

**MONITORING AND FIELD SURVEYS FOR
PENSTEMON IDAHOENSIS (IDAHO PENSTEMON)
ON THE TWIN FALLS RANGER DISTRICT, SAWTOOTH NATIONAL FOREST, IDAHO**

By

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ABSTRACT

Idaho penstemon (*Penstemon idahoensis*) is a Sawtooth National Forest Sensitive plant species narrowly endemic to the Goose Creek drainage in southern Cassia County, Idaho, and adjacent northern Box Elder County, Utah. Rangewide, it is known from approximately 15 occurrences, 4 of these on lands administered by the Twin Falls Ranger District, Sawtooth National Forest. In 2001, the Worthington Fire burned portions of the Goose Creek drainage. Because of conservation concerns for Idaho penstemon, the Sawtooth NF wanted to document and assess the effects of the fire on this species. The Forest also identified several areas in need of basic Sensitive plant field inventory work. To address these issues, the Sawtooth NF and Idaho Conservation Data Center collaborated on a project to conduct field surveys; assess the effects, if any, on Idaho penstemon from the recent Worthington Fire; and update records and resample monitoring stations at the three previously known Idaho penstemon occurrences located on Sawtooth NF land. Seven areas, totaling approximately 930 acres were searched during our survey. One new Idaho penstemon occurrence was discovered south of Orangeburg Spring. In addition, the North of Worthington Mine occurrence was found to be more extensive than previously known. No Idaho penstemon occurrences were affected by the Worthington Fire. All known occurrences were at least 0.2 mile from the closest burn perimeter. Occurrence update and monitoring results indicated Idaho penstemon population numbers, habitat conditions, and plant community data were similar to baseline values. No largescale or high impact disturbances have occurred since monitoring was initiated in 2000. A monitoring station was established and baseline information collected at the new South of Orangeburg Spring occurrence. While surveying for Idaho penstemon we also looked for Goose Creek milkvetch (*Astragalus anserinus*), but no populations of this other Sawtooth NF Sensitive plant species were found.

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INTRODUCTION

Idaho penstemon (*Penstemon idahoensis*) is a short, perennial, glandular forb with a showy display of blue flowers. It is endemic to the Goose Creek drainage in southern Cassia County, Idaho, and adjacent northern Box Elder County, Utah. Idaho penstemon is restricted to dry, light-colored, sparsely vegetated, tuffaceous exposures of Salt Lake Formation sediments. Its narrow distribution is likely related to this substrate specificity. Rangelwide, it is known from approximately 15 occurrences, most of them in Idaho. Four of the Idaho occurrences are located on the Sawtooth National Forest (NF). Because of its rarity and several identified threats, Idaho penstemon is a Sensitive plant species for the Sawtooth NF.

Occurrence update and baseline habitat monitoring information was collected at the majority of known Idaho penstemon occurrences in 2000 (Mancuso 2001a), and again in 2001 (Mancuso 2001b), including those on the Sawtooth NF. This information revealed intact, good quality habitat conditions prevailed at all Idaho penstemon occurrences in Idaho. Several threat factors identified during these revisits included disturbances associated with livestock grazing, weed invasion/control measures, off-road-vehicle use, and wildfires. The continuation of periodic monitoring is important to ensure timely management actions can be initiated if habitat degradation problems arise from one or more of these threat factors. Rationale to conduct another round of monitoring in 2002 was largely based on the Sawtooth NF wanting to document and assess the effects of the 2001 Worthington Fire on Idaho penstemon. In addition to monitoring needs, the Sawtooth NF identified several areas in need of basic field inventory work for Idaho penstemon. To address these issues, the Sawtooth NF and Idaho Conservation Data Center (IDCDC) collaborated on a monitoring and inventory project for Idaho penstemon in 2002. The primary objectives of this project were to:

- 1) survey tuffaceous outcrops for new Idaho penstemon occurrences in the Daves Pass, Dry Gulch, Beaverdam Creek, and other areas with potentially suitable habitat;
- 2) update records for Idaho penstemon occurrences located on lands administered by the Sawtooth NF, paying special attention to assess the effects of recent wildfires in the Goose Creek area;
- 3) resample previously established monitoring stations at the three Idaho penstemon occurrences located on the Sawtooth NF - Right Hand Fork Beaverdam Creek, Orangeburg Spring, and North of Worthington Mine; and
- 4) establish permanently-marked monitoring stations and collect baseline information for any new occurrences discovered on Sawtooth NF lands.

METHODS

Field surveys

Several areas with potentially suitable Idaho penstemon habitat were identified prior to initiating field work. This base list of survey areas was compiled in collaboration with Kim Pierson, the Sawtooth NF botanist. Survey areas were identified using two methods: (1) prior knowledge of the project area and familiarity with the location of some potentially suitable tuff/ash outcrop habitats; and (2) reviewing aerial photographs of the Goose Creek area to locate additional potentially suitable light-colored tuff/ash outcrop habitats. Areas with known or potential Sensitive plant management issues were considered a priority for field survey. Proximity to previously known Idaho penstemon occurrences and access issues were also considered when selecting areas to survey. Table 1 lists the specific areas surveyed in 2002. Field surveys were

conducted by walking through and around selected survey areas and thoroughly looking for the target species.

Table 1. *Penstemon idahoensis* 2002 field survey areas on the Sawtooth National Forest.

Survey area	USGS 7.5' quad	Legal description
Upper Coal Banks Creek	Blue Hill	T15S R21E S34 W1/2, S33 E1/2
Dave's Pass	Ibex Peak	T15S R21E S30 SW1/4; T15S R20E S25 SE1/4
Dry Gulch	Ibex Peak	T15S R21E S31 SW1/4; T15S R20E S36 SE1/4; T16S R21E S6 NW1/4; T16S R20E S1 NE1/4
Right Hand Fork Beaverdam	Ibex Peak	T15S R20E S35 S1/2; T16S R20E S2 N1/2
Left Hand Fork Beaverdam	Ibex Peak	T16S R20E S13, S14 NE1/4
NE Creek	Ibex Peak	T16S R20E S22 SE1/4, S23 S1/2
Lower NE Canyon	Ibex Peak	T16S R20E S25 W1/2, S26 E1/2, S35 NE1/4

Monitoring

Permanently marked monitoring stations were established at eight Idaho penstemon occurrences located on public land in June 2000, including three on the Sawtooth NF. This was part of an effort to update occurrence information and obtain baseline habitat monitoring information for several of Idaho's rarest plant species (Mancuso 2001a). Information collected in 2000 represented baseline conditions against which future monitoring results could be compared. A second year of monitoring information was collected at each of the Idaho penstemon occurrences in 2001, as part of a project sponsored by the Bureau of Land Management's Upper Snake River District (Mancuso 2001b). Monitoring conducted in 2002 represents a third consecutive year of habitat condition and occurrence update information for the Right Hand Fork Beaverdam Creek (004), Orangeburg Spring (005), and North of Worthington Mine (006) Idaho penstemon occurrences on the Sawtooth NF. In addition, a monitoring station was established and baseline information collected for the new Orangeburg Spring South (014) occurrence discovered in 2002.

Monitoring in 2002 followed the protocol used for the previous two years (Mancuso 2001a; Mancuso 2001b). The protocol is reiterated below, but the two earlier reports should be consulted for additional information.

Plot establishment

Locations of the monitoring stations are chosen after completing a reconnaissance of most or all of the occurrence area. The stations are then subjectively located in habitat representative of the overall occurrence and monumented using red-painted rebar stakes hammered into the ground. The monitoring stations are mapped and GPS coordinates obtained. The monitoring protocol consists of three components: (1) collecting plant community information; (2) taking photo point photographs; and (3) updating general occurrence information, including an assessment of threats and vulnerability.

Plant community monitoring

Plant community habitat data are collected using a 1/10th acre circular plot and methods outlined in Bourgeron et al. (1992). The rebar stake permanently marking the location of the

monitoring station serves as the center of each plot. Plant community information is based on ocular estimates of cover class values for all vascular plant species occurring in the plot. For each plot, an Ocular Plant Species Data form listing the estimated percent cover for every plant species in the plot is completed. Cover class estimates are also made for several ground cover categories, including soil, gravel, rock, wood, litter, moss/lichen, and basal vegetation. Cover classes used for the monitoring program are:

1 = <1%	30 = 25 - 34.9%	70 = 65 - 74.9%
3 = 1 - 4.9%	40 = 35 - 44.9%	80 = 75 - 84.9%
10 = 5 - 14.9%	50 = 45 - 54.9%	90 = 85 - 94.9%
20 = 15 - 24.9%	60 = 55 - 64.9%	98 = 95 - 100%

Photo points

Photo point photographs provide a visual record of the vegetation and other habitat conditions for each monitoring station. Repeat photo monitoring is useful to document site-specific change or lack of change to landscape features of interest (Hall 2001). Over time, photographs may be useful to document events and impacts related to wildfire, weed invasion, livestock use, recreational use, or other disturbances. They may also serve to document successional changes, and to corroborate information collected for the plant community component of the monitoring protocol. Photos taken in 2000, or 2002 for the one new monitoring station, serve as the baseline to compare and evaluate future photographs.

The rebar stake permanently marking the location of the monitoring station serves as the reference point for taking the photo point photographs. A minimum of eight photographs are taken at each photo point – 0^o, 45^o, 90^o, 135^o, 180^o, 225^o, 270^o, and 315^o. A declination of 17^o is used for these compass bearings. This array of photos provides a panoramic view of the surrounding landscape and general habitat characteristics. Additional photographs are taken when needed to show specific habitat, threat, or other occurrence details. Photos are taken using a SLR camera, color print film, and a wide angle (28^o) lens. Digital cameras may be used in the future.

Occurrence updates

Updated occurrence information is collected by walking most or all of the occurrence area. Idaho penstemon abundance is estimated or counted, and habitat conditions evaluated. Special attention is paid to fire disturbance impacts or other potential threat factors such as weed invasion and livestock use. This information is used to update the IDCDC's Element Occurrence record for the target occurrence. As part of the occurrence update process, all occurrences are assigned Element Occurrence (EO) ranks. EO ranks provide an assessment of the likelihood of an occurrence persisting for a defined period of time (in this case 25-50 years) if current conditions prevail. The ranks represent the relative value of an occurrence with respect to other occurrences for the species. EO ranks are defined as follows: A = excellent estimated viability; B = good estimated viability; C = fair estimated viability; D = poor estimated viability.

RESULTS

Field surveys

Field surveys were conducted June 10-13, 2002, and targeted sparsely vegetated, light-colored, tuff/ash outcrops in tributary drainages east of Goose Creek. All of the target areas were on Sawtooth NF land located less than one, to approximately seven miles north of the Nevada

border. Seven general areas, totaling approximately 930 acres were searched. Maps outlining the survey areas are in Appendix 1.

Prior to our field investigation, three Idaho penstemon occurrences were known from the Sawtooth NF - Right Hand Fork Beaverdam Creek (004), Orangeburg Spring (005), and North of Worthington Mine (006). The North of Worthington Mine occurrence was found to be more extensive than previously documented, and one new Idaho penstemon occurrence was discovered, during the 2002 field survey.

Approximately 150 additional Idaho penstemon genets were counted over 2 to 3 acres in an area adjoining the southern end of the previously documented North of Worthington Mine (006) occurrence. The extension supported open, Utah juniper (*Juniperus osteosperma*) vegetation with high bare ground cover similar to elsewhere in the occurrence. No evidence of recent disturbance was observed at the site.

A new Idaho penstemon occurrence was discovered approximately 0.2 mile south of Orangeburg Spring in the NE Canyon drainage, less than one mile north of the Nevada border. It is located within one mile of previously documented occurrences to the north and southeast. The new occurrence supported approximately 100 genets spread over two acres. The site was a west-facing, gentle to moderately steep upper and mid-slope exposure of whitish-colored tuff and ash. The open Utah juniper community had high bare ground cover with bedrock near the surface. Associates included black sagebrush (*Artemisia nova*), bitterbrush (*Purshia tridentata*), bluebunch wheatgrass (*Pseudoroegneria spicata*), and several low forb species.

Although Idaho penstemon was the primary target, we were also keenly aware that Goose Creek milkvetch (*Astragalus anserinus*) could possibly occur in the project area, and we looked for both species during the field investigation. No Goose Creek milkvetch was found during our field survey, despite several areas having what appeared to be suitable-looking habitat. A similar situation was reported during rare plant surveys in the Goose Creek area in 1991 (Mancuso and Moseley 1991). Populations of Goose Creek milkvetch are known from within two miles, but have never been documented for the Sawtooth NF.

A brief assessment of each survey area is discussed below:

Upper Coal Banks Creek (ca 160 acres) – The series of whitish outcrops in the area had pockets of suitable-looking Goose Creek milkvetch habitat. Potential Idaho penstemon habitat was less common. No rare plants were found.

Dave's Pass (ca 30 acres) – Outcrops in this area had a mostly sandy texture potentially suitable for Goose Creek milkvetch, but probably not for Idaho Penstemon. No rare plants were found.

Dry Gulch (ca 165 acres) – Tuffaceous bands along steep southerly slopes had what appeared to be good potential habitat for both Idaho penstemon and Goose Creek milkvetch. However, the suite of plant species associated with these slopes was somewhat different compared to known Idaho penstemon and Goose Creek milkvetch population sites. Neither plant was found.

Right Hand Fork Beaverdam (ca 240 acres) – Small areas within the extensive tuff, hoodoo complex south of Point 6290 (section 35) had potential Idaho penstemon habitat. Few other places in this survey area had suitable-looking Idaho penstemon habitat. Goose Creek milkvetch habitat was spotty in the area. No rare plants were found.

Left Hand Fork Beaverdam (ca 115 acres) – Outcrops in section 13 had sandy, relatively deep soils unsuitable for Idaho penstemon. A few small areas looked marginally suitable for Goose Creek milkvetch. The south-facing slopes east of Frish Ranch (section 14) had several acres of ash outcrops and clusters of scenic tuff hoodoos. All eroded to a sandy texture that appeared unsuitable for Idaho penstemon. Excellent-looking Goose Creek milkvetch habitat was encountered in places, but no rare plants were found.

NE Creek (ca 60 acres) – The white-colored exposures in this area were very sandy and not suitable for Idaho penstemon. No rare plants were found.

Lower NE Canyon (ca 120 acres) – The survey area north of the road to Orangeburg Spring was sandy in most places. It appeared to be potentially suitable for Goose Creek milkvetch in places, but not Idaho penstemon. South of the road near Orangeburg Spring had at least one area that appeared suitable for Goose Creek milkvetch. Idaho penstemon was discovered along an upper slope approximately 0.2 south of Orangeburg Spring. Habitat more or less similar to this new site was encountered further south, but no additional Idaho penstemon was observed. Idaho penstemon was absent from areas near the new occurrence that were less rocky, had substrates with a more gray color or orange tinge, or had greater vegetation cover, including Utah juniper canopy cover.

Monitoring

Occurrence updates

No Idaho penstemon occurrences were affected by the 2001 Worthington Fire. All known occurrences were at least 0.2 mile from the closest burn perimeter. Idaho penstemon population numbers and habitat conditions have been stable the past three years. Updated IDCDC records for each of the four known Idaho penstemon occurrences located on Sawtooth NF land are in Appendix 2. These records contain occurrence location, population, habitat, threat, and other conservation information. Appendix 3 has map locations for the occurrences. Map locations and GPS coordinates for each of the Idaho penstemon monitoring stations are in Appendix 4. Directions and other information to help relocate the monitoring stations can be found in Appendix 5. Table 2 summarizes population information, while Table 3 lists threat factors for the occurrences.

Table 2. Abundance and EO rank information for *Penstemon idahoensis* occurrences on the Sawtooth National Forest.

Occurrence	<i>Penstemon idahoensis</i> abundance			EO Rank
	2000	2001	2002	
Right Hand Fork (004)	ca 100	ca 100	ca 100	C
Orangeburg Spring (005)	500-1000	no estimate	no estimate	A
N. of Worthington Mine (006)	400-500	ca 400	ca 550	B
Orangeburg Spring South (014)	-	-	ca 125	B

Table 3. Threats at *Penstemon idahoensis* occurrences on the Sawtooth National Forest.

EO	Threat factors			
	Wildfire	Weeds	Livestock	ORVs
004	old burn ca 0.3 mi away	no	minimal, intermittent disturbance	no
005	recent burn ca 0.2 mi away	no	minimal disturbance	no
006	recent burn ca 0.3 mi away	no	some level of cattle disturbance some years	no evidence, but bisected by spur road
014	no	no	no	no

Plant community monitoring

Plant community monitoring is based on changes in composition and/or cover class values within a 1/10th acre vegetation plot at the monitoring station. Changes in the species list or their associated cover classes from one sampling period to the next are used to monitor changes in the plant community. This sampling method has an acceptable accuracy standard of +/- one cover class, and an increase or decrease of two or more cover classes is indicative of a measurable change. Plant composition and cover value information collected in 2002 was compared to the 2000 and 2001 data sets for the three occurrences monitored multiple years. Overall, the data sets were very similar and no substantive plant community changes were measured at any of the occurrences. Table 4 summarizes composition and cover class data results for 2000-2003. Copies of the 2002 plant community field data sheets are in Appendix 6. General plant community comments and monitoring results are discussed below.

- A total of 61 vascular plant taxa were tallied for the 4 plots in 2002, including 1 tree, 12 shrub, 8 graminoid, and 40 forb species. Plant communities containing Idaho penstemon on the Sawtooth NF are classified within the *Juniperus osteosperma* habitat type series (Rust 1998). Vegetation within this series ranges from open woodland to shrubland with dispersed trees. Sites supporting Idaho penstemon tend to be more open, with lower juniper cover than the surrounding vegetation, where edaphic constraints appear to be less pronounced. Idaho penstemon occurrences on the Sawtooth NF appear to represent edaphic versions of the *Juniperus osteosperma/Artemisia tridentata wyomingensis/Stipa comata* (006 and perhaps 005); *Juniperus osteosperma/Artemisia nova/Agropyron spicatum* (014); and *Juniperus osteosperma/Symphoricarpos oreophilus/Agropyron spicatum* (004) habitat types. Additional sampling in nearby juniper stands would help clarify the habitat type relationships for each of these Idaho penstemon occurrences.
- *Collinsia parviflora*, *Cryptantha circumscissa*, *C. watsonii*, *Descurainia richardsonii*, *Eriogonum* sp. (annual), *Gila leptomeria*, and *Mentzelia albicaulis* are annual forbs detected at one or more plant community plots for the first time in 2002. In arid environments, the above-ground occurrence and abundance of many annual species fluctuates from year-to-year in response to fluctuating precipitation and/or other climatic patterns. Spring precipitation levels were below average to a greater degree in both 2000 and 2001, compared to 2002 (Western Regional Climate Center 2002). This difference may account for the presence of these annual forbs in 2002, but not the previous years.
- Annual discrepancies in the recording of species present in only trace amounts (e.g., represented by only one or two individual plants) are inevitable because they can be easily overlooked, especially if not in flower. This likely explains why in 2002, several

perennial forbs such as *Astragalus purshii*, *Delphinium andersonii*, *Erysimum asperum*, *Microseris troximoides*, *Penstemon radicosus*, and *Physaria* sp., were recorded in some plots for the first time.

- *Taraxacum officinale* (common dandelion) was recorded in one of the Sawtooth NF plots (PEID-004) for the first time in 2002. This is the first record of a non-native forb species in any of the plots on the Sawtooth NF.
- The new Orangeburg Spring South occurrence (014) had four species not recorded in any of the other Idaho penstemon monitoring plots located on the Sawtooth NF or BLM land, including *Arenaria hookeri*, *Balsamorhiza hookeri*, *Castilleja* sp., and *Haplopappus acaulis*. The *Arenaria hookeri* identification needs to be verified, but may represent the first record of this species in Idaho. This species is known from surrounding states to the south and east (Welsh et al. 1987), but has not been reported for Idaho.

Table 4. Plant community cover class values for *Penstemon idahoensis* monitoring plots on the Sawtooth National Forest. Plant cover values are explained in the text.

Species	Plot Identification Code									
	004			005			006			014
	2000	2001	2002	2000	2001	2002	2000	2001	2002	2002
TREES										
<i>Juniperus osteosperma</i>	3	3	3	20	20	20	10	10	10	10
SHRUBS										
<i>Amelanchier utahensis</i>	1	1	3							1
<i>Artemisia nova</i>										3
<i>Artemisia tridentata wyo.</i>	3	3	3	1	1	1	3	3	3	3
<i>Berberis repens</i>	1	1	1							
<i>Chrysothamnus nauseosus</i>	1	1								
<i>Chrysothamnus viscidiflorus</i>	1	1	1	1	1	1	1	3	1	
<i>Eriogonum microthecum</i>				1	1	1				1
<i>Leptodactylon pungens</i>				1	1	1	1	1	1	
<i>Prunus virginiana</i>			1							
<i>Purshia tridentata</i>	10	10	10	3	3	3	3	3	3	
<i>Rosa woodsii</i>	1	1	1							
<i>Symphoricarpos oreophilus</i>	3	3	3							
GRAMINOIDS										
<i>Agropyron cristatum*</i>				1			3	3	3	
<i>Agropyron spicatum</i>	3	3	3	3	3	3	1	1		3
<i>Bromus tectorum*</i>	1	1	1					1	1	
<i>Oryzopsis hymenoides</i>	1	1	1	1	1	1	1	1	1	
<i>Poa nevadensis</i>	1	3	3	1	1	1	1	1	1	1
<i>Poa secunda</i>		1	1		1	1		1		1
<i>Stipa comata</i>							1	1	3	
<i>Stipa lettermanii/thurberiana?</i>	1	1	1							
FORBS										
<i>Arabis</i> spp.						1		1	1	
<i>Arenaria hookeri</i> (?)										1
<i>Astragalus purshii</i>						1				
<i>Balsamorhiza hookeri</i>										1
<i>Castilleja</i> sp.										1
<i>Caulanthus crassicaulis</i>		1	1							1

	004			005			006			014
	2000	2001	2002	2000	2001	2002	2000	2001	2002	2002
<i>Chaenactis douglasii</i>	1	1	1		1	1		1	1	
<i>Chenopodium fremontii</i>	1									
<i>Cirsium utahense</i>	1	1	1							
<i>Collinsia parviflora</i>			1						1	1
<i>Comandra umbellata</i>	1	1	1			1	1	1	1	1
<i>Cryptantha circumscissa</i>									1	
<i>Cryptantha spiculifera</i>				1	1		1	1	1	
<i>Cryptantha watsonii</i>	1	1	1						1	
<i>Cymopterus terebinthinus</i>			1	1	1	3				
<i>Delphinium andersonii</i>									1	
<i>Descurainia richardsonii</i>			1			1			1	1
<i>Epilobium brachycarpum</i>		1								
<i>Eriogonum ovalifolium</i>	1	1	1	1	1	1	1	1	1	1
<i>Eriogonum</i> sp. (annual)							1		1	
<i>Eriogonum umbellatum</i>				1	1	1	1		1	1
<i>Eriophyllum lanatum</i>	1	1	1							
<i>Erysimum asperum</i>		1	1						1	
<i>Gayophytum diffusum</i> (?)							1		1	
<i>Gilia aggregata</i>	1	1	1							
<i>Gilia leptomeria</i>						1			1	
<i>Haplopappus acaulis</i>										1
<i>Linum perenne</i>	1	1	3	1	1	1				1
<i>Lupinus lepidus</i>				1			1	1	1	
<i>Machaeranthera canescens</i>					1					1
<i>Mentzelia albicaulis</i>	1	1	1			1			1	
<i>Microseris troximoides</i>						1			1	
<i>Opuntia polyacantha</i>			1				1	1	1	1
<i>Penstemon humilis</i>		1			1	1				1
<i>Penstemon idahoensis</i>	1	1	1	1	1	1	1	1	1	1
<i>Penstemon radicosus</i>			1							
<i>Phacelia hastata</i>	1	1	1							1
<i>Phlox hoodii</i>	1			1	1	1	1	1	1	1
<i>Physaria</i> sp.		1	1			1	1			
<i>Polygonum sawatchense</i>	1	1								
<i>Senecio canus</i>										1
<i>Senecio multilobatus</i>	1	1	1	1	1	1				
<i>Taraxacum officinale</i> *			1							
Total tree cover	3	3	3	20	20	20	10	10	10	10
Total shrub cover	10	10	20	3	3	3	10	10	10	10
Total graminoid cover	10	10	10	3	3	10	10	10	10	3
Total forb cover	3	3	10	1	3	3	1	1	1	3
Soil	50	50	50	50	50	50	80	80	70	50
Gravel	40	50	40	30	30	30	3	3	3	20
Rock	3	3	10	10	10	10	1	1		20
Wood	1	1	1	1	1	3	3	3	3	3
Litter	3	3	3	10	10	10	10	10	10	10
Bryophyte/lichen	0	0	0	0	0	0	1	10	10	1
Basal vegetation	10	10	10	3	3	3	3	3	3	3

* = introduced species

Photo points

Photo point photographs were taken at each of the four monitoring stations sampled in 2002. The complete 2002 photo set was labeled, organized in a binder, and given to the Sawtooth NF as part of this report. A duplicate set of photos is on file at the IDCDC office in Boise. Photo point photograph results are summarized below.

Right Hand Fork Beaverdam Creek (004) - Repeat photos show no obvious habitat changes or disturbances in the immediate occurrence area or the surrounding landscape. No evidence of recent wildfires can be seen in the photos.

Orangeburg Spring (005) – Repeat photos show no obvious habitat changes or disturbances in the immediate occurrence area. Photos with landscape views to the southwest and west show juniper trees burned and killed during the 2001 Worthington Fire, within approximately 0.2 mile of the occurrence.

North of Worthington Mine (006) - Repeat photos show no obvious habitat changes or disturbances in the immediate occurrence area. Photos with landscape views to the south and west show juniper trees burned and killed during the 2001 Worthington Fire, less than 0.5 mile from the occurrence.

Orangeburg Spring South (014) – Baseline photos taken in 2002 show the relatively open vegetation structure and high bare ground cover characterizing the occurrence. No evidence of recent wildfires can be seen in the photos.

DISCUSSION

A limited amount of potential Idaho penstemon habitat remains to be surveyed on the Sawtooth NF. The largest extent of unsurveyed potential habitat on the Sawtooth NF is probably in the Trapper Creek drainage, west of Goose Creek Reservoir. Pockets of potential habitat may also exist in the Jay and Trout creek drainages. All of these areas may also have habitat suitable for Goose Creek milkvetch.

Idaho penstemon monitoring results indicate habitat conditions have changed little, if any, compared to baseline information collected in 2000. No largescale or high impact disturbances have occurred since monitoring was initiated. Low levels of livestock disturbance have been observed at some Sawtooth NF occurrences, but no clear evidence of adverse effects to population numbers or habitat condition have been documented. It is unclear if weed establishment at several occurrences on BLM land is related, at least in part, to livestock activity. Weeds are currently not a problem at any of the Idaho penstemon occurrences on the Sawtooth NF. OHV use is not as rampant in the Goose Creek drainage as some other parts of southern Idaho, and currently it is not a problem at Idaho penstemon occurrences on the Sawtooth NF. None of the occurrences on the Sawtooth NF were impacted by recent wildfires in the Goose Creek area, although two occurrences were within 0.5 mile of the 2001 Worthington Fire perimeter.

I recommend periodic monitoring of Idaho penstemon occurrences continue in the future. A schedule of every five years is probably sufficient under prevailing land uses and management by the Sawtooth NF. Monitoring may need to happen more frequently if the Sawtooth NF becomes aware of new or intensified disturbances affecting a particular occurrence. The current monitoring protocol is designed to provide a limited amount of basic habitat condition and gross

population trend information. A more intensive protocol will be necessary if land managers want more robust population and/or habitat monitoring information in the future.

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Appendix 1

Maps of *Penstemon idahoensis* survey areas for the Sawtooth National Forest.

Appendix 2

Element Occurrence Records for *Penstemon idahoensis* on the Sawtooth National Forest.

PENSTEMON IDAHOENSIS
IDAHO PENSTEMON

Occurrence Number: 004

Place Name: RIGHT HAND FORK BEAVERDAM CREEK

County: Cassia

USGS quadrangle: IBEX PEAK

Latitude: 420354N

Longitude: 1140434W

TOWNRANGE:
016S020E

SECTION:
02

TRSNOTE:
SW4NE4

Location:

Upper Right Hand Fork Beaverdam Creek, about 2.25 air miles S of Ibex Peak.

Last Observed: 2002-06-10

First Observed: 1989

EORANK: C

EORANK Comments: Small site with relatively few plants, although it is more or less undisturbed.

Population Data:

1989: 101-1000 plants in flower, 25% first year, 75% mature. 1991: Ca 25 plants in leaf. Observation by Michael Mancuso, Idaho CDC. 2000: Counted 60, but perhaps as many as 100 genets; 15% reproductive, 65% vegetative, 20% juveniles. Observation by Michael Mancuso, Idaho CDC. 2001: 88 genets counted; 5% reproductive, the rest vegetative rosettes; some plants look "stressed" (drought stress?). Observation by M. Mancuso, Idaho CDC. 2002: 88 genets counted; all vegetative, no evidence that plants will flower later in the season; this seems a bit odd because it appears to be a "good" wildflower year for many other species in the area. Thorough search of occurrence area by Michael Mancuso, Jenae Dixon, IDCDC, and Kim Pierson, Sawtooth NF.

Habitat Description:

SW aspect; 5-25 degree slope; mid-slope position; dry; open light. Small, light gray tuffaceous outcrop of Salt Lake Formation sediments; fine-textured to gravel and small rock size fragments; high bare ground cover. A few scattered *Juniperus osteosperma* along fringe of outcrop; associates include *Purshia tridentata*, *Artemisia tridentata*, *Amelanchier utahensis*, *Symphoricarpos oreophilus*, *Agropyron spicatum*, *Poa nevadensis*, *Senecio multilobatus*, and *Comandra umbellata*. None of the other outcrops in the area seem to have the *Penstemon*. *Penstemon humilis* and *P. radicosus* co-occur in the area.

Minimum Elevation: 5720 ft. Size: 0.2 AC

Land Ownership: Sawtooth NF, Twin Falls RD.

Comments:

Protection Comments:

1991: Light livestock grazing in the area. 2000: Cattle graze the general area every other year. Although heavy use nearby along creek, a fenceline protects the outcrop with *Penstemon*.

Cattle use on outcrop is minimal as only a few old cowpies were observed. In the past, a wildfire burned to within ca 0.3 mile to SW and W of occurrence. Occurrence located close to a block of private inholding land. 2001: No new threats or disturbances observed. 2002: A few deer tracks within occurrence; no evidence of recent livestock use, only a few old cowpies; no new threats or disturbances observed.

Management Comments:

2000: Maintenance of fenceline near outcrop is important - livestock use on and around the outcrop would otherwise be much greater. Photomonitor station established in 2000 (at UTM zone 11T 0741864 East 4660939 North, GPS coordinates). Monitor station resampled in 2001 and 2002.

Specimens: D. Atwood 15647 (BRY).

PENSTEMON IDAHOENSIS
IDAHO PENSTEMON

Occurrence Number: 005

Place Name: ORANGEBURG SPRING

County: Cassia

USGS quadrangle: IBEX PEAK

Latitude: 420035N

Longitude: 1140430W

TOWNRANGE:
016S020E

SECTION:
26

TRSNOTE:
NW4NE4

Location:

Ca 0.3 mi NW of Orangeburg Spring, the north side of NE Creek, ca 1 mile north of the Nevada state line.

Last Observed: 2002-16-12

First Observed: 1989

EORANK: A

EORANK Comments: Originally given a "B" rank in 1991, but changed to "A" in 2000. Quite a few plants and minimal disturbance in most of occurrence.

Population Data:

1989: 11-50 plants in leaf, bud, and flower; 75% mature, 25% immature. 1991: Ca 300 plants, approximately 20% are in flower or bud, the remainder are in leaf; all size classes present. Observation by Bob Moseley and Michael Mancuso, Idaho CDC. 2000: Estimated 500-1000 genets; ca 10% reproductive, 85% vegetative, 5% juveniles, 1% senescent. Plants occur in a band along the lower slope for ca 0.2 mile. No *P. idahoensis* observed to the SE along a contiguous part of the tuffaceous exposure where the substrate appears to be deeper and less stony. Observation by Michael Mancuso, Idaho CDC. 2001: Plants locally common in area where monitoring station located, but no estimate of plant numbers made. Observation by M. Mancuso, Idaho CDC. 2002: There appeared to be approximately the same number of plants around the monitoring station area compared to the past several years; no attempt was made to tally the number of plants throughout the occurrence; no reproductive plants observed, only vegetative individuals; several plants appeared dead. Observation by Michael Mancuso, IDCDC, and Kim Pierson, Sawtooth NF.

Habitat Description:

Apparently restricted to the steep (average 25 degrees) SW-facing lower slope between the more gentle sagebrush bench below and the juniper forest above. High bare ground cover, with lots of soil microtopography. *P. idahoensis* occurs where bedrock close to surface and the tuff has eroded to angular, platy to blocky, gravel to rock size material. Open *Juniperus osteosperma* with scattered shrubs such as *Purshia tridentata*, *Artemisia tridentata wyomingensis*, and *Chrysothamnus* spp.; low bunchgrass cover is primarily *Agropyron spicatum*; associated forbs include *Cymopterus terebinthinus*, *Eriogonum ovalifolium*, and *Linum perenne*. *Penstemon humilis* is in the area but not directly sympatric with *P. idahoensis*.

Minimum Elevation: 5280 ft. Size: 2 AC

Land Ownership: Sawtooth NF, Twin Falls RD.

Comments:

Protection Comments:

1991: Light livestock grazing in the area. 2000: Cattle use widespread and prevalent in nearby sagebrush bottoms, but light through occurrence; however in a few places there is evidence cattle occasionally traverse across the steep, loose slope causing some erosion. Some crested wheatgrass occurs in the population, but no weed problems observed. No evidence of recent wildfire in area. 2001: No evidence of recent livestock use; no leafy spurge seen. Area looks the same as in 2000; no new disturbances or threats. 2002: No evidence of recent cattle use or other disturbances at occurrence. The 2001 Worthington Fire perimeter within 0.2 mile, but occurrence area unburned.

Management Comments:

2000: Recommend keeping salt, water or other enticements for livestock away from occurrence area. Photomonitoring station established in 2000 (at UTM zone 11T 0742194 East 4654911 North, GPS coordinates). Monitoring station resampled in 2001 and 2002.

Specimens: D. Atwood 15649 (BRY).

PENSTEMON IDAHOENSIS
IDAHO PENSTEMON

Occurrence Number: 006

Place Name: NORTH OF WORTHINGTON MINE

County: Cassia

USGS quadrangle: IBEX PEAK

Latitude: 420059N

Longitude: 1140441W

TOWNRANGE: SECTION: TRSNOTE:
016S020E 23 NW4SE4

Location:

Along and near jeep trail, 0.4 mile due N of Worthington Mine, ca 1.5 miles N of the Nevada state line. Access is via an unimproved spur road.

Last Observed: 2002-06-12

First Observed: 1991-06-19

EORANK: B

EORANK Comments: Quite a few plants, but at least low levels of disturbance most years.

Population Data:

1991: 250-300 normal genets, 40% in leaf, 60% in bud; plants are 40% immature, 60% mature. Evidence of cattle herbivory on several plants. Area surveyed by Bob Moseley and Michael Mancuso, Idaho CDC. 2000: An estimated 400-500 genets; 20% reproductive, 75% vegetative; 5% juveniles, and 1% senescent. All size classes, including some large individuals. Plants dense over some of the small outcrops. Occurrence is comprised of a series of small tuffaceous outcrops in a narrow band about 100 m long. Observations by Michael Mancuso, Idaho CDC. 2001: Ca same number of plants as in 2000; 25% reproductive, 75% vegetative rosettes. Observation by M. Mancuso, Idaho CDC. 2002: Slight extension of occurrence to the south with ca 150 additional genets scattered over 2-3 acres; otherwise approximately same number of plants as reported in 2000; 5% reproductive, 95% vegetative. Observation by Michael Mancuso, IDCDC, and Kim Pierson, Sawtooth NF.

Habitat Description:

Dry; upper slope; E, S, SE, and SW exposures; 8-15% slope; *P. idahoensis* occurs in series of small openings within the surrounding *Juniperus osteosperma* woodland matrix containing a mix of shrubs such as *Artemisia tridentata*, *Purshia tridentata*, and *Chrysothamnus* spp. The openings have relatively sparse vegetation and high bare ground cover; associates include *Leptodactylon pungens*, *Oryzopsis hymenoides*, *Stipa comata*, *Lupinus lepidus*, *Opuntia polyacantha*, *Comandra umbellata* and *Phlox hoodii*.

Minimum Elevation: 5360 ft. Size: 3 AC

Land Ownership: Sawtooth NF, Twin Falls RD.

Comments:

Former Survey Site Name for occurrence was "Water Trough".

Protection Comments:

1991: Cattle trail and grazing evident in population - several plants were eaten. Water trough and trail are close to population. 2000: A jeep trail bisects occurrence, but no off-road use observed. Crested wheatgrass well established in general area, some growing with *P. idahoensis*; no noxious weeds seen at occurrence. Livestock graze within occurrence; light use so far this year, still associated trampling and general soil disturbance can and do occur. 2001: No off-trail motorized tracks observed; livestock sign restricted to jeep trail corridor during visit; no leafy spurge or other noxious weeds. Occurrence area looks the same as in 2000; no new disturbances or threats. 2002: No evidence of recent cattle use or other disturbances at occurrence. The 2001 Worthington Fire perimeter located ca 0.3 mile south of occurrence, which did not burn.

Management Comments:

1991: Need to determine impacts of cattle; population needs to be monitored. 2000: Should receive regular monitor visits. Improvements or enlargement of jeep trail could destroy part of occurrence. Photomonitor station established in 2000 (at UTM zone 11T 0741920 East 4655638 North, GPS coordinates). Monitor station resampled in 2001 and 2002.

Specimens:

PENSTEMON IDAHOENSIS
IDAHO PENSTEMON

Occurrence Number: 014

Place Name: ORANGEBURG SPRING SOUTH

County: Cassia

USGS quadrangle: IBEX PEAK

Latitude: 420008N

Longitude: 1140412W

TOWNRANGE:
016S020E

SECTION:
26

TRSNOTE:
SE4NE4SE4

Location:

Sawtooth National Forest, ca 0.25 mile S of Orangeburg Spring, 0.75 mile SE of Worthington Mine and 0.5 mile N of ID/NV border.

Last Observed: 2002-07-12

First Observed: 2002-07-12

EORANK: B

EORANK Comments: High quality habitat condition, but apparently a small population.

Population Data:

2002: 125 estimated genets (97 genets counted, but likely missed some vegetative individuals which are harder to see than flowering material); 90% non-reproductive, 10% reproductive; population area ca 2 acres; population vigor assessed as good. The Penstemon drops out in adjacent areas that are less rocky, have a more grayish-colored soil, or have greater vegetation cover (including juniper). No Penstemon found along the slope or ridge extending to the south of the occurrence. Thorough survey by Michael Mancuso, IDCDC, and Kim Pierson, Sawtooth NF.

Habitat Description:

Dry, open exposure of stony, white tuffaceous ash; bedrock near the surface; relatively sparsely vegetated with high bare ground cover; top to mid-slope position; west-facing aspect; 10-15% slope; open *Juniperus osteosperma* with *Artemisia nova*, small statured *Purshia tridentata*, and *Agropyron spicatum*; other associates include *Senecio canus*, *Eriogonum ovalifolium*, *Haplopappus acaulis*, *Penstemon humilis*, and *Amelanchier utahensis*. Community type is *Juniperus osteosperma/Artemisia nova/Agropyron spicatum*. Look-alike species *Penstemon humilis* is present in the area. Surrounding upland habitat is intact, not fragmented, and in good ecological condition; minimal disturbance on slope.

Minimum Elevation: 5450 ft. Size: 2 AC

Land Ownership: Sawtooth NF, Twin Falls RD.

Comments:

2002 GPS Coordinates: 4653957 N, 742695 E.

Protection Comments:

2002: No obvious threats or signs of predation or disease observed. No weedy species observed; no livestock evidence within occurrence, although some cattle use occurs along nearby lower slopes as well as bottomlands associated with NE Canyon Creek. Area is unburned; the 2001 Worthington Fire did not approach this site.

Management Comments:

A photomonitor station was established at the occurrence in 2002. The site is now part of a monitoring protocol that includes most of the other known *Penstemon idahoensis* occurrences located on public land in Idaho. All should be periodically revisited.

Appendix 3

Map locations for *Penstemon idahoensis* occurrences on the Sawtooth National Forest.

Appendix 4

Map locations and GPS coordinates for *Penstemon idahoensis* monitor stations on the Sawtooth National Forest.

GPS coordinates for *Penstemon idahoensis* monitor stations on the Sawtooth National Forest.

All coordinates: UTM 11T; Map Datum = NAD 27 Central

Right Hand Fork Beaverdam Creek (004) 0741864 East 4660939 North

Orangeburg Spring (005) 0742191 East 4654910 North

North of Worthington Mine (006) 0741915 East 4655641 North

Orangeburg Spring South (014) 0742695 East 4653957 North

Appendix 5

Location forms for *Penstemon idahoensis* monitoring stations on the Sawtooth National Forest.

Appendix 6

Plant community - Ocular Plant Species field data sheets for 2002.