FIELD INVESTIGATIONS OF THREE SENSITIVE PLANT SPECIES ENDEMIC TO THE STANLEY BASIN AREA, SAWTOOTH NATIONAL FOREST:

DRABA TRICHOCARPA ROLLINS
THLASPI AILEENIAE ROLLINS
ERIOGONUM MELEDONUM SP. NOV.

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ABSTRACT

Field investigations of three plant species endemic, or nearly so, to the Stanley Basin area of the Sawtooth National Recreation Area by botanists from the Idaho Department of Fish and Game's Natural Heritage Program during 1987 and 1988, yielded the following results.

Draba trichocarpa Rollins (Stanley whitlow-grass) was found to occur at 14 populations on granitic outcrops in the Stanley Basin. Despite this narrow distribution, there does not appear to be any immediate concern for the vigor, trend, or conservation status of the species. A recommendation had been made previously to designate Stanley whitlow-grass as a Category 1 candidate species with a listing priority of 11. The narrow distribution and potential threats outlined in this report substantiate this recommendation. All sites of Stanley whitlow-grass on public lands are within the SNRA and it should be maintained on the Region 4 Sensitive Species List for the Sawtooth National Forest. The Sawtooth National Forest should consider the impacts of its current and future management activities on the conservation status of the species. In lieu of formal listing, the Forest Service should develop a Habitat Management Plan for the species in coordination with the U.S. Fish and Wildlife Service.

The apparent range of Thlaspi aileeniae Rollins (Stanley thlaspi) was found to include all the broad, intermontane valleys from Marsh Creek, south to the upper Big Wood River. There does not appear to be any immediate concern for the vigor, trend, or conservation status of the species. If the experts concur with our identification, a recommendation will be made to the Fish and Wildlife Service that Stanley thlaspi does not warrant federal protection. Because of its apparent abundance, I tentatively recommend that Stanley thlaspi should be dropped from the Region 4 Sensitive Species List for the Sawtooth and Challis national forests.

Eriogonum meledonum sp. nov. (guardian buckwheat) remains the rarest of the three Stanley Basin endemics. The entire extent of known populations comprises less than 45 acres and contains 2,500 to 3,500 individuals, making it vulnerable to extinction. Despite this apparent narrow distribution, however, there does not appear to be any immediate concern for the vigor, trend, or conservation status of the species. When guardian buckwheat is formally described, a recommendation will be made to the Fish and Wildlife Service to designate it a Category 1 candidate species with a listing priority of 8. All sites of guardian buckwheat on public lands are within the SNRA, and it should be maintained on the Region 4 Sensitive Species List for the Sawtooth National Forest. In lieu of formal listing, the Forest Service should develop a Habitat Management Plan for the species in coordination with the U.S. Fish and Wildlife Service.

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INTRODUCTION

Field investigations of three USFS Region 4 Sensitive Plant Species wwere a cooperative effort between the Sawtooth National Forest and the Idaho Department of Fish and Game's Natural Heritage Program through the Challenge Cost Share Program. The three species, Draba trichocarpa, Thlaspi aileeniae and Eriogonum meledonum, are endemic, or nearly so, to the Stanley Basin area of the Sawtooth National Recreation Area (SNRA). All three species have only recently been discovered and prior to 1987, little was known of their distribution, habitat, and degree of rarity.

The primary objectives of the investigations were as follows:

1) Determine the distribution, habitat and population levels of the three species.

2) Assess possible threats to the continued existence of these narrow endemics and discuss implications of Forest Service management on populations occurring in the SNRA.

Draba trichocarpa Rollins

CURRENT STATUS USFS Region 4 Sensitive Species
Recommended USFWS Category 1 Candidate Species

TAXONOMY

Family: Brassicaceae or Cruciferae (Mustard)

Common Name: Stanley whitlow-grass

Citation: Rollins, R.C. 1984. Studies in the Cruciferae of western North America II. Contributions from the Gray Herbarium No. 214: 1-18.

Nontechnical Description: Perennial with low, compact growth-form commonly referred to as a "cushion-plant". It has small, but conspicuous, yellow flowers which make it easy to see when it is in flower. The flowers, and later the fruits are borne at the end of short (about 1.0"), leafless stems which are carried upright at the ends of short, densely leafy branches. The fruits are ovate pods, up to about 1/5" long, and densely covered with forked hairs.

Technical Description: Perennial, caespitose, clumps up to 10 cm across; caudex profusely branched, dense, covered with old leaves and leaf-bases, leaves densely rosulate, entire, oblong to spatulate, obtuse, 2-3 mm long, 1-1.5 mm wide, pubescent with coarse dendritic or forked trichomes, simple trichomes often present on margins toward leaf-base, trichomes crooked, dendritic ones usually branched near apex; fruiting stems scapose, erect, densely covered with coarse dendritically branched trichomes, 1-3 cm long including infructescences; sepals obovate, nonsaccate, hyaline margined, pubescent, 2.5-3 mm long, ca. 2 mm wide; petals 2.5-3.5 mm long, 2.2-2.8 mm wide, blade nearly orbicular to broadly ovate, narrowed abruptly to a short claw less than 1 mm long; filaments 1-1.5 mm long, dilated at base; anthers oval, less than 1 mm long; fruiting pedicels divaricately ascending, straight, densely pubescent, 2-3 mm long; siliques ovate, flattened toward apex, densely covered with dendritic trichomes, 2.5-4 mm long, 2-3 mm wide; styles ca. 0.5 mm long; seeds plump, oblong to narrowly oval, wingless, 1.8-2 mm long, ca. 1.2 mm wide; ovules 2-4 per locule; cotyledons accumbent. (Rollins 1984).

Distinguishing Features and Similar Species: Numerous species of Draba are found in the mountainous areas of south-central Idaho. Among these are the wide-ranging species D. densifolia, D. lonchocarpa, D. oligosperma, and D. paysonii var. treleasii, as well as the endemics D. argyraea, D. oreibata, D. hitchcockii, and D. sphaerocarpa. Of these species, D. paysonii var. treleasii most resembles D. trichocarpa. Technical differences in the types and mixtures of trichomes on various parts of the plant distinguish the two. Habitats of the two species are also different, with D. paysonii var. treleasii occurring at higher elevations, generally above timberline, in the Sawtooth Range and White Cloud Peaks, and D. trichocarpa being restricted to the valley floor of the Stanley Basin.

The following discussion outlining differences between the D. paysonii var. treleasii and D. trichocarpa is taken from Rollins (1984):

> "Large simple or forked trichomes predominate in var. treleasii while similar dendritically branched trichomes are mostly present in D. trichocarpa. In the latter, the dendritic trichomes are erect on the fruits, pedicels, and scapes and under magnification give the appearance of a dense forest in miniature. Individual trichomes are branched primarily toward the top of a comparatively long stalk. The situation is somewhat different on the leaf surfaces where dendritic trichomes predominate on the leaf surfaces and larger forked or sometimes simple ones are on the margins."

DISTRIBUTION

Range: Until 1987, D. trichocarpa was known only from the type locality on a small knoll along the Stanley Creek Road, 6.4 miles northwest of Stanley. Field investigations by Caicco (1988) in 1987, and Caicco and myself in 1988 (this report), have extended the known distribution of the species from the original population on Stanley Creek to the bluffs along Valley Creek opposite Stanley, the bluffs along the Salmon River between Stanley and Lower Stanley, and slopes above the Arrow A Ranch along the Salmon River east of Stanley. Only 14 populations are known within this area, occupying a total area of approximately 100 acres. See Appendix I for maps and Appendix II for demographic details for the 14 populations.

Searches of suitable-appearing habitat outside of the limits described above were unsuccessful in finding any other populations of Draba trichocarpa. Areas searched unsuccessfully include upper Valley Creek, Marsh Creek, Salmon River below Lower Stanley, and the Sawtooth Valley (Salmon River above about Redfish Lake Creek).

In summary, Draba trichocarpa is a highly localized endemic of the Stanley Basin of south-central Idaho.

Habitat and Associated Species: Stanley whitlow-grass occurs on convex surfaces and upper slopes and ridges of rock outcrops and associated scree. It occurs on two granitic formations, as mapped by Fisher et al. (1983). The three Arrow A Ranch

populations occur on porphyritic biotite granite and grandiorite, while the remaining populations occur on undifferentiated granitic rocks of the Idaho Batholith. Draba trichocarpa appears restricted to bedrock or residual scree; it was not found on glacial drift or alluvial material.

Stanley whitlow-grass does not occur in any community described in the literature. Vegetative cover is low, consisting of widely scattered plants on rock and scree surfaces. The two other Stanley Basin endemics, Eriogonum meledonum and Thlaspi aileeniae, occur with Stanley whitlow-grass in this habitat in some places. Other species observed include Eriogonum flavum, E. ovalifolium, E. umbellatum, Sedum lanceolatum, Artemisia arbuscula ssp. thermopola, Festuca idahoensis, Poa secunda, Erigeron linearis, Erigeron compositus, Lesquerella occidentalis, Antennaria microphylla, Phlox sp., Sitanion hystrix, and Polemonium viscosum. Vegetation adjacent to Stanley whitlow-grass habitat includes Artemisia tridentata ssp. vaseyana/Festuca idahoensis and A. arbuscula ssp. thermopola/F. idahoensis habitat types (Hironaka et al. 1983).

The rock outcrop habitat in which Draba trichocarpa is most commonly found is sometimes referred to as "primary successional" by ecologists with the implication that in time these habitats will develop into more fully vegetated communities, which presumably would exclude the species characteristic of the earlier successional stages. While such processes in fact do operate in these environments, the extended time period over which they alter the environment is often undervalued in citing them as a threat to the conservation of species. An exception occurs in those cases where species, as a result of human activities, accelerate the rate of successional processes; this exceptional situation does not appear to be of concern at this time.

STATUS

Ownership: Ownership of the 14 populations is listed below:

1. Stanley Creek - SNRA
2. Sportsmen's Access #1 - SNRA
3. Sportsmen's Access #2 - SNRA
4. Stanley #1 - mostly private, some SNRA
5. Stanley #2 - mostly private, some SNRA
6. Stanley #3 - SNRA
7. Stanley #4 - private and SNRA
8. Middle Stanley - SNRA
9. Lower Stanley - SNRA
10. Lower Stanley East - SNRA
11. Mile 377.5 Gulch - SNRA
12. Arrow A Ranch North - SNRA
13. Arrow A Ranch South #1 - private
14. Arrow A Ranch South #2 - mostly private, some SNRA

Threats: Past threats include: 1) limited destruction of some of the habitat through the construction of State Highway 75, between Stanley and Lower Stanley, and 2) limited habitat

modification through trail bike impacts at the Stanley Creek population.

Existing threats include continued trail bike use at Stanley Creek and road maintenance activities, including herbicide spraying, to roadside populations. Cattle grazing does not appear to pose a significant threat.

The single greatest potential threat to the long-term viability of populations of Draba trichocarpa is road improvement projects along Highway 75. Two major populations lie between Stanley and Lower Stanley, occurring on narrow rock outcrops along the road. The highway is confined between the bluff habitat of D. trichocarpa and the Salmon River along this stretch. Hence, the road is narrow and the possibility exists that a road-widening project would pose a major threat to the populations in this area, which are the core of the range of the species.

Management Implications: For the most part, existing land-use of habitat containing all known populations of Draba trichocarpa appears compatible with its long-term viability. Although limited at present, trail bike use at the Stanley Creek population should be monitored by the SNRA. If it increases to the point where habitat destruction is taking place, measures should be taken to restrict trail bike use in the area.

ASSESSMENT AND RECOMMENDATIONS

Summary: Despite the apparent narrow distribution of Draba trichocarpa, there does not appear to be any immediate concern for the vigor or conservation status of the species. Although only 14 populations are known, most appear to be comprised of numerous individuals of various size (age?) classes. On the basis of limited information available, there appear to be no reproductive problems. Several populations lie along roadsides, thereby making them susceptible to highway improvement projects and/or highway maintenance activities. Some limited habitat modification is occurring to at least one population from trail bike impacts.

Recommendation to U.S. Fish and Wildlife Service: A status survey of D. trichocarpa was conducted for the Fish and Wildlife Service by Steve Caicco (1988) in 1987. His recommendation was that, although it has a very narrow distribution, it does not currently appear to be in jeopardy. He recommended that Draba trichocarpa be designated a Category 1 candidate species with a listing priority of 11. In other words, Draba trichocarpa is a species for which the Fish and Wildlife Service has sufficient biological information to proceed with listing, but there are currently non-imminent threats of low to moderate magnitude.

Recommendation to Sawtooth National Forest: All sites of Draba trichocarpa on public lands are within the SNRA and are under the management jurisdiction of the Sawtooth National Forest. The species should be maintained on the Region 4 Sensitive Species List for the Sawtooth National Forest. The Sawtooth National Forest should consider the impacts of its current and future management activities on the conservation status of the species. In lieu of formal listing, the Forest Service should develop a Habitat Management Plan (HMP) for the species in coordination with the U.S. Fish and Wildlife Service. As discussed later, an HMP for D.

trichocarpa should also include Eriogonum meledonum. Acquisition of the populations on private land should be given high priority.

There does not appear at this time to be any need for formal monitoring of the species. However, if monitoring is deemed necessary for the conservation of Eriogonum meledonum, D. trichocarpa should also be included. Land managers should be aware of all locations of the known populations. In particular, the potential for negative impacts to known populations by highway improvement/maintenance projects and increased trail bike use should be considered.

Newly located populations should be documented and location information should be submitted to the Idaho Natural Heritage Program for entry into their permanent data base on sensitive species.

Thlaspi aileeniae Rollins

CURRENT STATUS USFS Region 4 Sensitive Plant Species
Recommended USFWS Category 2 Candidate Species

TAXONOMY

Family: Brassicaceae or Cruciferae (Mustard)

Common Name: Stanley Thlaspi

Citation: Rollins, R.C. 1984. Studies in the Cruciferae of western North America II. Contributions from the Gray Herbarium No. 214: 1-18.

Nontechnical Description: Stanley thlaspi is a small, tufted perennial, with 1 to several upright stems, 1-2" tall. The plant has a basal rosette of small, oval leaves and 1-3 even smaller stem leaves. The 4-petaled, white flowers, and later the fruits, occur in a short, dense inflorescence. Flowering generally occurs in May, soon after the snow melts.

Technical Description: Caespitose glabrous perennial with few to many upright stems; caudex branches congested below the ground level; stems simple, rigid, slender, (1.5-) 2-4 (-5) cm tall including mature infructescences; basal leaves tufted, erect, fleshy, linear to linear-oblanceolate, sometimes nearly terete, entire, obtuse, 1-1.5 mm wide near apex and narrowing to point of insertion (5-) 6-9 (-10) mm long; cauline leaves (0-) 1-3 (-4) per stem, oblong, sessile, non-auriculate or with small auricles on uppermost leaves, (3-) 4-6 (-7) mm long, 1-2 mm wide; infructescences dense, 1-2 cm long; pedicels straight, nearly at right angles to rachis to divaricately ascending, (2-) 3-4 (-5) mm long; petals 4, white; siliques divaricately ascending to erect, obovate to nearly elliptical, truncate to obtuse or acute at base of style, 4-6 (-7.5) mm long, 2.5-4 mm wide; styles 1 mm or less long; ovules 2-5 in each locule; seeds plump, brown, wingless, narrowly oval in outline but tapered toward each end, 1.5-2 mm long, 1-1.2 mm wide; cotyledons accumbent.

Distinguishing Features and Similar Species: One other species of Thlaspi is sympatric with T. aileeniae in the Stanley Basin - Sawtooth Valley area. Thlaspi montanum var. idahoense (T. fendleri var. idahoense) is a variety endemic to the mountains of south-central Idaho in Blaine, Camas, Custer, Elmore and Valley counties, where it occurs from mid-elevation sagebrush communities at about 6000' to alpine communities above 11,000'. This small, low-growing variety is distinguished from other varieties of T. montanum by its short stature, loosely caespitose habit, and narrow oblanceolate leaves which narrow so gradually as to provide difficulty in distinguishing between blade and petiole (Holmgren 1971).
Thlaspi aileeniae, described by Rollins (1984) with fruiting material from two collection sites, is apparently an even smaller plant than T. montanum var. idahoense. The following discussion outlining the differences between T. aileeniae and T. montanum var. idahoense is from Rollins (1984):

"The most easily seen, and in many ways the most distinctive, features of Thlaspi aileeniae are the basal leaves and growth habit. The narrow, erect basal leaves of T. aileeniae are like those of no other North American species of Thlaspi. But because there is a gradual flaring from the petiolar area to the broadened blade in T. montanum var. idahoense, this taxon comes closer to T. aileeniae than any other. Similarities between these two taxa also occur in silique form, and the shortness of the sterile portion of the fertile stems. They differ in style length, density of the infructescence and auriculation of the cauline leaves. Substantial auricles are found on all cauline leaves of var. idahoense but none are present or there are but the barest suggestions of auricles on the uppermost leaves of T. aileeniae. The lower cauline leaves are definitely non-auriculate. In the latter species, the infructenscences are so dense and so short that it approaches a subumbellate condition. In contrast, the infructescences of var. idahoense are definitely elongated. The styles of T. aileeniae are 1 mm long or less and in this respect are more like those of T. parviflorum and T. mexicanum than any other North American taxon."

Observations by Steve Caicco and myself in 1986 and 1988, revealed that the two taxa are abundant and sympatric in sagebrush communities in upper Marsh Creek, the Stanley Basin and Sawtooth Valley, and alluvial terraces in the upper Big Wood River drainage. Descriptions of Thlaspi montanum var. idahoense by Holmgren (1971) and Thlaspi aileeniae by Rollins (1984) appear to represent extremes in a cline of morphological variation seen in Thlaspi in the valleys of this part of Idaho; T. montanum var. idahoense represents the larger end of the cline and T. aileeniae the smaller. For many features, however, the morphological limits of Holmgren's var. idahoense includes those described by Rollins for T. aileeniae. The distribution of the two morphological extremes coincides with extremes in microhabitats within sagebrush communities; the T. montanum var. idahoense extreme occurs in grassy areas or under sagebrush plants, while the T. aileeniae extreme occurs on harsher sites, such as loose, bare soil areas on steep slopes and in openings between sagebrush plants. Rollins (1984) acknowledged this cline when he described one collection from the Sawtooth Valley as being intermediate between the two extremes by having "somewhat shortened infructescences but the cauline leaves are distinctly auriculate, the basal leaves have blades, and the styles are 1.5-2 mm long".

Numerous collections of Thlaspi were made by Steve Caicco during May 1988, and sent to Patricia Holmgren, New York Botanical Garden, and Reed Rollins, Harvard University, for their opinion as to what taxa/taxon are/is represented. We have not yet received a response.

Below is a conspectus comparing Thlaspi aileeniae and T. montanum var. idahoense using descriptions contained in Holmgren (1971) and Rollins (1984).

Feature	T. aileeniae	T. montanum
PLANT	glabrous	glabrous (sometimes glaucous)
	caespitose	loosely caespitose
STEM	simple, rigid, slender	simple, slender

	(1.5-) 2-4 (-5) cm tall	(3-) 4-11 (-11.5) cm tall
BASAL LEAVES	linear to linear-oblanceolate.	oblanceolate
	entire, obtuse	entire to shallowly dentate
	1-1.5 mm wide	(1.1-) 2-4 (-5) mm wide
	(5-) 6-9 (-10) mm long	(4.5-) 8-19 (-28) mm long
CAULINE LEAVES	(0-) 1-3 (-4) per stem	(2-) 3-7 (-9) per stem
	sessile	sessile
	non-auriculate, mostly	auriculate clasping
	(3-) 4-6 (-7) mm long	(4-) 5-11 (-12) mm long
	1-2 mm wide	(1.5-) 2-4 mm wide
INFRUCTESCENCES	dense	moderately elongate
	1-2 cm long	(1.3) 1.5-4.7 (-5.3) cm long
PEDICELS	horizontal to horizontal-ascending...	horizontal to horizontal-ascending
	(2-) 3-4 (-5) mm long	(2.7-) 3-6.5 (-8.0) mm long
SILIQUES	obovate to nearly elliptical	obovate to elliptic
	truncate to obtuse or acute	truncate to obtuse
	4-6 (-7.5) mm long	(4-) 5-8 (-9.5) mm long
	2.5-4 mm wide	(2.5-) 2.7-4.0 (-4.5) mm wide
STYLE	1 mm or less	(0.5-) 0.8-2 (-2.5) mm long
OVULES	2-5 per locule	2-8 per silique?
SEEDS	brown	golden brown to dark brown
	1.5-2 mm long	(1.3-) 1.4-1.7 (-1.8) long

Following is a key to the two Thlaspi taxa found in sagebrush communities in the broad valleys of the Stanley area:

1. Plants with narrow, erect basal leaves; style 1 mm or less; dense infructescence, 1-2 cm long; cauliine leaves nonauriculate, except sometimes the uppermost ones barely so.
T. aileeniae Rollins

1. Plants with oblanceolate, spreading to erect basal leaves; style (0.5-) 0.8-3 (-2.5) mm

long; moderately elongate infructescence, (1.3-) 1.5-4.7 (-5.3) cm long; cauline leaves all auriculate clasping.

T. montanum L. var. idahoense (Payson) P. Holmgren

DISTRIBUTION

Range: Until 1986, T. aileeniae was known only from two locations, cited in Rollins (1984); near Dry Creek in the upper Marsh Creek valley and along Stanley Creek. Information gathered since 1986, indicates that this species may be distributed from the upper Marsh Creek valley, south through the Stanley Basin and Sawtooth Valley to the upper Big Wood River valley near Easley Creek. When Rollins and Holmgren make final decisions as to the taxonomic disposition of the Thlaspi collections made by Caicco in 1988, we will have a better idea of its distribution. See Appendix III for a map of the known distribution of T. aileeniae.

No searches were made outside of the areas described above. Further searches may reveal an even wider distribution.

Habitat and Associated Species: Thlaspi aileeniae occurs within the Artemisia arbuscula ssp. thermopola/Festuca idahoensis and Artemisia tridentata ssp. vaseyana/Festuca idahoensis habitat types (Hironaka et al. 1983) occurring on glacial outwash terraces and residual bedrock ridges. Soils are generally sandy in texture. It also occurs on the margins of undescribed rock outcrop and scree communities of ridgelines and bluffs, some of which contain Draba trichocarpa and Eriogonum meledonum. Other species associated with these habitats include Eriogonum ovalifolium, E. umbellatum, Sedum lanceolatum, Poa secunda, Erigeron compositus, Lesquerella occidentalis, Antennaria microphylla, Phlox sp., Sitanion hystrix, and Polemonium viscosum, Senecio integerrimus, Balsamorhiza sagittata, Lupinus sp., Agropyron spicatum.

Moderate to light grazing in sagebrush communities does not appear to affect Thlaspi aileeniae, as it occurs in many areas where the "potential natural community" has been degraded to a mid-seral state or lower. Complete alteration of the community by housing development or plowing will, however, cause local extirpation of T. aileeniae.

STATUS

Ownership: Most of the area within the known distribution of Thlaspi aileeniae is public land administered by the Challis National Forest (upper Marsh Creek) and the Sawtooth National Recreation Area. Parcels of private land are scattered within this overall distribution in the Stanley Basin and Sawtooth Valley.

Threats: Based on observations made by myself and Steve Caicco, T. aileeniae appears to be common in the intermontane valleys in the SNRA and adjacent Marsh Creek valley of the Challis National Forest. If Pat Holmgren and Reed Rollins concur with this opinion, there appear to be no significant threats to the species, as much of this land will remain in its present state as specified in the legislation that created the SNRA. Most of the private land is used for grazing and supports T.

aileeniae. Since the SNRA controls the development rights to most (all?) private ranches within its boundaries, complete alteration of a significant amount of habitat there does not appear imminent.

Management Implications: Current management appears compatible with the continued existence of Thlaspi aileeniae.

ASSESSMENT AND RECOMMENDATIONS

Summary: Despite the apparent relatively narrow distribution of Thlaspi aileeniae, there does not appear to be any immediate concern for the vigor or conservation status of the species. Based on current knowledge, it occurs in the upper Marsh Creek valley, Stanley Basin, Sawtooth Valley and upper Big Wood River valley. Within this range it is a common member of two sagebrush habitat types and an undescribed rock and scree community. No threats exist now and none are foreseen.

Recommendation to U.S. Fish and Wildlife Service: Because Thlaspi aileeniae was thought to be extremely rare prior to 1986, it was recommended for inclusion on the next Federal Register list as a Category 2 Candidate species. If Holmgren and Rollins concur with our identification of Thlaspi collections made during this study, I will recommend that Thlaspi aileeniae no longer be considered rare or threatened enough for federal protection.

Recommendation to Sawtooth National Forest: Because of its apparent abundance, I tentatively recommend that Thlaspi aileeniae should be dropped from the Region 4 Sensitive Plant Species list for the Sawtooth and Challis national forests. A final recommendation will be made when and if Pat Holmgren and Reed Rollins concur with our identification of Thlaspi specimens collected during May 1988.

Newly located populations should be documented and location information should be submitted to the Idaho Natural Heritage Program for entry into their permanent data base on sensitive species.

Eriogonum meledonum sp. nov.

CURRENT STATUS USFS Region 4 Sensitive Plant Species

TAXONOMY

Family: Polygonaceae (Buckwheat)

Common Name: Guardian Buckwheat

Citation: None. The species has not been formally described.

Nontechnical Description: Eriogonum meledonum is a grayish-woolly perennial forming moderately dense mats 2-12" wide. The numerous, erect leaves are oblanceolate, about 2" long. The inflorescence consists of a capitate cluster of numerous, small, bright yellow flowers terminating a naked, 8-10" tall flowering stem.

Technical Description: Since this species has not been formally described in the literature, no detailed technical description has been written.

Distinguishing Features and Similar Species: Guardian buckwheat belongs to a group of undescribed Eriogonum taxa formally lumped into E. chrysops (Dr. James Reveal, University of Maryland, personal communication). The group is characterized by its mat-forming habit, grayish-woolly leaves and capitate inflorescence of yellow flowers and a naked peduncle. No other phases of this complex are sympatric with E. meledonum, so it remains quite distinct among buckwheats on the floor of the Stanley Basin and Sawtooth Valley. A related taxon, tentatively named E. capistratum var. muhlickii, occurs at high elevations in the Sawtooth Mountains and is characterized by its smaller stature, among other things (Reveal, personal communication).

At least four other Eriogonum species occur in the same or adjacent habitats as E. meledonum. The following key can be used to separate the five species:

1. Bracts subtending the inflorescence are foliaceous (leaf-like), 2-several in number.

    2. Lobes of involucre (lobed, tubular structure subtending umbels) at least half as long as the tube and generally reflexed or spreading.

        3. Flowering stem with a whorl of relatively large bracts near mid-length; leaves linear to linear lanceolate or oblanceolate; plants loosely sprawling and robust; found mostly in sagebrush communities.

            1. **E. heracleoides Nutt.**

        3. Flowering stems without whorl of bracts near midlength; bracts immediately subtending umbels; leaves generally elliptic; plants loosely sprawling; found from

sagebrush communities to loose slopes.

2. **E. umbellatum Torr.**

2. Lobes of involucre erect, less than half the length of the tube; leaves generally greenish above, whitish-woolly beneath; plants caespitose; found in areas exposed to wind, generally with stable substrate.

3. **E. flavum Nutt.**

1. Bracts subtending the inflorescence scale-like, few in number.

4. Leaf blades small, elliptic, white; flowers light yellow to cream; plants densely caespitose and low; generally distributed from sagebrush to exposed slopes and rock outcrops.

4. **E. ovalifolium Nutt.**

4. Leaf blades oblanceolate; flowers bright yellow; plants forming relatively dense, sprawling mats; on steep, unstable scree slopes or rock outcrops.

5. **E. meledonum sp. nov.**

DISTRIBUTION

Range: Until recently, E. meledonum was known only from one rock outcrop next to Hwy. 75, two miles north of Obsidian. Field investigations by Steve Caicco and myself from 1986-88, have extended the known distribution of the species from the Obsidian population, north to the slopes above the Arrow A Ranch along the Salmon River east of Stanley, bluffs along Valley Creek opposite a Sportsmen's Access east of Stanley, and a small knoll along Stanley Creek. Only eight populations are known within this area, occupying a total area of less than 45 acres. Six of these populations are sympatric with Draba trichocarpa. See Appendix I for maps and Appendix IV for demographic details for the eight populations.

Searches of suitable-appearing habitat outside of the limits described above were unsuccessful in finding any other populations of guardian buckwheat. Areas searched unsuccessfully include upper Valley Creek, Marsh Creek, bluffs near the confluence of Valley Creek and the Salmon River, Salmon River below Lower Stanley, and the Sawtooth Valley south of Obsidian.

In summary, Eriogonum meledonum is a highly localized endemic of the Stanley Basin and northern Sawtooth Valley of south-central Idaho.

Habitat and Associated Species: Guardian buckwheat occurs on convex surfaces and upper slopes and ridges of rock outcrops and associated scree. It occurs on two granitic formations, as mapped by Fisher et al. (1983). The Obsidian and three Arrow A Ranch populations occur on biotite granite and grandiorite, while the three Sportsmen's Access and Stanley Creek populations occur on undifferentiated granitic rocks of the Idaho Batholith. Eriogonum meledonum appears restricted to bedrock or residual scree; it was not found on glacial drift or alluvial material.

Guardian buckwheat does not occur in any community described in the literature. Vegetative cover is low, consisting of widely scattered plants on rock and scree surfaces. The two other Stanley Basin endemics, Draba trichocarpa and Thlaspi aileeniae, occur with guardian buckwheat in this habitat in some places. Other species observed include Eriogonum flavum, E. ovalifolium, E. umbellatum, Sedum lanceolatum, Artemisia arbuscula ssp. thermopola, Festuca idahoensis, Poa secunda, Erigeron linearis, Erigeron compositus, Lesquerella occidentalis, Antennaria microphylla, Phlox sp., Sitanion hystrix, and Polemonium viscosum. Vegetation adjacent to guardian buckwheat habitat includes Artemisia tridentata ssp. vaseyana/Festuca idahoensis and A. arbuscula ssp. thermopola/F. idahoensis habitat types (Hironaka et al. 1983).

The rock outcrop habitat in which Eriogonum meledonum is most commonly found is sometimes referred to as "primary successional" by ecologists with the implication that in time these habitats will develop into more fully vegetated communities, which presumably would exclude the species characteristic of the earlier successional stages. While such processes in fact do operate in these environments, the extended time period over which they alter the environment is often undervalued in citing them as a threat to the conservation of species. An exception occurs in those cases where species, as a result of human activities, accelerate the rate of successional processes; this exceptional situation does not appear to be of concern at this time.

STATUS

Ownership: Ownership of the eight populations is listed below:

1. Stanley Creek - SNRA; also with Draba trichocarpa
2. Sportsmen's Access #1 - SNRA; also with Draba trichocarpa
3. Sportsmen's Access #2 - SNRA; also with Draba trichocarpa
4. Sportsmen's Access #3 - SNRA
5. Arrow A Ranch North - SNRA; also with Draba trichocarpa
6. Arrow A Ranch South #1 - private; also with D. trichocarpa
7. Arrow A Ranch South #2 - private and SNRA; also with D. trichocarpa
8. Obsidian - private and SNRA

Threats: Past, existing and potential threats appear limited to habitat modification by trail bike use of the slopes at the Stanley Creek population. Cattle grazing does not appear to be a threat at this time, and if stocking levels do not increase, no conflicts are foreseen.

Management Implications: For the most part, existing land-use of habitat containing all known populations of Eriogonum meledonum appears compatible with its long-term viability. Although limited at present, trail bike use at the Stanley Creek population should be monitored by the SNRA. If it increases to the point where habitat destruction is taking place, measures should be taken to restrict trail bike use in the area.

ASSESSMENT AND RECOMMENDATIONS

Summary: The entire extent of known guardian buckwheat populations comprises less than 45 acres and contains 2,500 to 3,500 individuals, making it inherently vulnerable to extinction. Despite this apparent narrow distribution, however, there does not appear to be any immediate concern for the vigor or conservation status of the species. Although only seven populations are known, most are comprised of numerous individuals of various size (age?) classes. On the basis of limited information available, there appear to be no reproductive problems. Some limited habitat modification is occurring to at least one population from trail bike impacts.

Recommendation to U.S. Fish and Wildlife Service: When guardian buckwheat is formally described within the next couple of years (Reveal, personal communication), a recommendation will be made to the Fish and Wildlife Service to designate it a Category 1 candidate species with a listing priority of 8. In other words, with this report the Service has enough biological information to proceed with listing Eriogonum meledonum as threatened or endangered, and there are imminent threats (due to its low numbers and very restricted distribution) of low to moderate magnitude.

Recommendation to Sawtooth National Forest: All sites of Eriogonum meledonum on public lands are within the SNRA and are under the management jurisdiction of the Sawtooth National Forest. The species should be maintained on the Region 4 Sensitive Species List for the Sawtooth National Forest. The Sawtooth National Forest should carefully consider the impacts of its current and future management activities on the conservation status of the species. In lieu of formal listing, the Forest Service should develop a Habitat Management Plan for the species in coordination with the U.S. Fish and Wildlife Service. Acquisition of the populations on private land should be given high priority.

There does not appear, at this time to be any need for formal monitoring of the species, but land managers should be aware of the locations of all known populations. A monitoring program may, however, be deemed desirable upon completion of a HMP. Any monitoring for Eriogonum meledonum should include Draba trichocarpa.

Newly located populations should be documented and location information should be submitted to the Idaho Natural Heritage Program for entry into their permanent data base on sensitive species.

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Appendix I

Maps of precise occurrences of
Draba trichocarpa and Eriogonum meledonum.

Map 1. Portion of Basin Butte 7.5' quadrangle.
Map 2. Portion of Stanley 7.5' quadrangle.
Map 3. Portion of Stanley 7.5' quadrangle
Map 4. Portion of Obsidian 7.5' quadrangle.

Appendix II

Demographic data for 14 Draba trichocarpa populations.

1. Stanley Creek
    a. Location:
    b. Area: 5 ac.
    c. Number of plants: Several hundred plants in 1987.
    d. Density: Moderate.
    e. Evidence of expansion/contraction: Limited trail bike impacts.

2. Sportsmen's Access #1
    a. Location:
    b. Area: 5 ac.
    c. Number of plants: Several hundred to 1,000 plants in 1987.
    d. Density: Moderate to low.
    e. Evidence of expansion/contraction: No evidence.

3. Sportsmen's Access #2
    a. Location:
    b. Area: 5 ac.
    c. Number of plants: Several hundred to 1,000 plants in 1988.
    d. Density: Moderate.
    e. Evidence of expansion/contraction: Some trampling by cattle.

4. Stanley #1
    a. Location:
    b. Area: 5 ac.
    c. Number of plants: Several hundred in 1988.
    d. Density: Low
    e. Evidence of expansion/contraction: No evidence.

5. Stanley #2
    a. Location:
    b. Area: 5 ac.
    c. Number of plants: Several hundred in 1988.
    d. Density: Moderate.
    e. Evidence of expansion/contraction: No evidence.

6. Stanley #3
    a. Location:
    b. Area: 3 ac.
    c. Number of plants: 50 to 100 plants in 1988.
    d. Density: Moderate
    e. Evidence of expansion/contraction: No evidence.

7. Stanley #4
    a. Location:
    b. Area: 10 ac.
    c. Number of plants: Several hundred to 1,000 plants in 1987.
    d. Density: Moderate to high.
    e. Evidence of expansion/contraction: No evidence.

8. Middle Stanley
    a. Location:
    b. Area: 5 ac.
    c. Number of plants: Several hundred to 1,000 plants in 1987.
    d. Density: Moderate.
    e. Evidence of expansion/contraction: Some contraction of the population has occurred due to road construction.

9. Lower Stanley
    a. Location:
    b. Area: 8 ac.
    c. Number of plants: Several hundred to 1,000 plants in 1987.
    d. Density: Moderate.
    e. Evidence of expansion/contraction: Road cut has probably caused some contraction of original size.

10. Lower Stanley East
    a. Location:
    b. Area: 20 ac.
    c. Number of plants: Several hundred plants in 1987.
    d. Density: Moderate to high.
    e. Evidence of expansion/contraction: No evidence.

11. Mile 377.5 Gulch
    a. Location:
    b. Area: 5 ac.
    c. Number of plants: Perhaps a hundred plants in 1988.
    d. Density: Low to moderate.
    e. Evidence of expansion/contraction: No evidence.

12. Arrow A Ranch North
    a. Location:

b. Area: 15 ac.
c. Number of plants: Several hundred to 1,000 plants in 1988.
d. Density: Moderate to high.
e. Evidence of expansion/contraction: No evidence.

13. Arrow A Ranch South #1
    a. Location:
    b. Area: 5 ac.
    c. Number of plants: Several hundred plants in 1988.
    d. Density: Low to moderate.
    e. Evidence of expansion/contraction: Trampling by cattle and\or elk.

14. Arrow A Ranch South #2
    a. Location:
    b. Area: 5 ac.
    c. Number of plants: Several hundred plants in 1988.
    d. Density: Low to moderate.
    e. Evidence of expansion/contraction: Trampling by animals.

Appendix III

Maps of the known populations of Thlaspi aileeniae.

Map 1. Portion of Challis 1:250,000 quadrangle.
Map 2. Portion of Hailey 1:250,000 quadrangle.

Appendix IV

Demographic data for eight Eriogonum meledonum populations.

1. Stanley Creek
    a. Location:
    b. Area: 100 yd^2
    c. Number of plants: About 50 plants in 1988.
    d. Density: Moderate.
    e. Evidence of expansion/contraction: Limited trail bike impacts.

2. Sportsmen's Access #1
    a. Location:
    b. Area: 5 ac.
    c. Number of plants: Several hundred plants in 1988.
    d. Density: Moderate to low.
    e. Evidence of expansion/contraction: No evidence.

3. Sportsmen's Access #2
    a. Location:
    b. Area: 5 ac.
    c. Number of plants: Several hundred plants in 1988.
    d. Density: Moderate.
    e. Evidence of expansion/contraction: Some trampling by cattle.

4. Sportsmen's Access #3
    a. Location:
    b. Area: 10 ac.
    c. Number of plants: Several hundred to 1,000 plants in 1988.
    d. Density: Moderate.
    e. Evidence of expansion/contraction: Some trampling by cattle.

5. Arrow A Ranch North
    a. Location:
    b. Area: 10 ac.
    c. Number of plants: Several hundred plants in 1988.
    d. Density: Moderate.
    e. Evidence of expansion/contraction: No evidence.

6. Arrow A Ranch South #1
    a. Location:
    b. Area: 1.5 ac.
    c. Number of plants: About 50 plants in 1988.
    d. Density: Low to moderate.
    e. Evidence of expansion/contraction: Extensive trampling by cattle and elk.

7. Arrow A Ranch South #2
    a. Location:
    b. Area: 1.5 ac.
    c. Number of plants: About 50 plants in 1988.
    d. Density: Low to moderate.
    e. Evidence of expansion/contraction: Extensive trampling by cattle and elk.

8. Obsidian
    a. Location:
    b. Area: 10 ac.
    c. Number of plants: Several hundred plants in 1988.
    d. Density: Low to moderate.
    e. Evidence of expansion/contraction: No evidence.

APPENDIX V

Slides of Draba trichocarpa, Thlaspi aileeniae,
and Eriogonum meledonum and their habitats.

1. Draba trichocarpa close-up.
2. Thlaspi aileeniae close-up.
3. Thlaspi aileeniae close-up.
4. Thlaspi aileeniae within Artemisia arbuscula ssp. thermopola/Festuca idahoensis habitat type.
5. Eriogonum meledonum close-up.
6. Eriogonum meledonum close-up.
7. Eriogonum meledonum on rock outcrop at Obsidian site.
8. Stanley Creek site - Draba trichocarpa, Thlaspi aileeniae, and Eriogonum meledonum occur here.
9. Stanley Creek site - Draba trichocarpa, Thlaspi aileeniae, and Eriogonum meledonum occur here.
10. Middle Stanley site - Draba trichocarpa and Thlaspi aileeniae occur here.
11. Sportsmen's Access #3 - Eriogonum meledonum occurs here.
12. Bluffs along the north side of Valley Creek across from Stanley - Sportsmen's Access #1-3 and Stanley #1-4 occur on these bluffs.