETCH

Astragalus sterilis Barneby
Fabaceae (Pea; Legume family)
Conservation ranks: NatureServe G2; BLM Type 3

Description

Perennial herb 7-15 cm tall, with stiff, wiry stems arising either tufted, or singly, or a few together from an underground root crown. Leaves pinnately compound with 7-11 well-spaced, small, linear to linear-elliptic leaflets, each 1-5 mm long and having straight, stiff, appressed hairs on both sides. Inflorescence a loosely 1-5 flowered slender raceme. Calyx bell-shaped, 2.5-4 mm long, with very short teeth. Corolla pale yellowish, white, or pinkish, 8-10 mm long. Fruit pod pendulous, 2-2.5 cm long, bladdery-inflated, papery, hairless, translucent, and red-mottled.

Field Identification Tips

Distinguished by its low stature, tiny, well-spaced to obsolete leaflets, small flowers, and hanging, inflated, brightly red-mottled pods. Furthermore, plants are rhizomatous in some habitats, an uncommon habit for regional *Astragalus*.

Similar Species

Astragalus is a large, but distinctive genus in southwestern Idaho. Most species with a range that overlaps barren milkvetch have a habit that differs from barren milkvetch, varying from being more tightly tufted and compact, to prostrate or decumbent, or considerably taller. Most also have some combination of more numerous and evenly distributed leaflets, larger flowers, and much different pods. Barren milkvetch is most similar to the *A. cusickii* complex, but differs from these related species in having an underground root crown, smaller leaflets, and pods consistently bright red-mottled.

Phenology

Flowering May and June. Only a small subset of plants may be reproductive in some populations some years.

Astragalus sterilis, habitat, IDNHP

Habitat

Dry bluffs, knolls, and slopes with ashy, gravelly, sandy-clay, or clayey soils; usually on ash-flow tuff exposures of Sucker Creek Formation geology at elevations ranging from 820-1460 m (2700-4800 ft). Although the immediate habitat may be sparsely vegetated, barren milkvetch occurs within sagebrush scrub communities. Associated species may include *Artemisia tridentata* ssp. *wyomingensis, Gutierrezia sarothrae, Salvia dorrii, Eriogonum novonudum, Eriophyllum lanatum, Stephanomeria tenuifolia, Senecio ertterae, Linum lewisii, Camissonia claviformis,* and *Poa secunda.*

Distribution

Endemic to the Owyhee Uplands, occurring near Succor Creek and the lower Owyhee River in Malheur County in southeastern Oregon and in adjacent Owyhee County, Idaho.

Taxonomy

Synonym = *Astragalus cusickii* Gray var. *sterilis* (Barneby) Barneby. Barren milkvetch was recently reinstated to the rank of species based on a molecular phylogenetic analysis of the *Astragalus cusickii* complex.

Astragalus sterilis, plant with flowers, IDNHP

References

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Available on-line: http://www.oregon.gov/ODA/shared/Documents/Publications/Plant Conservation/Astragalus CusickiiSterilisProfile.pdf.

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Astragalus sterilis, plant with flower and fruit, IDFG

Idaho Location Map: Tweedy's reedgrass

Calamagrostis tweedyi, inflorescence, Steve Rust

TWEEDY'S REEDGRASS

Calamagrostis tweedyi (Scribner) Scribner
Poaceae (Grass family)
Conservation ranks: NatureServe G3 S2; BLM Type 2

Description

Rhizomatous perennial grass 4-15 dm tall. Leaves flat, 5-13 mm broad and up to 12 cm long (may be narrower and longer on short vegetative shoots), with open leaf sheaths and lacking auricles. Inflorescence of numerous spikelets borne in a compact panicle 8-16 cm long and 2 cm broad. Spikelet with 2 glumes of approximately equal size enclosing a single floret. The awn of each floret sharply bent, arising from near middle of lemma, and exserted beyond the glume about 5 mm. The callus slightly bearded with hairs less than 1 mm long.

Field Identification Tips

The combination of broad, flat leaves, compact inflorescence with numerous one floret spikelets, and each floret with a relatively long, bent awn aid in field recognition. Vegetative plants consist of multiple shoots widely spaced along the rhizome.

Similar Species

Distinguished from other species of *Calamagrostis* in Idaho by having broad, flat leaves, florets with a relatively long, sharply bent awn, and a callus of sparse, short hairs. *Calamagrostis rubescens* can co-occur with Tweedy's reedgrass in Idaho, and is distinguished by its numerous, narrow, densely arranged leaves and awns which exceed the glumes by no more than 1 mm. *Calamagrostis canadensis* may be found in moist habitats in the vicinity of Tweedy's reedgrass, but differs by its densely rhizomatous habit, and florets with a long, densely bearded callus and shorter awn.

Habitat

In Idaho, Tweedy's reedgrass is confined to versions of the *Abies lasiocarpa/Xerophyllum tenax* forest habitat type, predominately on gentle to moderately steep northwest- to northeast-facing ridges. Pole- or medium-sized *Pinus contorta* are typically the dominant conifer. Sites include burned and timber harvest areas, as well as open forest.

Calamagrostis tweedyi, plant, Steve Rust

Distribution

Idaho populations are concentrated along an approximately 10 km (6 mi) section of the Warren Creek - South Fork Salmon River divide extending northward from the Warren Summit area. Another population is known a few miles further east on Smith Knob. The locations are in the Salmon River Mountains, in Idaho County. Outside Idaho, Tweedy's reedgrass is known from western Montana and the Wenatchee Mountains in Washington. There are other suspected populations within this range that have not been confirmed.

Taxonomy

Synonym = *Deyeuxia tweedyi* Scribn.

References

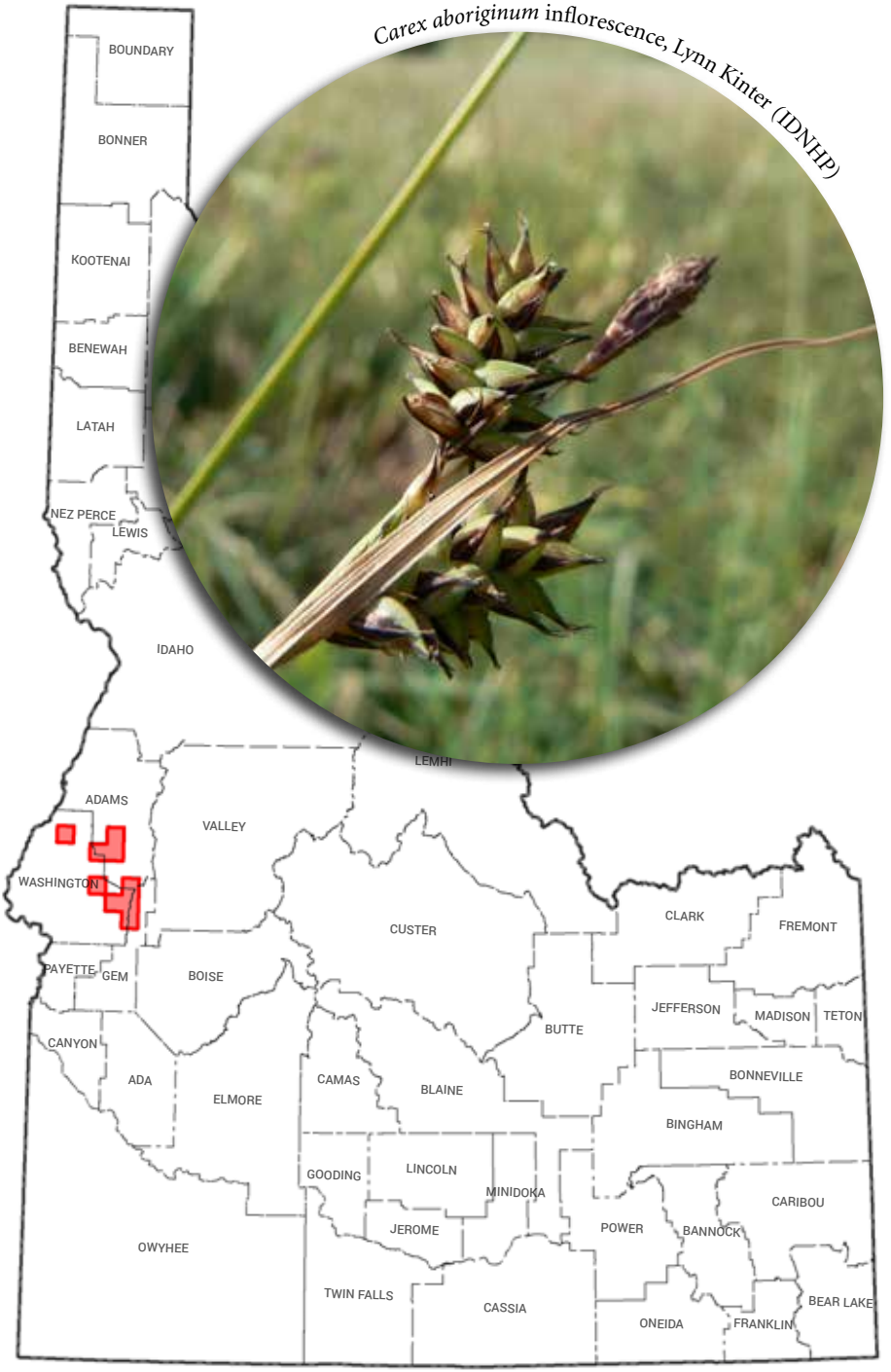
Montana Natural Heritage Program. n.d. Cascade reedgrass - *Calamagrostis tweedyi*. Montana Field Guide. Montana Natural Heritage Program, Helena MT. Available on-line: http://FieldGuide.mt.gov/speciesDetail.aspx?elcode=PMPOA17150.

Moseley, R.K. 1988. Field investigation of *Calamagrostis tweedyi*, a Region 4 sensitive species, on the Payette National Forest. Idaho Natural Heritage Program, Idaho Department of Fish and Game, Boise ID. 8 pp plus appendices.

Rust, S.K. 2017. Notes on the ecology of Tweedy's reedgrass. Sage Notes (Idaho Native Plant Society newsletter) Vol. 39 No. 4.

Calamagrostis tweedyi, plant,
Stillinger Herbarium, University of Idaho

Idaho Location Map: Indian Valley sedge



Carex aboriginum inflorescence, Lynn Kinter (IDNHP)

INDIAN VALLEY SEDGE

Carex aboriginum M.E. Jones
Cyperaceae (Sedge family)
Conservation ranks: NatureServe G1 S1; BLM Type 2

Description

Perennial consisting of multiple stems loosely clustered on short rhizomes, the plants often forming distinct clusters that may cover up to $1m^2$. Leaves blueish-green, flat, up to 4 mm wide, and restricted to the lower one-third of the stem. Flowering stems typically 40-70 cm, but up to 1 m tall, exceeding the leaves, each one with 3 or 4 erect or ascending, short, cylindrical spikes up to 1.5 cm long and whose weight tends to cause the stems to droop. The terminal spike staminate or a mix of both staminate and pistillate flowers with the pistillate on top. Bract subtending the lowest spike equals or clearly exceeds the inflorescence. Pistillate scales reddish-brown and narrower and shorter than the 3-stigma perigynia. Mature perigynia coppery-tinted pale brown, 5-6.5 mm long, and with a prominent beak.

Field Identification Tips

There are approximately 100 species of *Carex* in Idaho. Blueish-green leaves, the shortly rhizomatous habit, and loosely clustered, tall flowering stems with 3 or 4 short, cylindrical spikes help distinguish Indian Valley sedge in the field.

Similar Species

Carex raynoldsii resembles Indian Valley sedge, but differs by having smaller perigynia (<4.5 mm long) that abruptly contract to a short, scarcely bidentate beak. Furthermore, *C. raynoldsii* has stiff, ascending leaves that are often wider than the lax leaves of Indian Valley sedge. *Carex buxbaumii* also looks similar, but it has pistillate scales distinctly longer than its perigynia, and in Idaho grows at higher elevations in very wet meadow and fen habitats. Sedges most likely to occur with or near Indian Valley sedge include *C. athrostachya*, *C. deweyana*, *C. nebrascensis, C. praegracilis*, and *C. sheldonii*. All have spikes distinctly different compared to Indian Valley sedge. In addition, all except *C. sheldonii* have pistillate flowers with 2 stigmas. Perigynia for *C. sheldonii* are larger and pubescent.

Phenology

Indian Valley sedge completes its reproductive cycle early in the growing season compared to many other *Carex* species in Idaho. Leaves and flowering stems grow rapidly and plants reach full vegetative height by late May. Plants flower from mid-May to early June and the perigynia and achenes mature during June. Depending on seasonal weather, flowering and perigynia maturation can vary year to year by at least two weeks. The best period to survey for the species is roughly late May through mid-June, when the blue-green leaves and tall flowering stems are most visible.

Habitat

Indian Valley sedge grows on ephemerally moist sites, including mesic graminoid meadows and grass-dominated gaps within scrub-shrub riparian zones between 875-1355 m (2875-4445 ft) elevation. It occurs on low alluvial terraces adjacent to intermittent creeks, but has also been collected along a wet ditch. In general, Indian Valley sedge habitat is transitional between wet, flooded sites and dry, upland areas. Associated species may include *Juncus howellii, Potentilla gracilis, Camassia quamash, Poa pratensis, Carex* spp., *Danthonia californica, Hordeum, brachyantherum, Crataegus douglassii*, and *Rosa woodsii*.

Distribution

A narrow endemic limited to southern Adams and adjacent Washington counties in west-central Idaho.

Taxonomy

No synonyms.

References

Murphy, C. 2002. The status of *Carex aboriginum* (Indian Valley Sedge) in Idaho - an update. Idaho Conservation Data Center, Idaho Department of Fish and Game, Boise, ID. 22 pp plus appendices.

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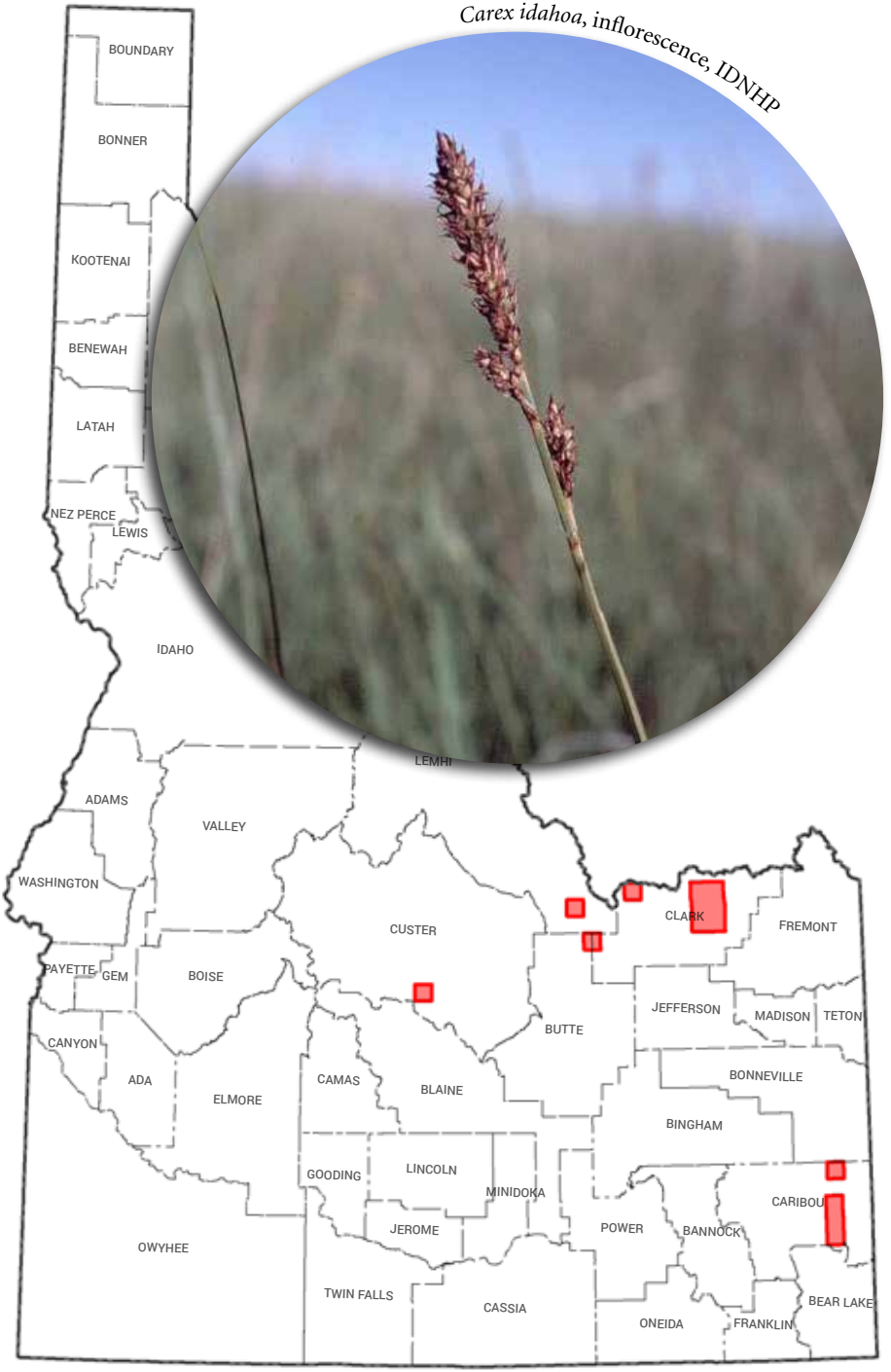
Carex aboriginum habitat, Lynn Kinter (IDNHP)

Carex aboriginum plant, Tucker Herbarium, College of Idaho

Idaho Location Map: Idaho sedge



Carex idahoa, inflorescence, IDNHP

IDAHO SEDGE

Carex idahoa L.H. Bailey
Cyperaceae (Sedge family)
Conservation ranks: NatureServe G2G3 S2; BLM Type 2

Description

Short-rhizomatous perennial producing loose bunches of erect stems 20-60 cm tall. Leaves flat, 2-5 mm wide, mostly crowded near base of plant. Inflorescence an erect, terminal, oblong-cylindrical spike, 2-3 cm long, solitary, or often with 1-3 additional, shorter lateral spikes below. Uppermost spike larger than the others, pistillate, or bisexual with staminate flowers below. Lower spikes (if present) with all pistillate flowers. Scales of pistillate flowers dark brown to black with a pale mid stripe and usually as large as the 3-stigma perigynia. Perigynia ascending, 2-3 mm long, with a brown serrulate beak about 0.3 mm long.

Field Identification Tips

The turf-forming habit, erect terminal spike longer and wider than the spikes below it, the lateral spikes containing only pistillate flowers, and the blackish pistillate scales help identify this species.

Similar Species

Carex parryana is difficult to distinguish from Idaho sedge. It differs by having cylindrical spikes all more-or-less equal in size. In contrast, the terminal spike for Idaho sedge is club-shaped and larger than the lateral spikes. *Carex praegracilis* differs by having tannish pistillate scales, pistillate flowers with 2 stigmas, and bisexual spikes that have staminate flowers above the pistillate flowers.

Phenology

Fruits mature in July - August.

Habitat

Flat to gently sloping, subirrigated, typically graminoid-dominated meadows associated with low-gradient streams or springs and seeps at mid-elevations in valleys and the mountains. Sites are wet early in the growing season, but only moist later in the summer, occupying the ecotone between permanently wet and drier shrub-steppe areas. Idaho

sedge has a tendency to occur in alkaline meadows associated with calcareous parent material. Associated species may include *Deschampsia cespitosa, Juncus arcticus* ssp. *littoralis*, *Carex praegracilis*, *C. nebrascensis*, *Poa pratensis*, and *Dasiphora fruticosa.*

Carex idahoa, habitat, IDNHP

Distribution

California, Oregon, Idaho, Utah, Wyoming, and Montana. In Idaho, populations are known from the east-central and southeastern parts of the state.

Taxonomy

Synonym = *Carex parryana* Dewey spp. *idahoa* (L. H. Bailey) D.F. Murray

References

Montana Natural Heritage Program. n.d. Idaho Sedge - *Carex idahoa*. Montana Field Guide. Montana Natural Heritage Program, Helena, MT. Available on-line: http://FieldGuide.mt.gov/speciesDetail.aspx?elcode=PMCYP036E0

Wilson, B.L., R. Brainerd, D. Lytjen, B. Newhouse, and N. Otting. 2008. Field Guide to the Sedges of the Pacific Northwest. Second edition. Oregon State University Press, Corvallis. 432 pp.

Right: *Carex idahoa*, habitat, Stillinger Herbarium, University of Idaho

Idaho Location Map: Christ's paintbrush

Castilleja christii, inflorescence, USFWS

CHRIST'S PAINTBRUSH

Castilleja christii N. Holmgren
Orobanchaceae (Broomrape family)
Conservation rank: NatureServe G1 S1

Description

Perennial herb 15-30 cm tall with plants usually consisting of several stems clustered together, the stems usually unbranched. Herbage smooth or with bristle-like hairs, at least some of which are gland-tipped near the inflorescence. Leaves narrowly to broadly lance-shaped, with 1 or occasionally 2 pairs of lateral lobes, although sometimes without any lobes. Inflorescence glandular-hairy, pale to brighter yellow or yellow-orange. Bracts that have 1 or 2 pairs of narrow lateral lobes supply most of the color and partially conceal the relatively inconspicuously colored flowers. The inflorescence usually lacks a white exudate, but if present, covers <25% of inflorescence. Floral characteristics include the calyx 17-24 mm long and corolla 20-30 mm long, with its hooded upper portion (galea) 8-11 mm long.

Field Identification Tips

The yellow to yellow-orange inflorescence with gland-tipped hairs help distinguish Christ's paintbrush in the Mount Harrison area.

Similar Species

The known distribution of Christ's paintbrush is restricted to Mount Harrison. The three other species of *Castilleja* that overlap this distribution include *Castilleja linariifolia, C. miniata, and C. pallescens var. inverta*. At Mount Harrison, *C. pallescens var. inverta* blooms just as the snow melts in late June to mid-July. Christ's paintbrush and the other two *Castilleja* species typically do not begin to bloom until mid-July or later. *Castilleja linariifolia* and *Castilleja miniata* both differ by having red or reddish-orange inflorescences, usually being taller than 30 cm, often branching above the base, and usually having all leaves entire. Furthermore, the calyx (not the bracts) provides most of the color for *Castilleja linariifolia*; while the inflorescence for *Castilleja miniata* often has a white exudate. *Castilleja pallescens var. inverta* differs by its generally shorter stature (up to 15 cm tall), lack of glandular hairs in the inflorescence, and relatively rigid flower bracts

with prominent veins.

Phenology

Peak flowering occurs from mid-July to mid-August depending on the year. Fruits begin to mature soon afterward and probably dehisce by mid-September.

Habitat

Christ's paintbrush occurs in three subalpine plant community types at Mount Harrison: (1) graminoid meadow – typically dominated by *Festuca idahoensis* and *Elymus trachycaulus*; (2) snowbed – forb dominated in areas of the latest-lying snowbanks, with *Solidago multiradiata*, *Symphyotrichum foliaceum*, *Achillea millefolium*, and *Penstemon rydbergii* being common; and (3) *Artemisia tridentata* ssp. *vaseyana*/*Festuca idahoensis*.

Distribution

The global distribution of Christ's paintbrush is confined to a single population covering approximately 200 acres on the summit of Mount Harrison, the highest peak at the northern end of the Albion Mountains, in Cassia County, Idaho.

Castilleja christii, habitat, USFWS

Castilleja christii, plant, Michael Mancuso

Taxonomy

No synonyms. Research has shown Christ's paintbrush to be a hybrid derivative of *Castilleja linariifolia* and *C. miniata*. Despite its hybrid origin, Christ's paintbrush is a well-defined species.

References

Clay, D.L. 2011. Homoploid hybrid speciation in a rare endemic *Castilleja* from Idaho (*Castilleja christii*, Orobanchaceae). M.S. thesis, Boise State University, Boise, ID. 167 pp.

Moseley, R.K. 1993. The status and distribution of Christ's Indian paintbrush (*Castilleja christii*) and Davis' wavewing (*Cymopterus davisii*) in the Albion Mountains, Sawtooth National Forest and City of Rocks National Reserve. Idaho Conservation Data Center, Idaho Department of Fish and Game, Boise, ID. 18 pp plus appendices.

U.S. Fish and Wildlife Service. n.d. Christ's paintbrush (*Castilleja christii*). Environmental Conservation On-line System (ECOS). Species Profile for Christ's paintbrush (*Castilleja christii*). Available on-line: https://ecos.fws.gov/ecp0/profile/speciesProfile?spcode=Q0CI.

Idaho Location Map: Cusick's false yarrow

Chaenactis cusickii, plant with flower heads, Lisa Harloe

CUSICK'S FALSE YARROW

Chaenactis cusickii Gray
Asteraceae or Compositae (Aster or Sunflower family)
Conservation ranks: NatureServe G3 S2; BLM Type 2

Description

Compact annual up to 15 cm tall. Small unbranched plants are terminated by one flowering head, while larger, branched individuals have several to many flowering heads. Stems and leaves more or less succulent and mostly without hairs, or occasionally with a thin, uneven woolly pubescence. Leaves mostly narrow, strap-shaped, and entire, or sometimes with a few small lobes. Flower heads consist of several white disc flowers subtended by involucre bracts 7-9 mm high. Ray flowers are absent; the pappus of 8-14 scales.

Field Identification Tips

Low stature, herbage hairless or with only thin pubescence, narrow, usually entire leaves, and heads with only disc flowers help identify Cusick's false yarrow, especially in combination with its sparely vegetated clay outcrop habitat.

Similar Species

Three other *Chaenactis* species are known from southwestern Idaho - *C. douglasii, C. macrantha,* and *C. stevioides.* All have leaves 1 or more times pinnatifid, in sharp contrast to the mostly entire leaves for Cusick's false yarrow. Furthermore, *C. douglasii,* and *C.steviodes* tend to have glandular hairs in at least the upper part of the plant.

Phenology

Depending on seasonal climate conditions and elevation, flowering begins in late April or May, and is usually complete by mid-June. Plant size and abundance can vary from year to year in relation to annual precipitation patterns.

Habitat

In Idaho, Cusick's false yarrow is confined to open, sparsely vegetated outcrops of Poison Creek Formation and Succor Creek Formation clay between 670-1300 m (2200-4270 ft) elevation. The high shrink-swell properties of the clay create conditions on which few other plant species are able to establish. Associated species may include *Amsinckia* spp., *Camissonia claviformis, Cleomella hillmanii, Phacelia lutea, Mentzelia mollis*, and *Atriplex* spp. Shrub-steppe (or former shrub-steppe) vegetation surrounds the outcrops.

Chaenactis cusickii, habitat, Lisa Harloe

Distribution

Endemic to southwestern Idaho and adjacent eastern Oregon. Populations are known from northwestern Owyhee County (and formerly Canyon County) in Idaho, and Malheur County, Oregon.

Taxonomy

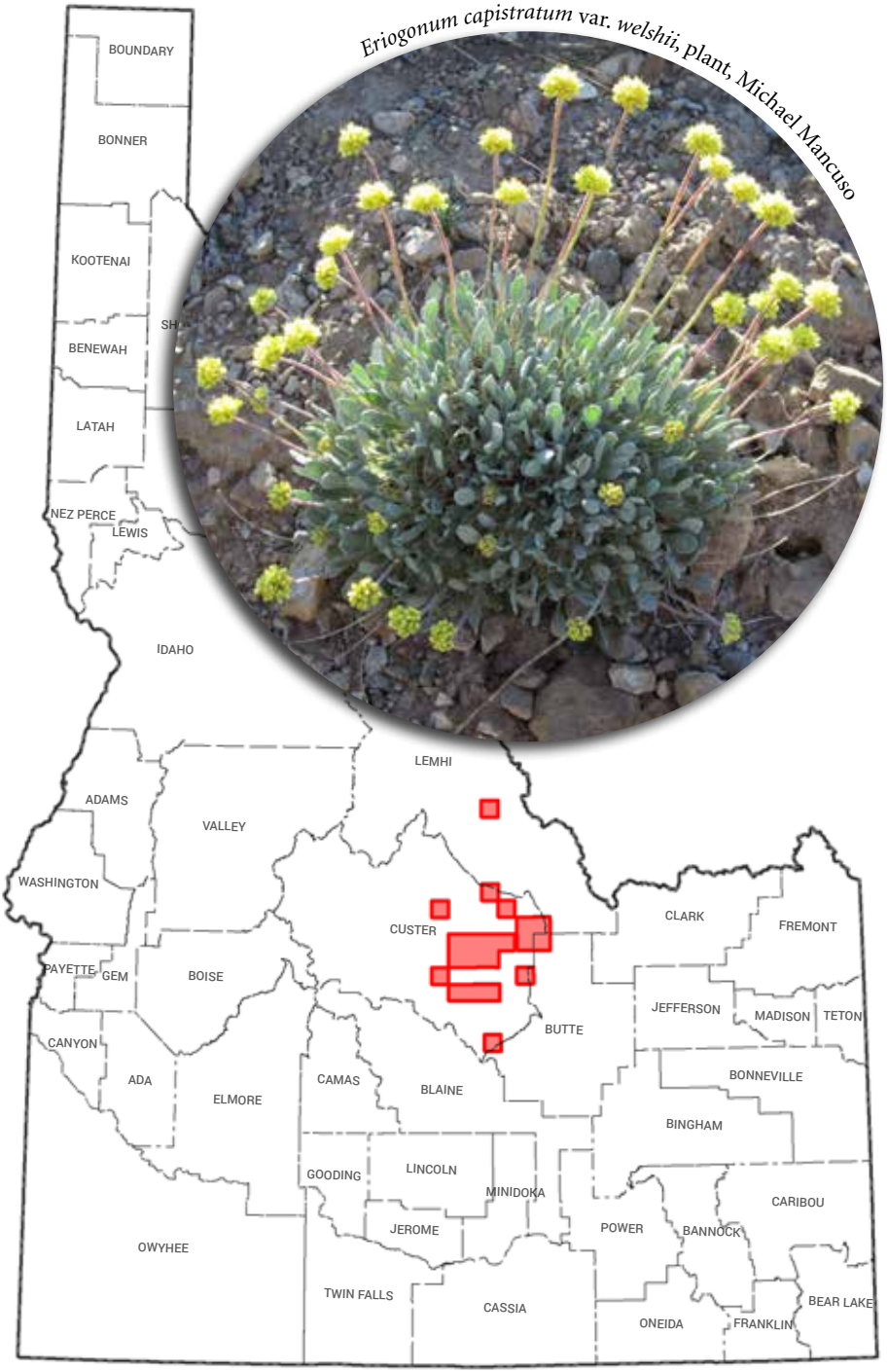
No synonyms.

Chaenactis cusickii, plant with flower heads, Lisa Harloe

References

Moseley, R.K. 1994. The status and distribution of Cusick's false yarrow (*Chaenactis cusickii*) in Idaho. Idaho Conservation Data Center, Idaho Department of Fish and Game, Boise, ID. 12 pp plus appendices.

Idaho Location Map: Welsh's buckwheat



Eriogonum capistratum var. *welshii*, plant, Michael Mancuso

WELSH'S BUCKWHEAT

Eriogonum capistratum Reveal var. *welshii* Reveal
Polygonaceae (Buckwheat family)
Conservation ranks: NatureServe G4T2Q S2; BLM Type 2

Description

Low, cushion forming perennial with bluish-green foliage. Leaves all basal, elliptic to spoon-like in shape, 5-12 mm long, and covered with dense, soft, white, wooly, non-glandular hairs. Flowering stems leafless, 2-10 cm long, and covered with dense, sometimes tangled, long, wooly hairs. The tight, ball-like inflorescence terminating the flowering stem subtended by a bell-shaped, 5-7-toothed involucre covered with sparse to dense soft, wooly hairs. Flowers bright to sometimes dull yellow, 2-3 mm long, without hairs, and with a greenish to reddish-brown mid-rib. The flowers often turn rosy-yellow upon aging.

Field Identification Tips

Welsh's buckwheat is distinguished by its low, matted habit, bluish-green leaves covered by white tomentum, and head-like inflorescence of yellow flowers on leafless, densely hairy flowering stems. Some populations of Welsh's buckwheat seem to have intermediate characteristics that intergrade with related species known from east-central Idaho.

Similar Species

Several *Eriogonum* species within the range of Welsh's buckwheat look similar. *Eriogonum mancum* can be distinguished by its usually cream to pinkish colored flowers. Without flowers it differs by leaves having grayish wooly hairs, versus the white wooly tomentum of Welsh's buckwheat, although this feature is not always easy to distinguish in the field. *Eriogonum verrucosum* occurs on volcanic substrates near the northern edge of Welsh's buckwheat range and differs by having hairless to only thinly hairy flowering stems and distinct, tiny blisters/warts on the flowers. *Eriogonum capistratum* var. *capistratum* has hairless or glandular flowering stems, not covered with white, wooly hairs. It usually occurs at higher elevations compared to Welsh's buckwheat.

Phenology

Flowering peaks in late June to early July most years.

Habitat

Primarily on dry, windswept, sparsely vegetated sites with shallow, clay-rich soils. It occurs on both calcareous (mainly limestone) or Challis Volcanics Group substrates, generally on convex-shaped, gently sloping, but sometimes flat or steeper, sites. Occurrences are known from valley bottom alluvial fans and benches to foothill and lower mountain ridges and bluffs between approximately 1830-2380 m (6000-7800 ft) elevation.

Distribution

Endemic to the valleys and foothills of the upper Big Lost, Little Lost, and Pahsimeroi rivers, and immediate vicinity, in Custer and adjacent portions of Lemhi and Butte counties in east-central Idaho.

Eriogonum capistratum var. *welshii*, habitat, IDNHP

Taxonomy

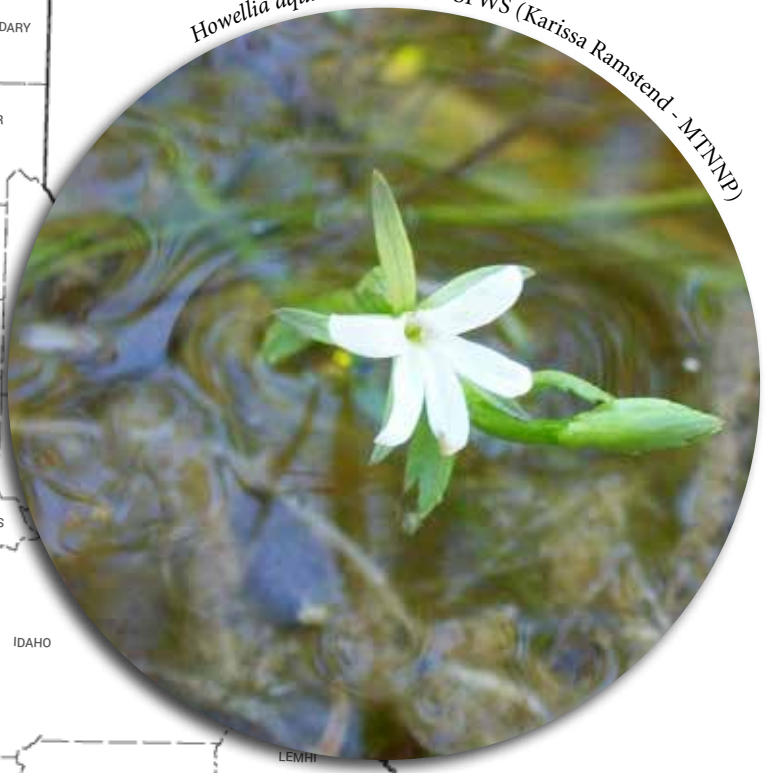
The taxonomic status of Welsh's buckwheat is not fully resolved. *Eriogonum capistratum* was originally immersed within the *Eriogonum chrysops* complex, but later recognized as a distinct species consisting of three varieties, one of them being Welsh's buckwheat. Subsequent re-evaluations have considered *Eriogonum capistratum* to no longer be distinct, and instead be allied to the *Eriogonum crosbyae* complex or as phases within the *Eriogonum mancum* complex. Other evaluations again recognize *E. capistratum*, but not any sub-specific taxa

References

Murphy, C. 2002. The status of Welsh's buckwheat (*Eriogonum capistratum* var. *welshii*) in Idaho. Idaho Conservation Data Center, Idaho Department of Fish and Game. Boise, ID. 25 pp plus appendices.

Reveal, J.L. 1989. Combinations and novelties in *Eriogonum* (Polygonaceae). Phytologia 66(3):251-265.

Idaho Location Map: Water howellia



Howellia aquatilis, flower, USFWS (Karissa Ramstend - MTNNP)

WATER HOWELLIA

Howellia aquatilis Gray
Campanulaceae (Harebell family)
Conservation ranks: USFWS Threatened; NatureServe G3 S1; BLM Type 1

Description

Branched, hairless, annual aquatic herb with fragile, submerged and floating stems up to 1 m long. Leaves simple, narrowly linear, 1-5 cm long, alternate or occasionally opposite or whorled. Small, solitary flowers borne in the leaf axils beneath the water surface do not open and are self-fertilized. Emergent stems produce a narrow, terminal, leafy-bracted inflorescence with small, white, tubular, 5-lobed flowers 2-3 mm long that open and allow for pollination. Fruit capsule 1-2 cm long with 2-5 relatively large seeds.

Field Identification Tips

The small, very narrow leaves and the small, but conspicuous white flowers on the water surface help to distinguish water howellia. Many aquatic plant species in the Idaho flora appear to resemble each other vegetatively, especially at first glance. Closer inspection will reveal differences in leave size, shape, margin (serrate, dissected, etc.), or arrangement (opposite, whorled) that will allow most of these species to be distinguished from water howellia even in the absence of flowers. Floral characteristics for other aquatic plant species also usually differ in one or more ways, including features of the inflorescence, often the lack of petals or the petals being very inconspicuous, and plants being monecious or dioecious.

Similar Species

In Idaho, vegetative individuals of water howellia are probably most likely to be confused with narrow-leaved species of *Potamogeton* and with species of water starwort (*Callitriche* sp.). Leaves for *Potamogeton* are typically longer compared to water howellia. The presence of stipules and a spike-like inflorescence with minute, 4-merous flowers also distinguishes *Potamogeton* from water howellia. *Callitriche heterophylla* has submerged linear leaves that resemble water howellia, however, they are most often opposite, in contrast to the usually alternate leaf

arrangement for water howellia. Floating leaves differ by being broadly ovate for *C. heterophylla*, but linear for water howellia. Additionally, *Callitriche* flowers are axillary and inconspicuous due to the lack of a corolla.

Phenology

Water howellia is a winter annual that germinates in the fall, overwinters, and then continues growth in the spring when conditions are favorable. Submerged flowers that do not open are self-pollinated and appear in late June. Flowers at the water surface open to allow for pollination and bloom in July to early August.

Howellia aquatilis, habitat, USFWS (Andrea Pipp - MTNNP)

Habitat

Water howellia occurs in small, vernal, freshwater ponds and at the margins of permanent ponds with an annual cycle of filling with water and drying up late in the season. Water depth is usually <1 m, although water howellia is sometimes found in water up to 2 m deep. Rangewide, water howellia is known from near sea-level up to 1370 m (4500 ft) elevation.

In Idaho, ponds occupied by water howellia are irregularly oval depressions set within elongated river meander scars and abandoned oxbows that hold water in the winter months. Drying begins in the spring and occurs at a fairly steady rate until late June. After that, drying is more rapid, with the ponds dry or nearly so by middle to late July, although the soil remains saturated. Pond bottoms have an herbaceous emergent community that may include native species such as *Carex vesicaria*, *Sium suave*, *Sparganium emersum*, and *Alopecurus aequalis;* and non-native species such as *Phalaris arundinacea*. Ponds are typically surrounded by tall shrub vegetation.

Howellia aquatilis, plant,
Snake River Plains Herbarium,
Boise State University

Distribution

Water howellia is endemic to the Pacific Northwest. In Idaho, water howellia is known from seasonal ponds on floodplains of the Palouse River and Spokane River drainages in Latah and Benewah counties.

Taxonomy

Water howellia is the only species in the genus *Howellia*. No synonyms.

References

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Howellia aquatilis, habitat (above) and Plant (below), USFWS

Idaho Location Map: Slickspot peppergrass

Lepidium papilliferum, flower/fruit, USFWS

SLICKSPOT PEPPERGRASS

Lepidium papilliferum (L. Henderson) A. Nelson. & J.F. Macbr.
Brassicaceae (Mustard family)
Conservation ranks: USFWS Threatened; NatureServe G2 S2; BLM Type 1

Description

Annual or biennial from a taproot, mostly 10-30 cm tall and intricately branched. Stems and usually the leaves pubescent, the hairs small, club-shaped, and often flattened and scale-like when dry. Leaves pinnate to bipinnate with linear to oblong segments. Inflorescence much-branched with numerous small, white flowers. Filaments of the anthers covered with club-shaped hairs. Fruits flattened, roundish, about 3 mm long, hairless or with a few hairs.

Field Identification Tips

Slickspot peppergrass is densely covered with small hairs that appear somewhat flattened. The anthers are bearded with the same kind of hairs. Leaves all at least pinnately divided with linear divisions and the lower and basal ones usually bipinnate. Biennial and large annual plants produce numerous small white flowers that collectively produce a showy display. Annual plants can be tiny and with relatively few flowers some years at some sites.

Similar Species

Lepidium perfoliatum is an introduced weedy annual adapted to the same slickspot microsites that support slickspot peppergrass. It differs by having two types of leaves, the lower bi-or tri-pinnate with linear segments, the middle and upper entire, strongly cordate, and appearing to wrap around the stem. In addition, plants often lack hairs and the flowers may be white or pale yellow. *Lepidium montanum* differs in having some leaves entire and leaf divisions on the pinnate leaves being oblong to ovate rather than mostly linear. Although plants are often pubescent, the hairs are not club-shaped; and the anther filaments are hairless.

Phenology

Both the annual and biennial types emerge in early spring, flower in late spring, and complete seed set by mid-summer. The annual type does all this in a single growing season before dying. Biennial plants persist throughout the first summer and over winter as a basal rosette, before reproducing the second growing season, and then dying. Plant abundance and proportion of annuals versus biennials in a population can vary greatly from year to year.

Lepidium papilliferum, habitat, Michael Mancuso

Habitat

Slickspot peppergrass is a species of southwestern Idaho's semi-arid sagebrush-steppe ecosystem restricted to specialized habitats known as slickspots (or mini-playas) - visually distinct, whitish, sparsely-vegetated soil inclusions created by unusual edaphic conditions. Individual slickspots vary in size, but the majority range up to approximately 50 m^2.

Lepidium papilliferum, plant, Barbara Schmidt (USFWS)

Distribution

Endemic to southwestern Idaho, with populations scattered across the western Snake River Plain from near New Plymouth eastward to the Glenns Ferry area; the Boise-Eagle-Emmett foothills; and a portion of the Owyhee Plateau located between the Jarbidge River and the East Fork of the Bruneau River. Occurrences are known from Ada, Canyon, Elmore, Gem, Owyhee, and Payette counties.

Taxonomy

Synonyms include *Lepidium montanum* Nutt. var. *papilliferum* L. Henderson and *Lepidium montanum* Nutt. ssp. *papilliferum* (L. Henderson) C.L. Hitchc.

References

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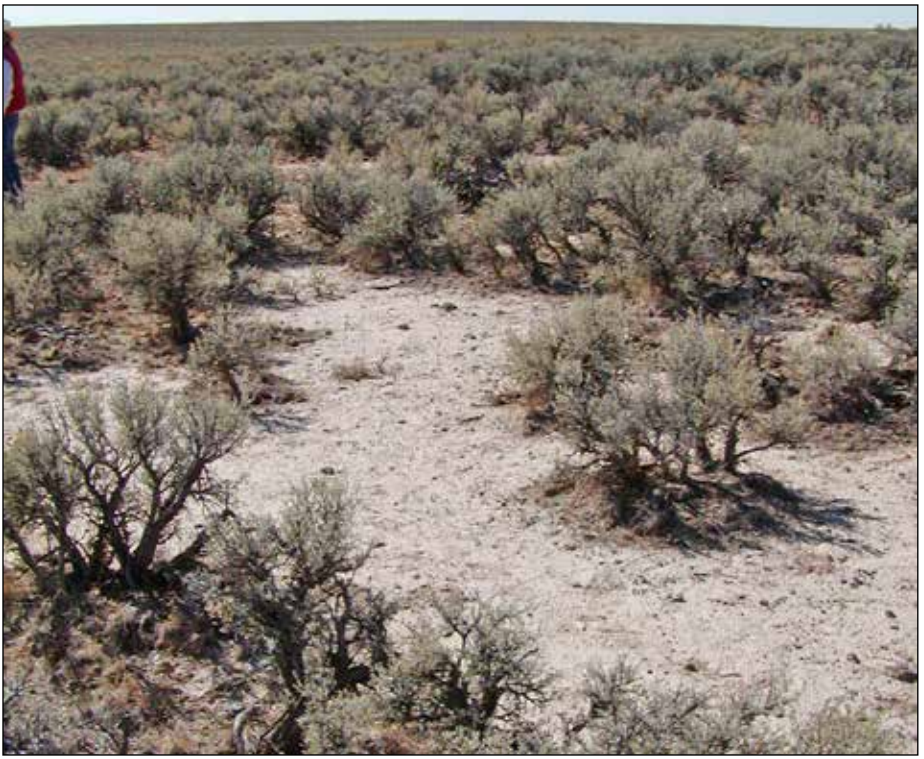
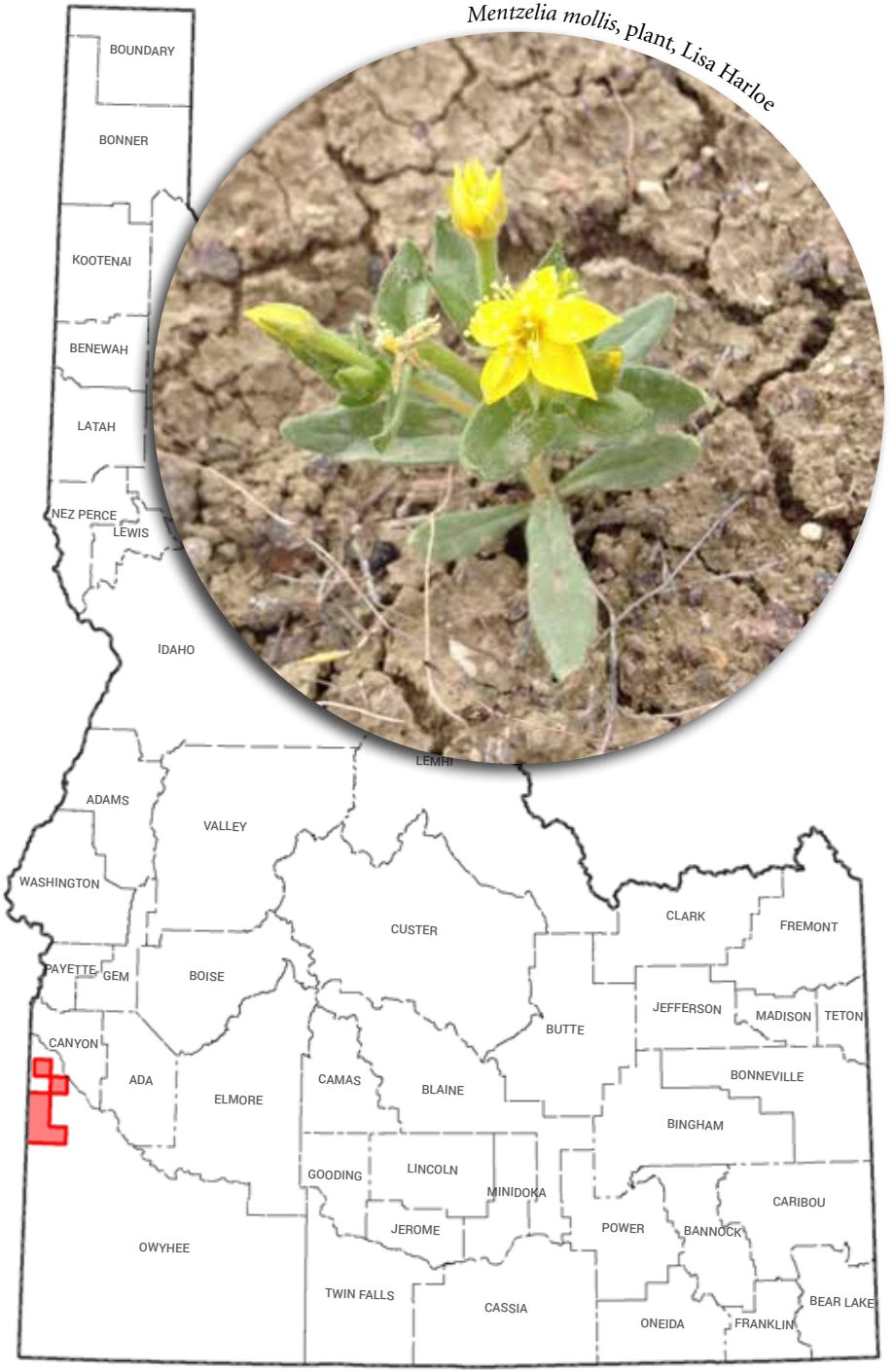


Lepidium papilliferum, plant,
Snake River Plains Herbarium, Boise State University

Left: *Lepidium papilliferum*, habitat, Barbara Schmidt (USFWS)

Idaho Location Map: Smooth stickseed



Mentzelia mollis, plant, Lisa Harloe

SMOOTH STICKSEED

Mentzelia mollis Peck
Loasaceae (Stickleaf family)
Conservation ranks: NatureServe G2 S2; BLM Type 2

Description

Compact annual 5-15 cm tall with erect stems branching from near the base and herbage with minute stiff hairs barbed at the tip. Leaves distributed along the stem and not forming a basal rosette, entire or with a few weak teeth, mostly 2-6 cm long and 1-2 cm wide. Flowers borne in small terminal clusters subtended, but not hidden by a few bracts. Calyx segments lanceolate and 3.4-5.2 mm long, the bright yellow petals 10-12 mm long. Stamens numerous and shorter than the petals. Fruit capsule narrowly cylindrical with seeds appearing virtually smooth.

Field Identification Tips

The small annual habit, mostly entire leaves that do not form a basal rosette, and relatively large, bright yellow flowers help distinguish smooth stickseed, especially in combination with its sparely vegetated clay outcrop habitat.

Similar Species

Mentzelia albicaulis differs by having leaves in a basal rosette as well as on the stem. Furthermore, at least some of the leaves are deeply lobed. *Mentzelia congesta*, *M. dispersa*, and *M. packardiae* are much less commonly encountered than *M. albicaulis* within the range of smooth stickseed. All three of these species differ from smooth stickseed by tending to be >15 cm tall and having more narrow leaves. The distribution of *M. packardiae* centers around the Leslie Gulch area in Malheur County, Oregon, but is not known to extend further east into Idaho.

Phenology

Flowers May into June.

Habitat

Dry, open, sparsely vegetated slopes and knolls of brown, green, gray, or white heavy clay substrate derived from volcanic ash. In Oregon and Idaho, these edaphic outcrops are part of the Sucker Creek Formation. Elevation ranges from 800-1450 m (2620-5760 ft). Associated species on the outcrops may include *Phacelia lutea, Cleomella hillmanii*, *Camissonia claviformis,* and *Chaenactis cusickii*. Shrub-steppe (or former shrub-steppe) vegetation surrounds the outcrops.

Distribution

Primarily Owyhee County in southwestern Idaho and adjacent Malheur County in southeastern Oregon. A few disjunct populations are known from the Black Rock Range in western Humboldt County, Nevada.

Taxonomy

No synonyms.

References

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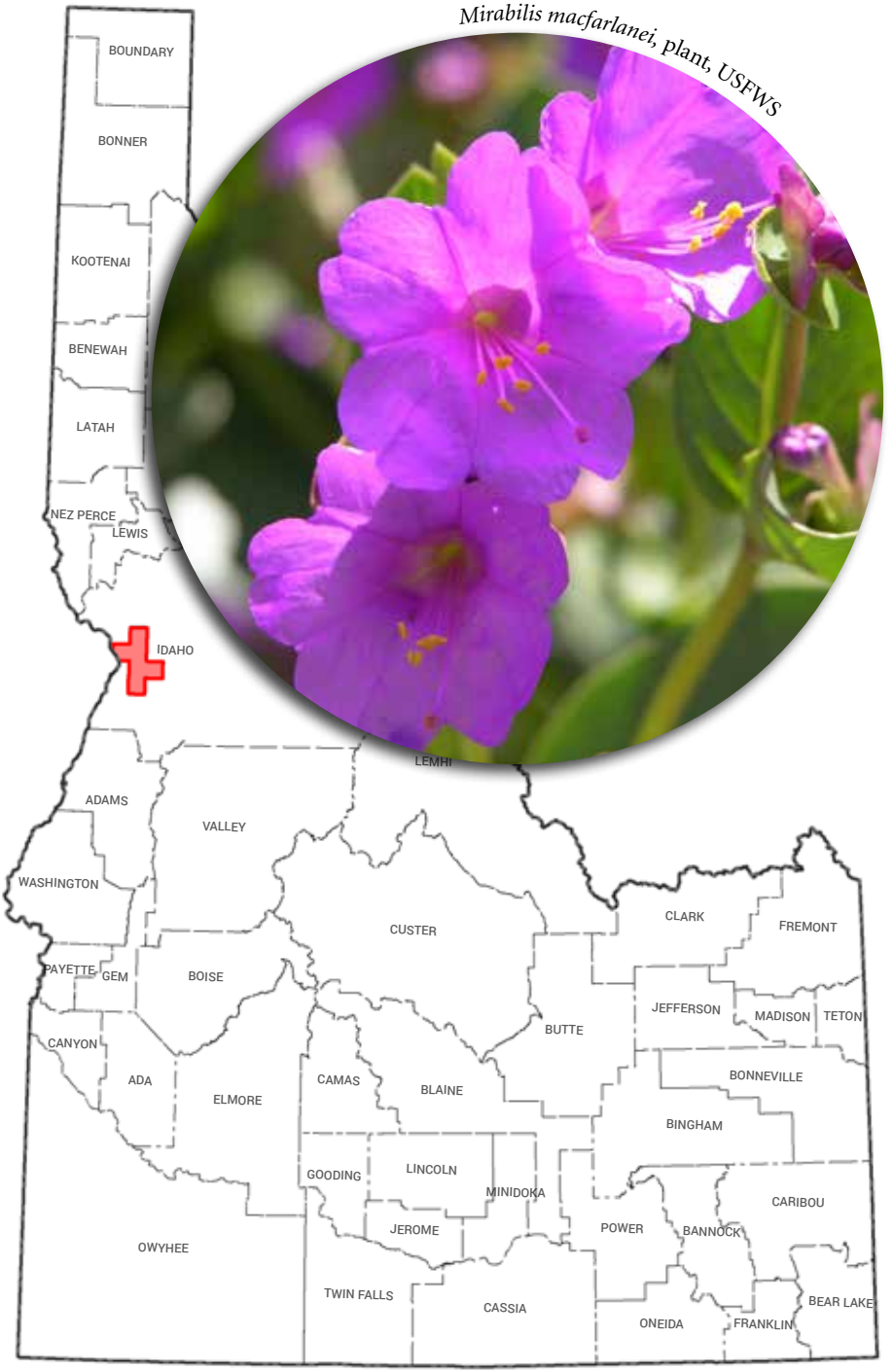
Mentzelia mollis, plant, Lisa Harloe

Mentzelia mollis, habitat, Lisa Harloe

Idaho Location Map: Macfarlane's four-o'clock



MACFARLANE'S FOUR-O'CLOCK

Mirabilis macfarlanei Constance and Rollins
Nyctaginaceae (four-o-clock family)
Conservation ranks: USFWS Threatened; NatureServe G2 S2; BLM Type 1

Description

Long-lived perennial herb with freely-branched, decumbent to ascending stems arising from a deep-seated, tuberous-thickened rhizome. Stem height is variable, but on occasion may reach up to 1 m tall; the stems hairless or with sparse short hairs. Leaves opposite, entire, somewhat fleshy, roundish to egg-shaped, 2.5-7.5 cm long and about as wide, often deltoid at the base, and becoming progressively reduced and relatively narrower up the stem. Inflorescences borne in axils of the upper leaves with clusters of 3 to 7 showy, bright-magenta flowers subtended by a greenish to purplish involucre. Flowers funnel-shaped, approximately 2.5 cm in diameter, with a widely expanding limb, slightly exserted stamens, and a style even more exserted.

Field Identification Tips

The clonal habit of decumbent to ascending stems, and opposite, roundish, fleshy leaves help identify non- reproductive MacFarlane's four-o'clock plants. When in flower, the clusters of showy bright magenta flowers subtended by prominent involucral bracts and flowers with exserted stamens and styles readily distinguish this species.

Similar Species

MacFarlane's four-o'clock is distinctive when in flower and should not be confused with any other species within its limited distribution range. A few species of *Mirabilis* from other parts of the Pacific Northwest or Intermountain regions look similar to MacFarlane's four-o'clock, but can be distinguished by combinations of characteristics such as flower size or color, features of the involucre, leaf shape, and the presence of glandular hairs. No other species of *Mirabilis* impinge on the range of Macfarlane's four-o'clock, nor do any species of *Abronia*, another genus within the four-o'clock family. *Asclepias cryptoceras* sometimes occurs with MacFarlane's four-o'clock and superficially resembles it in the absence of flowers or fruits. *Asclepias cryptoceras*

differs in its non-clonal, more prostrate habit, and leaves that tend to end in a small point and have ciliate margins.

Mirabilis macfarlanei, plant, USFWS

Phenology

Flowering can begin in early May, but peaks later in the month, being complete by mid-June. Onset and duration of the bloom can vary by as much as two weeks. Seed dispersal occurs mid-June to mid-July. Plants are typically dry by early to middle July.

Habitat

Deep river canyon grassland habitats between approximately 305-1220 m (1000-4000 ft) elevation. Plants can occupy any slope position and all aspects, but occur most often on southeast to western exposures. Slopes are often steep, but range to nearly flat. Soils vary from gravelly to loamy and sandy, with substrates in some locations being relatively unstable and prone to erosion. Some populations in Hells Canyon are found in good condition grassland habitats, but varying amounts of *Bromus tectorum* and other weedy species have modified the vegetation at many other locations. Associated native species may include

Mirabilis macfarlanei, habitat, USFWS

Pseudoroegneria spicata, Sporobolus cryptandrus, Aristida purpurea var. *longiseta, Penstemon erianthus, Eriogonum strictum, Opuntia polyacantha, Rhus glabra, Ericameria nauseosus,* and *Celtis laevigata* var. *reticulata.*

Distribution

Narrowly endemic to portions of the lower Salmon, Snake, and lower Imnaha river canyons in western Idaho County, Idaho and adjacent Wallowa County, Oregon. Its global range is approximately 47x29 km (29x18 mi) in extent.

Taxonomy

No synonyms.

References

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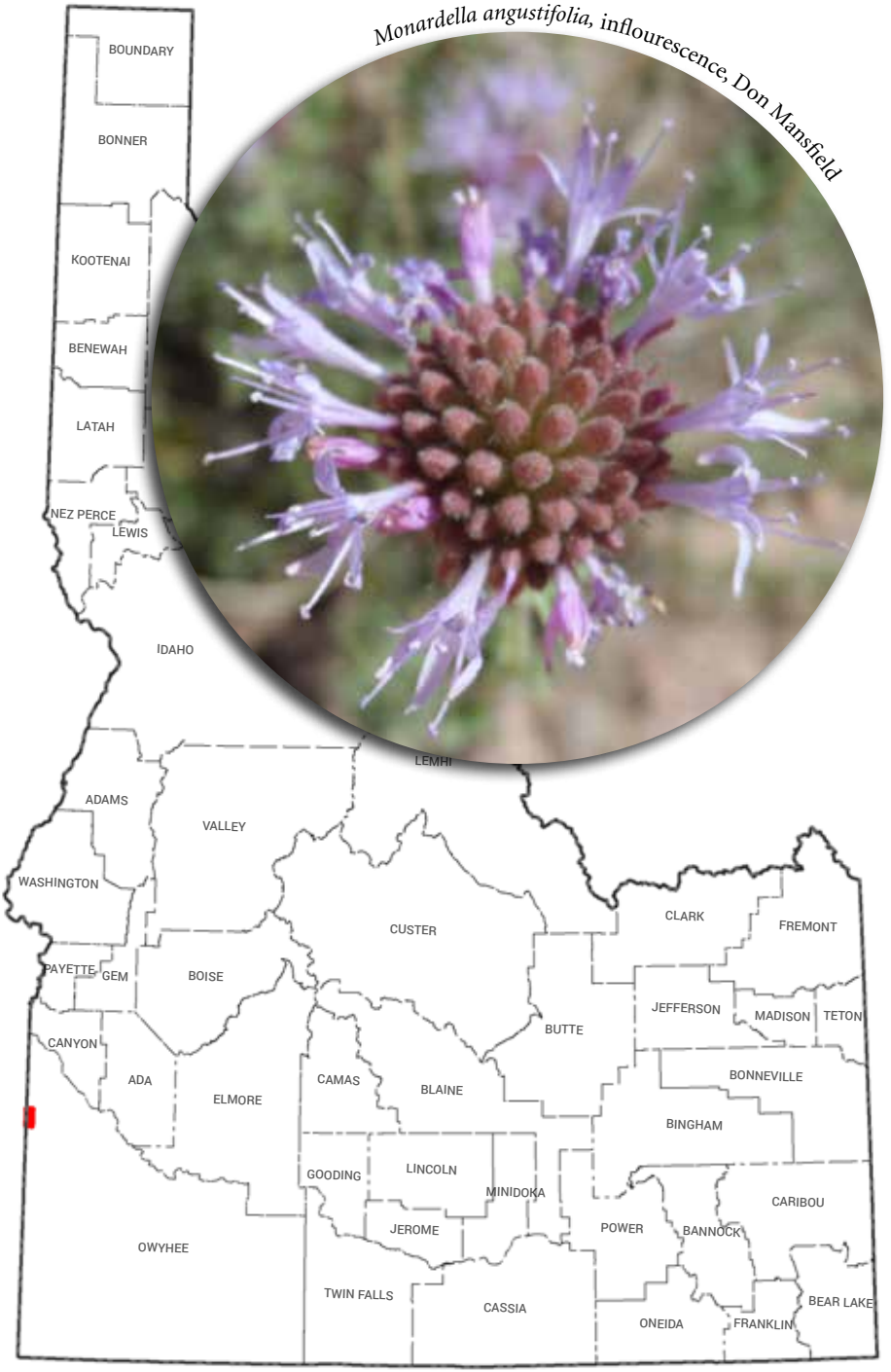
Yates, E. 2007. MacFarlane's' four-o'clock in Hells Canyon of the Snake River. Kalmiopsis, Journal of the Native Plant Society of Oregon. Volume 14: 1-7.

Above: *Mirabilis macfarlanei,* habitat, Michael Mancuso

Left: *Mirabilis macfarlanei,* habitat, Craig Johnson (BLM)

Idaho Location Map: Narrow-leaf monardella



Monardella angustifolia, inflourescence, Don Mansfield

NARROW-LEAF MONARDELLA

Monardella angustifolia Elvin, Ertter & Mansfield
Lamiaceae (Mint family)
Conservation ranks: NatureServe G1 S1; BLM Type 2

Description

Erect subshrub, woody at the base, generally 15-30 cm tall with minute, non-glandular, downward pointing hairs on the stem. Leaves spreading to reflexed downward, strap-shaped to narrowly elliptic, 8-13 mm long, often borne in a tight cluster and with the margins folded together lengthwise. Inflorescence usually solitary, but sometimes more than one in robust plants. Flowers arranged in a terminal, dense, head-like cluster. Small bracts within the cluster have tiny glandular and occasionally non-glandular hairs. Calyx 6-7 mm long, green with the tip purple-tinged, and with a mix of tiny glandular and non-glandular hairs. Corolla 13-16 mm long, lavender, quickly falling off after pollination; the stigma and stamens exserted.

Field Identification Tips

Narrow-leaf monardella can be distinguished from other *Monardella* taxa of the Pacific Northwest by its narrow, spreading to reflexed leaves often borne in a tight cluster and with the margins folded together lengthwise, and also by the presence of spreading glandular hairs about 0.2 mm long on the calyx.

Similar Species

Monardella odoratissima tends to have lance-shaped or wider leaves. Furthermore, the pair of opposite leaves are never borne in a tight cluster.

Phenology

Peak flowering period is June and July, with onset sometimes by late May. Summer rains can extend the flowering season or else produce a second late-season flowering period as late as early October.

Habitat

Almost exclusively on relatively sparsely vegetated rhyolitic ash tuff outcrops between 850-1400 m (2790-4600 ft) elevation; often as the local dominant or co-dominant species. Associated species may include

widespread species such as *Eriophyllum lanatum, Phacelia hastata*, *Castilleja angustifolia, Mentzelia albicaulis,* and *Achnatherum hymenoides*, as well as species with distributions limited to the Leslie Gulch region such as *Astragalus sterilis, Mentzelia packardiae*, and *Eriogonum novonudum*.

Distribution

Endemic to ash tuff outcrops in the Owyhee River watershed of Oregon particularly in the Leslie Gulch area, and the Succor Creek drainage in southeastern Oregon and adjacent Owyhee County in southwestern Idaho.

References

Elvin, M.A., D.H. Mansfield, and B. Ertter. 2014. A new species of *Monardella* (Lamiaceae) from southeastern Oregon and adjacent Idaho, U.S.A. Novon Vol. 23 (3):268-274.

Monardella angustifolia, habitat, Don Mansfield

Monardella angustifolia, plant, Don Mansfield

Monardella angustifolia, plant, Don Mansfield

Idaho Location Map: St. Anthony evening-primrose

Oenothera psammophila, flower, IDNHP

BOUNDARY
BONNER
KOOTENAI
BENEWAH
LATAH
NEZ PERCE
LEWIS
IDAHO
LEMHI
ADAMS
VALLEY
WASHINGTON
CUSTER
CLARK
FREMONT
PAYETTE
GEM
BOISE
JEFFERSON
MADISON
TETON
CANYON
ADA
ELMORE
CAMAS
BLAINE
BUTTE
BONNEVILLE
BINGHAM
GOODING
LINCOLN
MINIDOKA
CARIBOU
JEROME
POWER
BANNOCK
OWYHEE
TWIN FALLS
CASSIA
ONEIDA
FRANKLIN
BEAR LAKE

ST. ANTHONY EVENING-PRIMROSE

Oenothera psammophila Nels. & Macbr.
Onagraceae (Evening-primrose family)
Conservation ranks: NatureServe G3 S3; BLM Type 2

Description

Hairless herbaceous perennial 10-30 cm tall from a thick taproot. Stems can become woody and buried in the drifting sand habitat, giving rise to numerous branches that then emerge from the sand, a pattern that may give plants a clumped or bunchy appearance spreading out to 60 cm wide. Leaves usually 7-15 cm long and 1-3 cm wide, oblanceolate, and entire or with wavy teeth along the margins. Flowers borne singly in the leaf axils. Sepals reflexed, 2-3 cm long; the floral tube (hypanthium) 4-6 cm long. Petals bi-lobed at the top, 2.5-4.5 cm long, white, but turning pink or reddish-purple with age. Fruit capsules sessile, ascending or erect, cylindrical in outline, strongly angled, 3-5 cm long, and becoming rather woody at maturity. The open capsules sometimes remain attached to the stem throughout the winter.

Field Identification Tips:

St. Anthony evening-primrose is recognized by its clumped habit, hairless stems and leaves, large white flowers that fade pinkish to reddish, and sessile fruit capsules twisted and curved near the top that lack distinctive rows of warty projections. Its inter-dunal habitat is also a good tip.

Similar Species

St. Anthony evening-primrose is most likely to be confused with one of the varieties of *Oenothera caespitosa* that occur in the St. Anthony area. *Oenothera caespitosa* var. *marginata* has straight fruit capsules on short pedicels with distinctive wart-like projections in ridges or rows. In addition, *Oenothera caespitosa* var. *marginata* is usually obviously hairy, with more deeply toothed leaves, and floral tubes usually over 7 cm long. *Oenothera caespitosa* var. *caespitosa* is often (but not always) shortly pubescent to one degree or another and has leaves all in a basal cluster. It has fruit capsules that are not twisted and only slightly curved at the top. *Oenothera pallida* is a rhizomatous perennial that sometimes

co-occurs with St. Anthony evening-primrose, but it usually has a more erect habit; poorly developed or no basal leaves; usually smaller flowers; and more or less spreading, sometimes rather contorted fruit capsules.

Phenology

Flowers June and July.

Oenothera psammophila, habitat, IDNHP

Habitat

Largely confined to the trailing margins of migrating sand dunes in inter-dunal areas having sand-filled cracks over basalt outcrops. St. Anthony evening-primrose is apparently limited to areas where the sand is less than approximately 50 cm deep. Associated species may include *Leymus flavescens, Achnatherum hymenoides, Psoralidium lanceolatum, Ipomopsis congesta, Oenothera pallida*, and *Lygodesmia juncea*. Plants do not occur on the bodies of sand dunes, nor in surrounding sagebrush-steppe habitats.

Distribution

Narrowly endemic to the St. Anthony Sand Dune complex in south-western Fremont County, Idaho.

Taxonomy

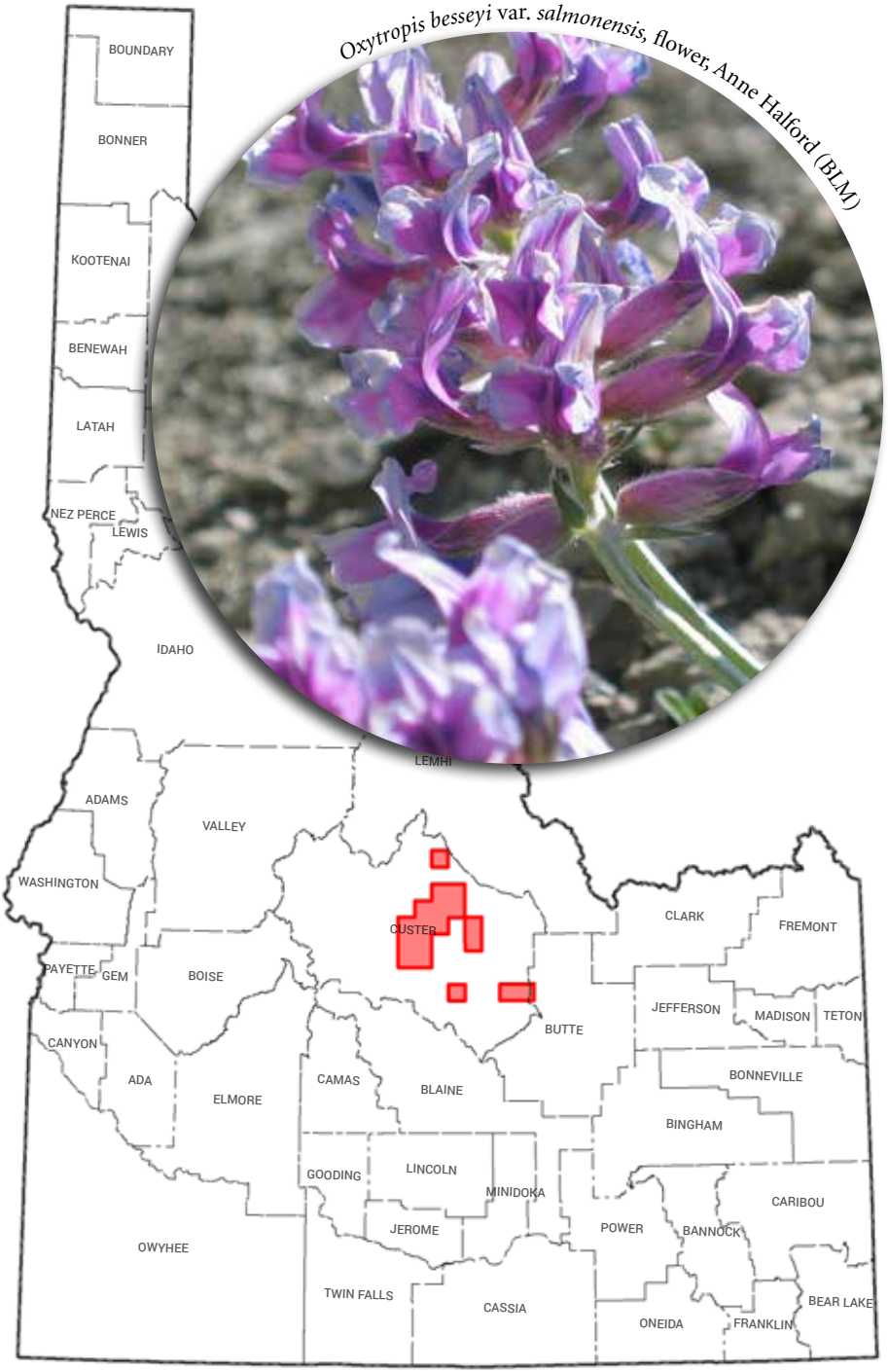
Synonym = *Oenothera caespitosa* Nutt. var. *psammophila* (Nels. & Macbr.) Munz

References

Cronquist, A., N.H. Holmgren, and P.K. Holmgren. 1997. *Oenothera psammophila* (A. Nelson & J.F. Macbr.) W.L. Wagner, Stockh. & W.M. Klein. Pages 210-211 *In*: Intermountain Flora, Vascular Plants of the Intermountain West, U.S.A. Volume 3, Part A, by A. Cronquist, N.H. Holmgren, and P.K. Holmgren. The New York Botanical Garden, Bronx, NY.

Oenothera psammophila, plant, Stillinger Herbarium, University of Idaho

Idaho Location Map: Challis crazyweed



Oxytropis besseyi var. *salmonensis*, flower, Anne Halford (BLM)

CHALLIS CRAZYWEED

Oxytropis besseyi (Rydb.) Blank var. *salmonensis* Barneby
Fabaceae (Pea; Legume family)
Conservation ranks: NatureServe G5T3 S3; BLM Type 4

Description

Tufted perennial with silvery hairs. Leaves all basal, pinnately compound with 7-21 elliptic to lance-shaped leaflets, each 5-20 mm long. Flower stems erect, leafless, up to 20 cm long, longer than the leaves. Calyx 10-15 mm long, commonly purplish, the pubescence distinctly appressed. Corolla bright pink-purple, pea-like, up to 25 mm long, with the keel petal prolonged at the apex into a small beak. Fruit pod ascending, attached directly to the flower stalk or nearly so, up to 20 mm long, leathery, hairy, inflated and eventually rupturing the persistent calyx.

Field Identification Tips

Oxytropis can be easily confused with *Astragalus*, but is distinguished by the beaked keel petal. Most *Astragalus* in Idaho have leaves and inflorescences borne on stems, but leaves are all basal for Challis crazyweed, and the flower stalk emanates directly from the root crown. The ascending, sessile, or nearly sessile fruit pods also help to distinguish Challis crazyweed from many species of *Astragalus* in east-central Idaho.

Similar Species

Oxytropis besseyi var. *argophylla* also occurs in east-central Idaho. It has spreading hairs on the calyx, versus appressed hairs for Challis crazyweed. Challis crazyweed is distinguished from other species of *Oxytropis* in Idaho by the combination of pink-purple flowers, inflorescences with >5 flowers, flower stalks usually >10 cm tall, hairs non-glandular, hairs not so dense as to hide the surface of the calyx, and the mature pod usually rupturing the calyx.

Phenology

Flowers June and July.

Habitat

Dry, open, salt desert shrub and Wyoming big sagebrush communities in washes and gentle to steep, sometimes unstable slopes, often with a southerly aspect. Soils vary from sandy, to gravelly, ashy, clayey, or rocky volcanics. Populations are known from 1585-2545 m (5200-8350 ft) elevation, with the majority below 2130 m (7000 ft.). Associated species may include *Atriplex confertifolia, Artemisia tridentata* ssp. *wyomingensis, Leymus salina* spp. *salmonis*, *Pseudoroegneria spicata*, *Achnatherum hymenoides* and *Poa secunda*.

Oxytropis besseyi var. *salmonensis,* habitat, Antonia Hedrick (BLM)

Distribution

Endemic to east-central Idaho, mainly near the Salmon River in the Clayton to north of Challis corridor; and also up the lower East Fork Salmon River. Known only from Custer County.

Taxonomy

Synonym = *Oxytropis nana* Nutt. var. *salmonensis* (Barneby) Isley

References

Hitchcock, C.L. 1961. *Oxytropis*. Pages 337-345
In: Vascular Plants of the Pacific Northwest. Part 3: Saxifragaceae to Ericaceae, by C.L. Hitchcock, A. Cronquist, M. Ownbey, and J.W. Thompson. University of Washington Press, Seattle and London.

Oxytropis besseyi var. *salmonensis,* plant with flower, Jessica Irwin

Oxytropis besseyi var. *salmonensis,* plant with fruit pods,
Bureau of Land Management Herbarium, Boise

Idaho Location Map: Obscure phacelia

Phacelia inconspicua, plant (close-up), Lynn Kinter (IDNHP)

OBSCURE PHACELIA

Phacelia inconspicua E.L. Greene
Hydrophyllaceae (Waterleaf family)
Conservation ranks: NatureServe G2 S1; BLM Type 2

Description

Upright, branching, annual herb up to 20 cm tall with spreading, non-glandular hairs. Stems and the inflorescence have two types of hairs - numerous fine, short, loosely curled hairs, and a fewer number of longer, stiffer spreading hairs. Leaves entire, more or less elliptic, 1-4 cm long and up to 1 cm broad, green above and somewhat paler on the underside. Lower leaves with a short, winged petiole, the upper leaves sessile. Inflorescences terminal at the stem tips and consisting of small coils of small, pale bluish to whitish, bractless flowers. Corolla small and inconspicuous, 3-4 mm long and bell-shaped, the 5 petals fused about half their length. Stamens equal to or slightly exserted from the corolla. Fruit an egg-shaped capsule about 3 mm long with 2-4 seeds.

Field Identification Tips

Recognized by its small annual habit, spreading, non-glandular pubescence, entire (no teeth or lobes) leaves, and bractless, coiled (unfurling like the tail of a scorpion) inflorescence of small pale bluish or whitish flowers.

Similar Species

In Idaho, obscure phacelia is most likely to be confused with *Phacelia incana* and *P. minutissima*. These two small, annual species are similar to obscure phacelia in growth form and leaf shape, but both differ in having glandular hairs and fruit capsules with more than four seeds. *Phacelia glandulifera* can co-occur with obscure phacelia, but readily differs by its deeply lobed leaves and glandular herbage. Obscure phacelia usually occurs mixed with other vernal annuals. As these annuals mature and dry it can be difficult to see obscure phacelia and to distinguish it from annual *Cryptantha* species. The pubescence of obscure phacelia is softer compared to that of associated *Cryptantha* species, however.

Phenology

Late May through June, with prime flowering conditions probably during early June most years.

Phacelia inconspicua, flowers, Lynn Kinter (IDNHP)

Habitat

Idaho sites are generally fairly steep, north- to east-facing, lower- to mid-slopes lying below the rimrock of butte tops or foothill ridgetops. Snowdrifts form on these concave lee-slopes and persist late into the spring. Plants also occasionally occur on toe-slopes immediately above ephemerally moist drainages. It often grows in small gaps or clearings within shrubby vegetation, on scarified or loose loamy soil lacking substantial perennial vegetation and surface litter. Plants may be associated with wildlife or livestock trails and animal digging disturbances. Obscure phacelia most often occurs within *Prunus virginiana* dominated vegetation mixed with *Leymus cinereus, Symphoricarpos oreophilus,* and *Bromus tectorum*. It is also known from *Artemisia tridentata* ssp. *vaseyana*/*Pseudoroegneria spicata*, and the edges of *Populus tremuloides*/*Symphoricarpos oreophilus* communities. Known Idaho populations occur between about 1600-1900 m (5250 and 6230 ft) elevation, all on volcanic substrates.

Phacelia inconspicua, habitat, Lynn Kinter (IDNHP)

Distribution

Known from south-central Idaho and a small portion of the Humboldt Mountains in Pershing County, Nevada. Idaho populations lie in a triangular area stretching from the Pioneer Mountain foothills north of Craters of the Moon National Monument, southeast for approximately 64 km (40 mi) to Split Top Butte, and 48 km (30 mi) east to Big Southern Butte. All Idaho populations are in southern Butte and adjacent Blaine counties.

Taxonomy

No synonyms.

References

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Idaho Location Map: Whitebark Pine

Pinus albicaulis, cone, Michael Mancuso

WHITEBARK PINE

Pinus albicaulis Engelm.
Pinaceae (pine family)
Conservation ranks: USFWS Candidate; NatureServe G3G4 S3; BLM Type 2

Description

Conifer trees up to 20 meters tall with straight to contorted trunks depending on harshness of site; often with a multi-stem habit. Bark thin, smooth, light gray to whitish, but becoming rough and scaly as the tree ages. Branches spreading to ascending, often persistent to the trunk base. Needles 5 per fascicle, crowded towards ends of the branches, 3-8 cm long. Pollen cones 4-6 mm long, usually reddish-purple. Seed cones ovoid to nearly round, 4-8 cm long, dark brown to black-purple, remaining closed after maturity, and typically remaining on the tree unless dislodged by birds or squirrels.

Field Identification Tips

Whitebark pine is a "five needle pine", which immediately helps distinguish it from the 2-needle and 3-needle pine species in the Idaho flora such as *Pinus contorta* and *Pinus ponderosa* and from other high elevation conifers in Idaho, such as *Abies lasiocarpa* and *Picea engelmannii*. Whitebark pine trees typically have a rounded to flat-topped canopy crown as opposed to the more pyramidal profile characteristic of some other conifer species.

Similar species

Except for the cones, *Pinus flexilis* (limber pine) strongly resembles whitebark pine. Seed cones for limber pine differ in their larger (usually >8 cm long) elongated shape, light brown to greenish color, scales that spread open at maturity, releasing seed, and falling to the ground intact. The fallen cones take on a dull grayish color as they age on the ground. Limber pine cones point down when still attached to the tree, while whitebark pine cones point up or outward. Staminate cones for limber pine also differ, being larger (7-10 mm long) and yellowish to a duller red color. Limber pine branches are very flexible and can bend substantially without breaking. Fresh foliage is reported to have turpentine odor, versus a sweet odor for whitebark pine.

Limber pine and whitebark pine can be found in close proximity to each in some places. *Pinus monticola* (western white pine) is the only other native 5-needle pine species in Idaho. It typically occurs in more moist habitats than either whitebark or limber pine, and can grow much taller. Seed cones are narrowly oblong, much larger (15-25 cm) and hang down from branches. Furthermore, western white pine needles are finely serrated, unlike either whitebark or limber pine.

Phenology

Seed cone production is characterized by frequent years of small cone crops and less frequent years of moderate to heavy crops. Seed cone production requires 2 years, typical for many pine species. Second-year female cones enlarge during June and July, with seeds ripening in mid-August to mid-September.

Habitat

High mountain locations characterized by rocky soils and cold temperatures; mostly on peaks, ridges, and exposed, snowy slopes in the subalpine zone; extending from upper treeline down to montane elevations.

Pinus albicaulis, habitat, Michael Mancuso

Pinus albicaulis, pollen cone and foliage, Dana Perkins

Distribution

Mountains of western North America. In Idaho, whitebark pine is widespread in high mountain areas north of the Snake River Plain.

Taxonomy

Although several synonyms exist, none of these alternative names are in use any longer.

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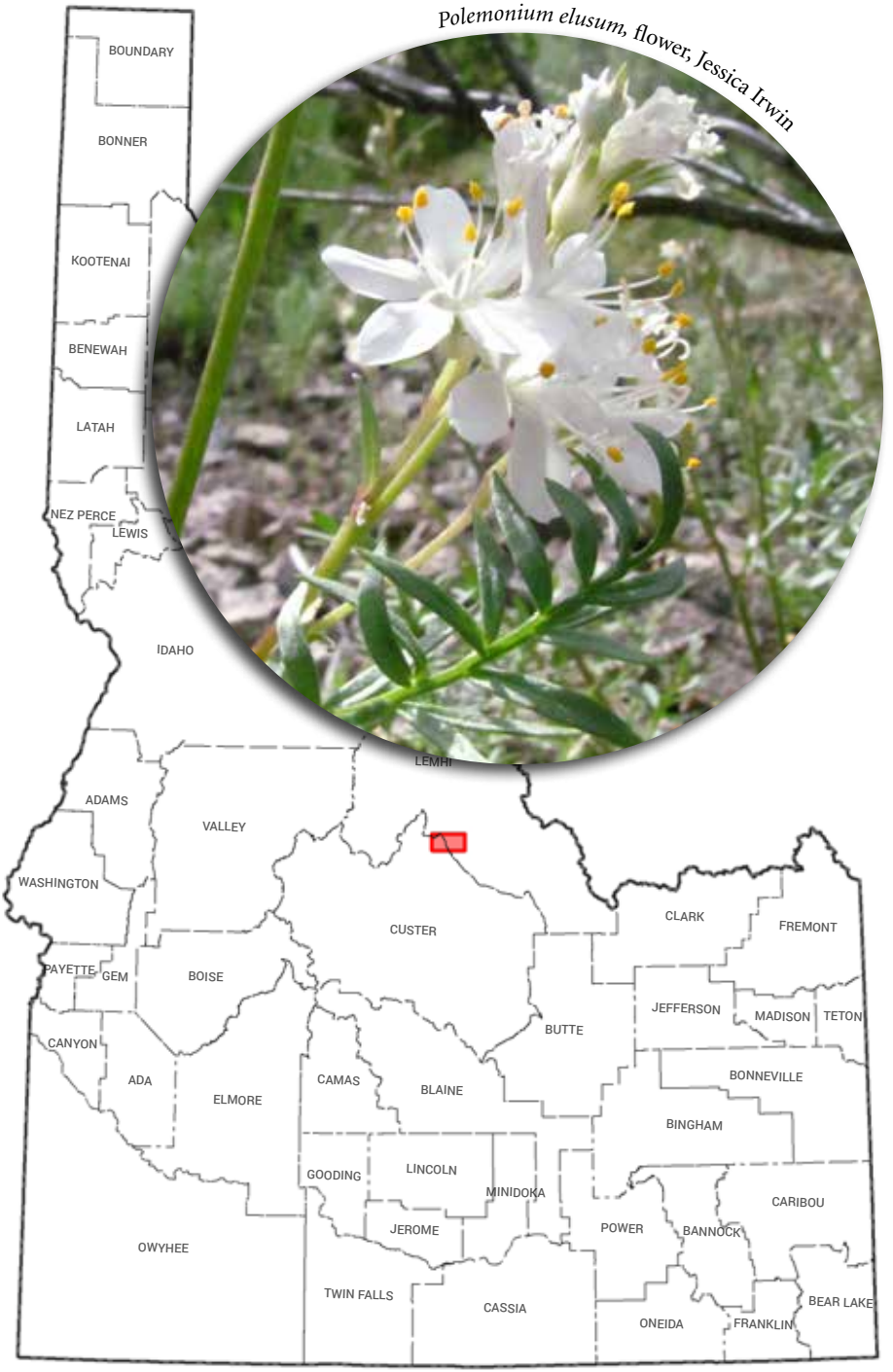
Idaho Location Map: Elusive Jacob's-ladder



ELUSIVE JACOB'S-LADDER

Polemonium elusum J.J. Irwin & R.L. Hartman
Polemoniaceae (Phlox family)
Conservation ranks: NatureServe G1 S1; BLM Type 3

Description

Perennial herb 20-50 cm tall, not odiferous, hairless or with hairs that are often glandular. Leaves mostly basal, 10-30 cm long and divided into 12-24 more or less elliptic, alternate or paired leaflets. When paired, the leaflets appear whorled. Inflorescence branched, usually with numerous flowers. Calyx 4-8 mm long with a translucent connective membrane between each lance-shaped, green to purplish lobe. Corolla light blue to white, bell-shaped, 10-13 mm long. Stamens usually exserted.

Field Identification Tips

The whitish, translucent membranes between the calyx lobes distinguish elusive Jacob's ladder from all other species of *Polemonium*.

Similar Species

Polemonium pulcherrimum and *P. viscosum* can occur in the same general area as elusive Jacob's-ladder. In addition to features of the calyx, both species differ from elusive Jacob's ladder by crushed leaves having a skunky odor, flowers tending to be a darker blue, and being more or less strongly glandular pubescent in the inflorescence, or over the entire plant for *P. viscosum*, which is also often a much shorter plant. *Phlox* species differ by have flowers with a slender tube and an abruptly spreading limb. In addition, most *Phlox* species in east-central Idaho have a matted to low-growing habit.

Phenology

Flowering begins in late-May at drier low elevation sites, continuing through mid-July at higher, cooler sites. Fruits appear from mid-June through August.

Habitat

Mountains and foothills where the vegetation transitions from sage-brush and mountain mahogany to Douglas-fir woodland, depending

on slope and aspect. Elusive Jacob's-ladder has been found on the margins of talus fields, in dry Douglas-fir woodland, along outer riparian margins, and on shaded rock outcrops from 1440 to 2560 m (4720-8400 ft) elevation. Plants occur in stable but loose, coarse textured soils, with all known populations found on various geologic units of the Challis Volcanic Group.

Distribution

Known occurrences are located within approximately 11 km (7 miles) of Ellis, Idaho, in both Custer and Lemhi counties. Ellis is located near the confluence of the Pahsimeroi and Salmon rivers, approximately 25 km (15 miles) north of Challis.

Polemonium elusum, foliage, Jessica Irwin

Polemonium elusum, plant and leaf close-up, Jessica Irwin

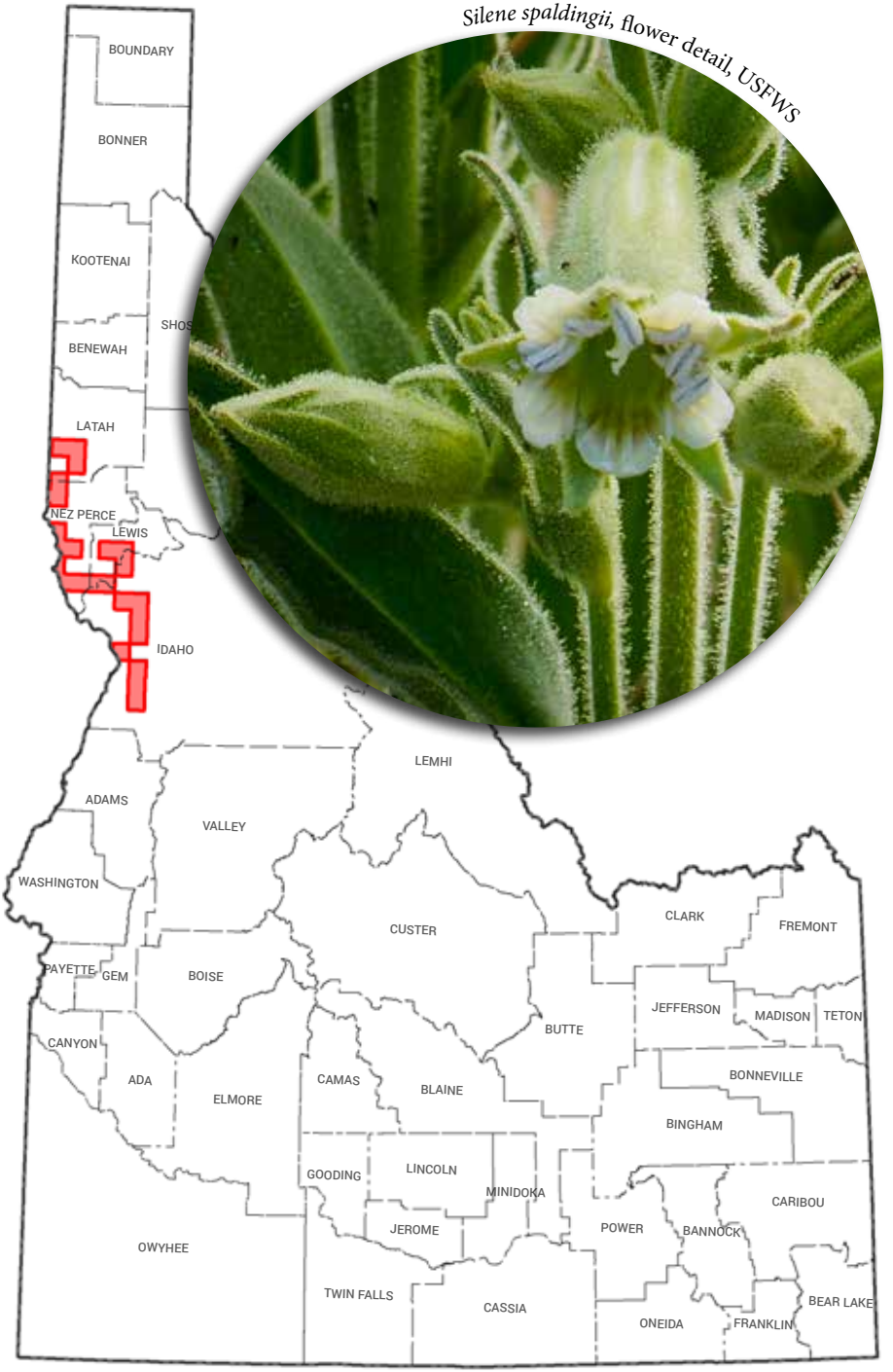
Taxonomy

Discovered in 2010 and described as a new species in 2012.
No synonyms.

References

Irwin, J.J., R. Stubbs, and R.L. Hartman. 2012. *Polemonium elusum* (Polemoniaceae), a new species from east central Idaho, U.S.A. Journal of the Botanical Research Institute of Texas 6(2):331-338.

Idaho Location Map: Spalding's catchfly



Silene spaldingii, flower detail, USFWS

SPALDING'S CATCHFLY

Silene spaldingii S. Watson
Caryophyllaceae (Carnation family)
Conservation ranks: USFWS Threatened; NatureServe G2 S1; BLM Type 1

Description

Perennial herb 20-60 cm tall, usually with a single pale green stem, although some individuals may be multi-stemmed. Leaves opposite, 4-7 (occasionally up to 10) pairs, sessile, lance-shaped, 5-8 cm long, and gradually reducing in size upwards. Sticky, gland-tipped hairs densely cover the leaves, stem, and flower bracts. Inflorescence leafy, with a few to many white flowers. Petals 5, each consisting of a narrow claw approximately 15 mm long that expands at the apex into a short, broadened blade about 2 mm long. Only the shallowly-lobed to entire blade with 4 tiny appendages at the base protrudes beyond the mouth of the calyx. Fruit capsule 10-15 mm long with numerous wrinkled seeds approximately 2 mm long.

Field Identification Tips

The combination of shallowly-bilobed petal blades that barely protrude from the calyx and the dense glandular pubescence of the stem, leaves, and calyx distinguish Spalding's catchfly from other *Silene* species in the regional flora. Each year, some plants in a population will consist of a rosette of leaves and not produce an elongated flower stem.

Similar Species

Silene scouleri is similar looking with whitish flowers and very sticky foliage. In Idaho, it may occupy the same type of habitat as *S. spaldingii*, and the two species are occasionally found growing together. When flowers are present, *S. scouleri* differs in having petal blades 4-8 mm long that clearly protruding beyond the calyx tube until they age and begin to curl. In addition, the blades are generally deeply dissected into four lobes, with only two appendages at the base. *S. scouleri* has generally finished blooming and is forming capsules before *S. spaldingii* growing at the same elevation begins to flower. Vegetative plants are more difficult to distinguish. The leaves of *S. scouleri* are strongly reduced upward, the lower much greater than 7.5 cm, and long-tapering

to a narrowly acute apex. Leaves of *S. spaldingii* are only weakly reduced upwards, the largest less than 7.5 cm long, with the lower to middle leaves being broadly lanceolate. Also, *S. scouleri* is rhizomatous and sometimes forms patches.

Silene douglasii may also occur with *S. spaldingii* in Idaho, but it generally has multiple, more slender stems, narrower leaves, and is rarely sticky-pubescent.

Phenology

Plants emerge in early June, begin flowering in mid-July continuing through August. Dried flower/fruit stalks are often visible into the fall season. Rosettes lacking reproductive structures typically disappear by flowering time. About 10% of Spalding's catchfly plants are dormant in any given year, with no sign of above-ground tissue.

Silene spaldingii, rosette, USFWS

Right: Silene spaldingii, plant, USFWS

Habitat

Mesic grassland and sagebrush-steppe, and less commonly in open ponderosa pine stands in valley, canyon, and foothill settings between approximately 365-1615 m (1200-5300 ft) elevation. Plants generally found in swales or on northwest- to northeast- facing slopes where soil moisture is relatively higher. In Idaho, Spalding's catchfly grows in forb-rich, mesic bunchgrass communities, often with scattered shrubs and shrub patches. *Festuca idahoensis* and *Pseudoroegneria spicata* are the dominant graminoids. *Koeleria macrantha* is a constant associated species. Other associates may include *Geum triflorum*, *Cerastium arvense*, *Arnica sororia*, *Balsamorhiza sagittata*, *Erigeron corymbosus*, *Solidago missouriensis*, *Senecio integerrimus*, *Hieracium scouleri* var. *albertinum*, *Lupinus* spp., *Frasera albicaulis*, *Symphoricarpos albus* and native roses (*Rosa nutkana* and *R. woodsii*).

Silene spaldingii, habitat, USFWS

Distribution

A Pacific Northwest endemic found in eastern Washington, northeastern Oregon, adjacent west-central Idaho, and a disjunct area in northwestern Montana and barely extending into adjoining British Columbia. Idaho populations are known from Idaho, Latah, Lewis, and Nez Perce counties.

Taxonomy

No synonyms.

References

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Idaho Location Map: Ute ladies tresses

Spiranthes diluvialis, flower detail, Anne Halford (BLM)

UTE LADIES TRESSES

Spiranthes diluvialis Sheviak
Orchidaceae (Orchid family)
Conservation ranks: USFWS Threatened; NatureServe G2G3 S1; BLM Type 1

Description

Perennial with one or occasionally multiple erect stems 20-50 cm tall, the upper part of the stem sparsely to densely glandular-pubescent. Basal leaves linear, approximately 1 cm wide and up to 28 cm long, persisting during flowering; other leaves become progressively reduced higher up the stem. Inflorescence a terminal spike of few to many white flowers arranged in a gradual, 3-ranked spiral. Sepals free or fused only at the base and often spreading at their tips, and not forming a hood-like structure. The lip petal oval to lance-shaped or oblong, narrowed at the middle, with crispy-wavy margins, and prominently diverging from the sepals and other petals - a feature most readily observed in lateral view.

Field Identification Tips

Ute ladies tresses is distinguished by the combination of linear basal leaves, greatly reduced stem leaves, stalked glandular hairs on the upper part of the stem and inflorescence, the terminal spike of white flowers in a 3-ranked spiraling arrangement, the calyx of distinct or only basally fused sepals that do not take on a hood-like shape, and the oval to oblong lip petal narrowed at the middle.

Similar Species

Two other species of *Spiranthes* occur in Idaho. *Spiranthes romanzoffiana* differs from Ute ladies tresses by having sepals fused for at least 1/2 their length into a hood-like tube; lip petals deeply constricted in the middle and with the tip margin irregularly toothed; and an inflorescence so densely congested with flowers that the rachis is often not visible. Mixed stands of Ute ladies tresses and *Spiranthes romanzoffiana* occur in Idaho. Field characteristics to distinguish *Spiranthes porrifolia* include yellowish- or cream-colored, slenderly tubular flowers; stems lacking hairs or sparsely hairy, with any glands present usually not stalked; basal leaves sometimes withered or absent at flowering time;

and lip petals strap-shaped with peg-like projections near the tip. It is not known to occur in eastern Idaho. Several species of *Platanthera* (*Habenaria*) look similar to Ute ladies tresses. All species of *Platanthera* have lip petals with bases forming a well-developed spur, a feature not found in *Spiranthes*. *Platanthera huronensis* grows with Ute ladies tresses in Idaho in several places, but it has small greenish flowers that usually bloom much earlier than Ute ladies tresses, mostly in late June and July. *Platanthera huronensis* also has more leaves occurring higher up the stem and many more flowers in the inflorescence.

Phenology

Across its range Ute ladies tresses blooms from early July to late October. In Idaho, peak flowering is from late August to mid-September.

Habitat

Rangewide, Ute ladies tresses occurs primarily on moist, subirrrigated or seasonally flooded soils in valley bottoms, riparian edges, gravel bars, old oxbows, or floodplains bordering rivers, perennial streams, springs, and lakes at elevations between 550-2075 m (1800-6800 ft). In Idaho, most Ute ladies tresses populations occur in open riparian shrubland or meadow-like communities located within river floodplains that experience spring flooding and afterwards rely on subirrigation from the water table to maintain soil surface moisture. Populations also occupy mesic graminoid dominated margins of low-lying swales and pond margins within wetland complexes sub-irrigated by a naturally high groundwater table that may be augmented by water contributed from ditches and canals.

The *Elaeagnus commutata* community type provides the primary habitat for Ute ladies tresses along the South Fork Snake River, the location of most Idaho populations. This community type occurs as a narrow, often linear band in the transition zone between wetter *Carex*-dominated areas and higher terraces with stands of *Populus angustifolia* which usually have an understory of *Poa pratensis*. Habitat supporting Ute ladies tresses is characterized by a dense sward of *Agrostis stolonifera*, with an open overstory of widely scattered *Elaeagnus commutata*. *Salix exigua*/*Agrostis stolonifera*, *Equisetum variegatum* and/or *E. laevigatum*, and *Eleocharis rostellata* communities

Spiranthes diluvialis, plant, IDNHP

also support a few Ute ladies tresses populations along the South Fork Snake River.

In the Chester Wetlands complex near the Henrys Fork River, Ute ladies tresses occupies patches dominated by a mix of mesic graminoid species, especially *Muhlenbergia richardsonis* and *Agrostis stolonifera*. Other frequently associated species include *Carex nebrascensis*, *Juncus ensifolius*, and *Trifolium repens*.

Distribution

Utah, Colorado, Wyoming, western Nebraska, eastern Idaho, southwestern Montana, eastern Nevada, and Washington and adjoining British Columbia. Idaho populations are known from Bonneville, Fremont, Jefferson, and Madison counties.

Taxonomy

Spiranthes romanzoffiana var. *diluvialis* (Sheviak) Welsh is the only synonym for Ute ladies tresses. Before its description as a new species in 1984, specimens of Ute ladies tresses were identified as *Spiranthes cernua*, *S. porrifolia*, *S. romanzoffiana* var. *porrifolia*, or *S. magnicamporum*.

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Spiranthes diluvialis, habitat , Lynn Kinter (IDNHP)

Idaho Location Map: Malheur prince's plume

Stanleya confertiflora, flower detail, Michael Mancuso

MALHEUR PRINCE'S PLUME

Stanleya confertiflora (Robinson) Howell
Brassicaceae (Mustard family)
Conservation ranks: NatureServe G2 S1; BLM Type 2

Description

Hairless, glaucous (a whitish to bluish cast), leafy annual or biennial with an erect, usually single stem 20 to 80 cm tall. Leaves entire and more or less fleshy. Basal leaves attached directly to the stem or with a short petiole, the stem leaves with auricled bases, attached directly to the stem, and becoming progressively smaller upwards. Inflorescence an elongated, densely-flowered raceme. Flowers with pale green to yellow sepals, 7-11 mm long; yellow to cream, linear-shaped petals 11-25 mm long, and exserted stamens that become spirally coiled. Fruit with a stipe 6-15 mm long, erect to curved-ascending, linear, 2-6 cm long.

Field Identification Tips

A rather stunning plant when in flower distinguished by its hairless, glaucous habit and basal leaves attached directly to the stem or with only a short petiole. Plants consist of a rosette of basal leaves the first year before producing a flowering stalk the next season. The fleshy, glaucous, hairless rosettes can vary in size, but are distinctive. In certain years, Malheur prince's plume populations may contain few if any flowering individuals, or even rosettes – persisting only in the seed bank. In the absence of rosettes, old skeletons may be present to help confirm the species' presence. Skeletons of *Caulanthus crassicaulis* look superficially similar. This other mustard species is widespread in southwestern Idaho.

Similar Species

Stanleya viridiflora looks similar to Malheur prince's plume, but differs in its perennial habit, basal leaves not attached directly to the stem (with petioles), and mature fruits widely spreading and curved downward. *Stanleya pinnata* var. *pinnata* can be readily differentiated by its sparsely pubescent, perennial habit, stem leaves without an auricle base and not attached directly to the stem (with petioles), and usually at least some leaves deeply lobed or pinnatifid. *Thelypodium*

species may also appear superficially similar, but have white, lavender or purple flowers, sepals <7 mm long, and fruits on much shorter stipes.

Phenology

Elevation and seasonal weather patterns influence the onset of flowering. Plant collection dates range from late April to early July, with mid-May being the most common. The indeterminate, elongated raceme of Malheur prince's plume typically has a sequence of fruits, flowers and flower buds developing simultaneously during the spring.

Habitat

Idaho populations are restricted to relatively sparsely vegetated clay substrates that often weather to a popcorn or cracked surface structure. These clays are often colorful, and noticeably distinct from the surrounding substrates, ranging in color from brown to off-whites, including orange, yellow, beige, and tan hues. Idaho populations occupy steep to nearly flat slopes on a variety of aspects, with northwest to northeast exposures being the most common. Elevations range from approximately 730-1525 m (2400-5000 ft) within the shrub-steppe ecosystem. Most associated species are annuals such as *Cleome platycarpa, Cleomella hillmanii, Mentzelia albicaulis, Phacelia lutea, Descurainia* sp., and *Lepidium perfoliatum*.

Distribution

Owyhee, Washington, Payette, and Gooding counties in southwestern Idaho, and Baker, Harney, and Malheur counties in eastern Oregon. Populations are sporadic and tend to be quite localized.

Taxonomy

Pertinent synonyms include *Stanleya viridiflora* Nutt. ex T.&G. var. *confertiflora* Robinson; *Stanleya rara* A. Nels.; and *Stanleya annua* M.E. Jones.

References

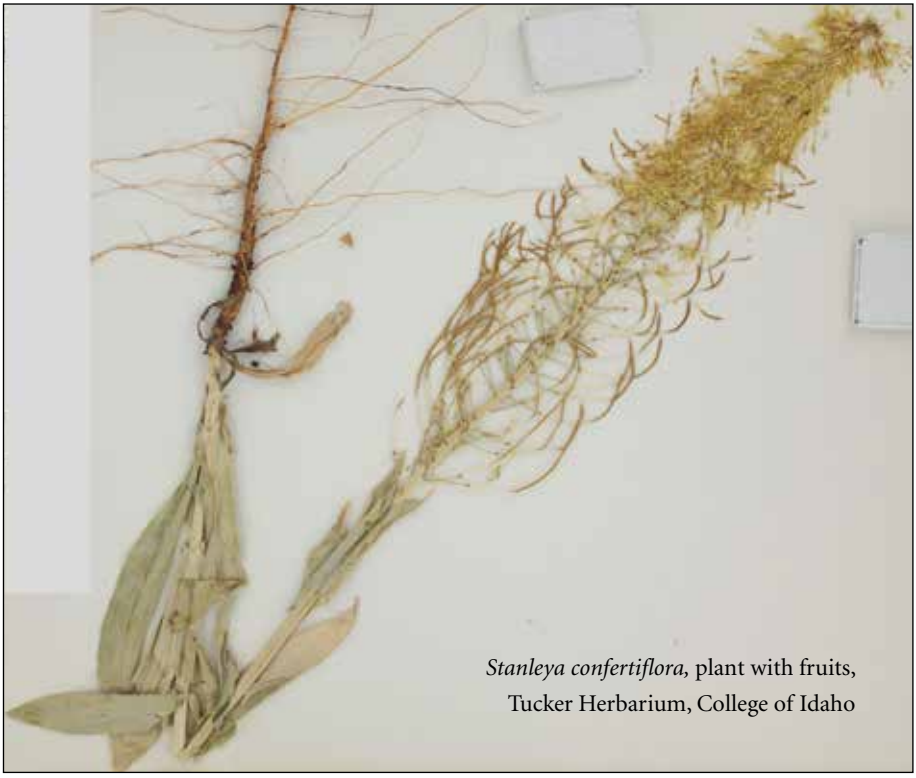
Mancuso, M. 1997. The status of Malheur prince's plume (*Stanleya confertiflora*) in Idaho. Idaho Conservation Data Center, Idaho Department of Fish and Game, Boise, ID. 18 pp plus appendices.

Stanleya confertiflora, habitat, Michael Mancuso

Stanleya confertiflora, habitat, IDNHP

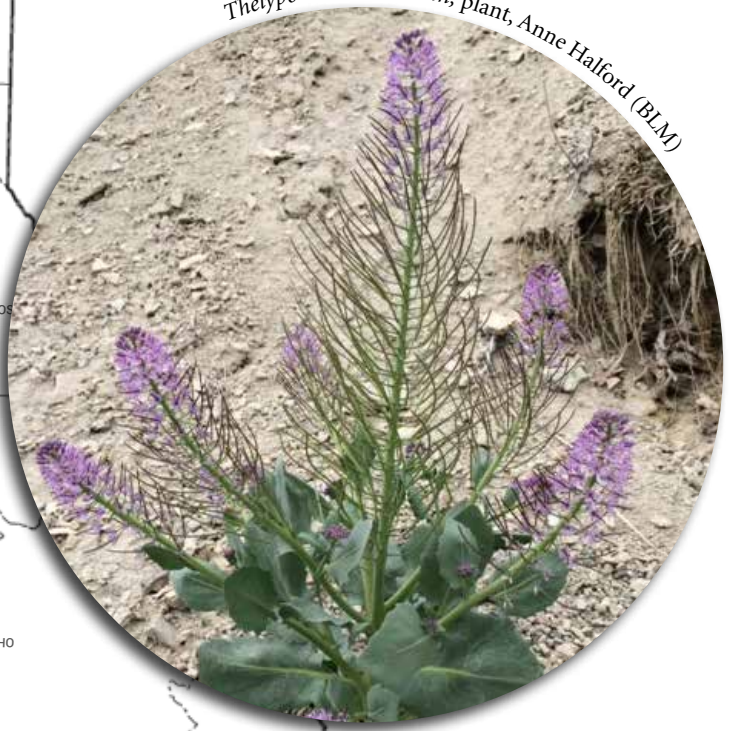
Stanleya confertiflora, plant, IDNHP

Stanleya confertiflora, rosette, Michael Mancuso



Stanleya confertiflora, plant with fruits, Tucker Herbarium, College of Idaho

Idaho Location Map: Wavy-leaf thelypody



Thelypodium repandum, plant, Anne Halford (BLM)

WAVY-LEAF THELYPODY

Thelypodium repandum Rollins
Brassicaceae (Mustard family)
Conservation ranks: NatureServe G3 S3; BLM Type 3

Description

Erect, hairless, glaucous (a whitish to bluish cast), winter annual or biennial 15 to 65 cm tall. Most leaves emanate from and near the base, petiolate, up to 10 cm long, rather fleshy, usually ovate or obovate, and usually with slightly wavy, dentate to more deeply lobed margins. Stem leaves smaller, lance- to elliptic-shaped, margin wavy or not. The inflorescence arises as a single stem and may remain unbranched or may branch to form multiple densely-flowered racemes that usually comprise more than half of the plant's height. Flowers with sepals up to 4 mm long and purple to lavender or occasionally whitish petals up to 5 mm long. Fruits usually erect to ascending, 4-8 cm long and <2 mm wide, with a short (<1 mm) stipe at base.

Field Identification Tips

An erect, hairless, glaucous, somewhat fleshy, annual or biennial with most leaves basal, and dense racemes of purplish flowers. This suite of characteristics combined with its rocky, sparsely vegetated habitat make wavy-leaf thelypody distinctive.

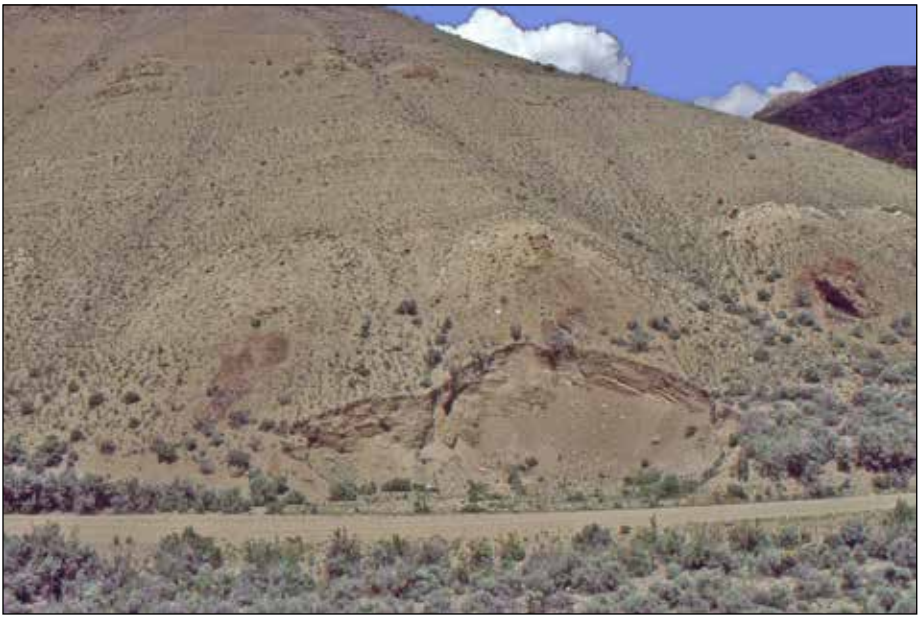
Similar Species

Thelypodium laciniatum may occur in habitats near wavy-leaf thelypody, but it has narrower, deeply cleft basal leaves and white flowers. Three species of *Stanleya* occur within the range of wavy-leaf thelypody. They are all perennial, have yellow flowers, and tend to be taller, more robust plants compared to wavy-leaf thelypody. In the absence of flowers, *Stanleya pinnata* differs by its sparse pubescence, and usually at least some leaves deeply lobed or pinnatifid. *Stanleya tomentosa* differs by its densely hairy, deeply lobed or pinnatifid basal leaves. Entire, longer and narrower leaves differentiate *Stanleya viridiflora*.

Phenology

Seed germination occurs between July and October, with seedlings overwintering as rosettes 2-30 cm in diameter. Flowering is initiated

the following May. Most fruits have released their seeds by mid-August. Climatic variation appears to affect annual population size, with plants apparently absent some years and persisting in the seed bank.



Thelypodium repandum, habitat, IDNHP

Habitat

Dry, moderate to steep, sparsely vegetated, rocky, shaley, gravelly, or cindery slopes often in drainage bottoms with some level of natural soil disturbance due to slope instability. Substrates derived from Challis Volcanic Group or metamorphic rock; most commonly on southerly-facing aspects. Elevations range from 1500-2130 m (4900-7000 ft), with most populations found below 1830 m (6000 ft). Associated species may include *Chaenactis douglasii, Enceliopsis nudicaulis, Phacelia hastata, Leymus salina* ssp. *salmonis, Achnatherum hymenoides*, and *Artiplex confertifolia*. Plants found on roadcuts are often colonized from portions of the population further upslope.

Distribution

Endemic to Custer and a small part of Lemhi counties in east-central Idaho. Populations are found along the Salmon River Canyon and lower elevations of its tributaries from Ellis, south to Clayton; along the lower East Fork Salmon River and its tributaries; and south of Challis along the Lost River Range. Populations tend to be local and small.

Taxonomy

No synonyms.

References

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Thelypodium repandum, plant with fruits, Michael Mancuso

Idaho Location Map: Owyhee clover

Trifolium owyheense, plant with flowers, Michael Mancuso

OWYHEE CLOVER

Trifolium owyheense Gilkey
Fabaceae (Pea; Legume family)
Conservation ranks: NatureServe G2 S1; BLM Type 2

Description

Perennial herb 10-15 cm tall with 1 to a few stems from a taproot and hairless below the inflorescence. Leaves few, divided into 3 leaflets, each firm-textured, roundish in outline, sparingly denticulate, and notched at the apex. Each leaflet has a distinct, light-green to white crescent-like marking. Leaf stems have a pair of leaf-like stipules at the base, similar in texture to the leaves. The rounded flower head is 3-5 cm in diameter and can appear disproportionally oversized compared to the rest of the plant. Sepals are greenish-white, hairy, and have long, pointed teeth. The petals are pink-purple except whitish at the base, the banner about 20 mm long and the wing and keel petals shorter.

Field Identification Tips

Trifolium is a common and widespread genus in southwestern Idaho with approximately ten species in Owyhee County. Owyhee clover can be distinguished from other regional clovers by the combination of its perennial habit, mostly hairless herbage, firm, glaucous (bluish-green cast), roundish-shaped leaflets, and large head of pink-purple flowers.

Similar Species

The very large, roundish flower head distinguishes Owyhee clover from other species of *Trifolium* in the region except for *T. macrocephalum*. This species also has a very large flower head, but differs by having leaves with 5-9 leaflets. Owyhee clover always has only 3 leaflets. *Trifolium macrocephalum* also differs by usually having fine hairs on the stem, stipules, and one side of the leaves; and flowers tending to be whitish, cream, or light pink in color.

Phenology

Flowers May and June, peaking middle to late May most years. Only dried flower heads remain by late June.

Trifolium owyheense, plant with flowers, Michael Mancuso

Trifolium owyheense, habitat, Anne Halford (BLM)

Habitat

In Oregon, Owyhee clover occurs on a variety of ash, tuff, and diatomaceous talus substrates, with sites varying in aspect, steepness, and from ridgecrest to lower slope positions at elevations ranging between 830-1650 m (2700-5400 ft). Habitat in Idaho is characterized by sparsely vegetated, whitish- to light tan-colored outcrops of the Sucker Creek Formation that have a soft, chalky texture at the surface, but a dense, hard texture a short distance below the surface. The surface has abundant hard, thin, angular, platy stones that make the substrate visually distinctive. Plants occupy various aspects, on steep slopes to flat benches. Associated species at Idaho sites may include *Artemisia arbuscula, Monardella* sp., *Pseudoroegneria spicata, Poa secunda, Minuartia nuttallii*, and *Phlox hoodii*.

Distribution

Owyhee clover is restricted to eastern Malheur County in southeastern Oregon and adjacent Owyhee County in southwestern Idaho. The few known Idaho populations are confined to the Succor Creek area near the Oregon border. Most occurrences are located in Oregon.

Taxonomy

No synonyms.

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Associated Species

This list includes the names of all associated species mentioned in the Species Accounts - Habitat section. Scientific names and associated codes follows the PLANTS database (Natural Resource Conservation Service 2018). The list includes a total of 204 taxa.

Scientific Name	Common Name	Code
Achillea millefolium	Common yarrow	ACMI2
Achnatherum hymenoides	Indian ricegrass	ACHY
Agrostis stolonifera	Creeping bentgrass	AGST2
Allium acuminatum	Tapertip onion	ALAC4
Allium brandegeei	Brandegee's onion	ALBR
Allium simillimum	Simil onion	ALSI
Alopecurus aequalis	Shortawn foxtail	ALAE
Amsinckia sp.	Fiddleneck	AMSIN
Aristida purpurea var. *longiseta*	Fendler threeawn	ARPUL
Arnica sororia	Twin arnica	ARSO2
Artemisia arbuscula	Low sagebrush	ARAR8
Artemisia tridentata	Big sagebrush	ARTR2
Artemisia tridentata ssp. *tridentata*	Basin big sagebrush	ARTRT
Artemisia tridentata ssp. *vaseyana*	Mountain big sagebrush	ARTRV
Artemisia tridentata ssp. *wyomingensis*	Wyoming big sagebrush	ARTRW8
Artemisia tripartita	Threetip sagebrush	ARTR4
Asclepias cryptoceras	Pallid milkweed	ASCR

Scientific Name	Common Name	Code
Astragalus alpinus	Alpine milkvetch	ASAL7
Astragalus arthuri	Waha milkvetch	ASAR8
Astragalus atratus var. *owyheensis*	Owyhee milkvetch	ASATO
Astragalus beckwithii	Beckwith's milkvetch	ASBE3
Astragalus calycosus	Torrey's milkvetch	ASCA9
Astragalus collinus	Hillside milkvetch	ASCO7
Astragalus cusickii	Cusick's milkvetch	ASCU5
Astragalus eremiticus	Hermit milkvetch	ASER4
Astragalus filipes	Basalt milkvetch	ASFI
Astragalus inflexus	Bent milkvetch	ASIN5
Astragalus jejunus var. *articulatus*	Starveling milkvetch	ASJEA
Astragalus kentrophyta	Spiny milkvetch	ASKE
Astragalus lentiginosus	Freckled milkvetch	ASLE8
Astragalus newberryi	Newberry's milkvetch	ASNE6
Astragalus nudisiliquus	Cobblestone milkvetch	ASNU2
Astragalus platytropis	Broadkeel milkvetch	ASPL3
Astragalus purshii	Pursh's milkvetch	ASPU9
Astragalus sheldonii	Sheldon's milkvetch	ASSH2
Astragalus whitneyi	Balloonpod milkvetch	ASWH
Atriplex canescens	Fourwing saltbush	ATCA2
Atriplex confertifolia	Shadscale saltbush	ATCO

Scientific Name	Common Name	Code
Atriplex sp.	Saltbush	ATRIP
Balsamorhiza hookeri	Hooker's balsamroot	BAHO
Balsamorhiza sagittata	Arrowleaf balsamroot	BASA3
Bromus tectorum	Cheatgrass	BRTE
Calamagrostis canadensis	Bluejoint	CACA4
Calamagrostis rubescens	Pinegrass	CARU
Callitriche heterophylla	Two-headed water-starwort	CAHE3
Camassia quamash	Common camas	CAQU2
Camissonia claviformis	Browneyes	CACL4
Carex athrostachya	Slenderbeak sedge	CAAT3
Carex buxbaumii	Buxbaum's sedge	CABU6
Carex deweyana	Dewey sedge	CADE9
Carex nebrascensis	Nebraska sedge	CANE2
Carex parryana	Parry's sedge	CAPA18
Carex praegracilis	Clustered field sedge	CAPR5
Carex raynoldsii	Raynold's sedge	CARA6
Carex sheldonii	Sheldon's sedge	CASH
Carex sp.	Sedge	CAREX
Carex vesicaria	Blister sedge	CAVE6
Castilleja angustifolia	Northwestern paintbrush	CAAN7
Castilleja linariifolia	Wyoming paintbrush	CALI4
Castilleja miniata	Red paintbrush	CAMI12

Scientific Name	Common Name	Code
Castilleja pallescens var. *inverta*	Pale paintbrush	CAPAI
Caulanthus crassicaulis	Thickstem wild cabbage	CACR11
Celtis laevigata var. *reticulata*	Netleaf hackberry	CELAR
Cerastium arvense	Field chickweed	CEAR4
Cercocarpus ledifolius	Curl-leaf mountain mahogany	CELE3
Chaenactis douglasii	Douglas dustymaiden	CHDO
Chaenactis macrantha	Bighead dustymaiden	CHMA
Chaenactis stevioides	Esteve's pincushion	CHST
Chrysothamnus viscidiflorus	Green rabbitbrush	CHVI8
Cleome platycarpa	Golden spiderflower	CLPL
Cleomella hillmanii	Hillman's stinkweed	CLHI2
Crataegus douglasii	Black hawthorn	CRDO2
Cryptantha humilis	Roundspike cryptantha	CRHU2
Cryptantha spiculifera	Snake River cryptantha	CRSP4
Danthonia californica	California oatgrass	DACA3
Dasiphora fruticosa	Shrubby cinquefoil	DAFRF
Deschampsia caespitosa	Tufted hairgrass	DECE
Descurainia sp.	Tansymustard	DESCU
Draba oreibata	Limestone draba	DROR
Elaeagnus commutata	Silverberry	ELCO

Scientific Name	Common Name	Code
Eleocharis rostellata	Beaked spikerush	ELRO2
Elymus elymoides	Bottlebrush squirreltail	ELEL5
Elymus trachycaulus	Slender wheatgrass	ELTR7
Enceliopsis nudicaulis	Nakedstem sunray	ENNU
Ericameria nauseosa	Gray rabbitbrush	ERNA10
Erodium cicutarium	Redstem storksbill	ERCI6
Erigeron caespitosus	Tufted fleabane	ERCA2
Erigeron corymbosus	Longleaf fleabane	ERCO5
Eriogonum brevicaule var. *laxifolium*	Shortstem buckwheat	ERBRL
Eriogonum capistratum var. *capistratum*	Hidden buckwheat	ERCAC3
Eriogonum mancum	Imperfect buckwheat	ERMA3
Eriogonum novonudum	False naked buckwheat	ERNO3
Eriogonum ovalifolium	Cushion buckwheat	EROV
Eriogonum strictum	Strict buckwheat	ERST4
Eriogonum thymoides	Thymeleaf buckwheat	ERTH4
Eriogonum verrucosum	Graceful buckwheat	ERVE6
Eriophyllum lanatum	Oregon sunshine	ERLA6
Equisetum laevigatum	Smooth horsetail	EQLA
Equisetum variegatum	Variegated scouringrush	EQVA
Festuca idahoensis	Idaho fescue	FEID
Frasera albicaulis	Whitestem frasera	FRAL2

Scientific Name	Common Name	Code
Geum triflorum	Prairie smoke	GETR
Gutierrezia sarothrae	Broom snakeweed	GUSA2
Gymnosteris nudicaulis	Nakedstem gymnosteris	GYNU
Hesperostipa comata	Needle-and-thread grass	HECO26
Hieracium scouleri var. *albertinum*	Scouler's woollyweed	HISCA
Hordeum brachyantherum	Meadow barley	HOBR2
Hymenopappus filifolius var. *idahoensis*	Idaho hymenopappus	HYFII
Ionactis alpina	Lava aster	IOAL
Ipomopsis congesta	Ballhead ipomopsis	IPCO5
Ivesia gordonii	Gordon's ivesia	IVGO
Juncus arcticus ssp. *littoralis*	Mountain rush	JUARL
Juncus ensifolius	Swordleaf rush	JUEN
Juncus howellii	Howell's rush	JUHO
Juniperus osteosperma	Utah juniper	JUOS
Koeleria macrantha	Prairie junegrass	KOMA
Lepidium montanum	Mountain pepperweed	LEMO2
Lepidium perfoliatum	Clasping pepperweed	LEPE2
Leymus cinereus	Great Basin wildrye	LECI4
Leymus flavescens	Yellow wildrye	LEFL4
Leymus salina ssp. *salmonis*	Salmon wildrye	LESAS2

Scientific Name	Common Name	Code
Linanthus pungens	Granite prickly phlox	LIPU11
Linum lewisii	Lewis flax	LILE3
Lomatium sp.	Biscuitroot	LOMAT
Lupinus sp.	Lupine	LUPIN
Lygodesmia juncea	Rush skeletonplant	LYJU
Mahonia repens	Creeping barberry	MARE11
Mentzelia albicaulis	Whitestem blazing-star	MEAL6
Mentzelia congesta	United blazing-star	MECO2
Mentzelia dispersa	Bushy blazing-star	MEDI
Mentzelia packardiae	Packard's blazing-star	MEPA5
Minuartia nuttallii	Nuttall's sandwort	MINU4
Monardella odoratissima	Mountain monardella	MOOD
Monardella sp.	Monardella	MONAR2
Monolepis pusilla	Small povertyweed	MOPU3
Muhlenbergia richardsonis	Mat muhly	MURI
Oenothera caespitosa	Tufted evening-primrose	OECA10
Oenothera pallida	Pale evening-primrose	OEPA
Opuntia polyacantha	Plains pricklypear cactus	OPPO
Oxytropis besseyi var. *argophylla*	Montana locoweed	OXBEA
Penstemon cusickii	Cusick's beardtongue	PECU
Penstemon eriantherus	Fuzzytongue penstemon	PEER

Scientific Name	Common Name	Code
Penstemon rydbergii	Rydberg's penstemon	PERY
Petrophytum caespitosum	Mat rockspirea	PECA12
Phacelia glandulifera	Sticky phacelia	PHGL2
Phacelia glandulosa	Glandular phacelia	PHGL3
Phacelia hastata	Silverleaf phacelia	PHHA
Phacelia incana	Hoary phacelia	PHIN9
Phacelia lutea	Yellow phacelia	PHLU
Phacelia minutissima	Small phacelia	PHMI7
Phalaris arundinacea	Reed canarygrass	PHAR3
Phlox hoodii	Hood's phlox	PHHO
Picea engelmannii	Engelmann spruce	PIEN
Pinus contorta	Lodgepole pine	PICO
Pinus flexilis	Limber pine	PIFL2
Pinus monticola	Western white pine	PIMO3
Pinus ponderosa	Ponderosa pine	PIPO
Platanthera huronensis	Huron green orchid	PLHU2
Poa pratensis	Kentucky bluegrass	POPR
Poa secunda	Sandberg bluegrass	POSE
Polemonium pulcherrimum	Jacob's-ladder	POPU3
Polemonium viscosum	Sky pilot	POVI
Populus angustifolia	Narrowleaf cottonwood	POAN3

Scientific Name	Common Name	Code
Populus tremuloides	Quaking aspen	POTR5
Potamogeton sp.	Pondweed	POTAM
Potentilla gracilis	Slender cinquefoil	POGR9
Prunus virginiana	Chokecherry	PRVI
Pseudoroegneria spicata	Bluebunch wheatgrass	PSSP6
Pseudotsuga menziesii	Douglas-fir	PSME
Psoralidium lanceolatum	Lemon scurfpea	PSLA3
Purshia tridentata	Antelope bitterbrush	PUTR2
Rhus glabra	Smooth sumac	RHGL
Rosa nutkana	Nootka rose	RONU
Rosa woodsii	Wood's rose	ROWO
Salix exigua	Coyote willow	SAEX
Salix lasiolepis	Arroyo willow	SALA6
Salvia dorrii	Purple sage	SADO4
Senecio ertterae	Ertter's ragwort	SEER4
Silene douglasii	Douglas's catchfly	SIDO
Silene scouleri	Scouler's catchfly	SISC7
Sium suave	Hemlock waterparsnip	SISU2
Senecio integerrimus	Lambstounge ragwort	SEIN2
Solidago missouriensis	Missouri goldenrod	SOMI2
Solidago multiradiata	Rocky Mountain goldenrod	SOMU
Sparganium emersum	European bur-reed	SPEM2

Scientific Name	Common Name	Code
Sphaeralcea munroana	Munro's globemallow	SPMU2
Spiranthes porrifolia	Creamy lady's tresses	SPPO7
Spiranthes romanzoffiana	Hooded lady's tresses	SPRO
Sporobolus cryptandrus	Sand dropseed	SPCR
Stanleya pinnata var. *pinnata*	Desert princesplume	STPIP
Stanleya tomentosa	Woolly princesplume	STTO
Stanleya viridiflora	Green princesplume	STVI
Stenotus acaulis	Stemless goldenweed	STAC
Stephanomeria tenuifolia	Narrowleaf wireletttuce	STTE2
Symphoricarpos albus	Common snowberry	SYAL
Symphoricarpos oreophilus	Mountain snowberry	SYOR2
Symphyotrichum foliaceum	Alpine leafybract aster	SYFO2
Tetradymia sp.	Horsebrush	TETRA3
Thelypodium laciniatum	Cutleaf thelypody	THLA
Trifolium macrocephalum	Largehead clover	TRMA3
Trifolium repens	White clover	TRRE3
Xerophyllum tenax	Common beargrasss	XETE

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Astragalus packardiae, flowers, Antonia Hedrick (BLM)

Back Cover: *Spranthies diluvalis,* plant, IDNHP