FIELD INVESTIGATION OF *HAPLOPAPPUS RADIATUS* A REGION 4 SENSITIVE SPECIES ON THE PAYETTE NATIONAL FOREST

by

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ABSTRACT

A field investigation of Haplopappus radiatus (Snake River goldenweed) was conducted on the Payette National Forest by the Idaho Department of Fish and Game's Natural Heritage Program. The investigation was a cooperative Challenge Cost-share project between the Department and the Payette NF. Snake River goldenweed is endemic to west-central Idaho (Washington County) and adjacent northeast Oregon (Baker and Malheur Counties). It is a Region 4 Sensitive Species for the Payette NF and a category 1 candidate for federal listing.

Currently, eleven populations of Snake River goldenweed are known for Idaho. Six of these were discovered in 1991, including the first occurrences documented on the Payette NF. Approximately 2000 plants occur among the Forest populations.

Snake River goldenweed has an elevational amplitude of nearly 4000 feet, with Payette NF populations being the highest elevation sites yet documented for the species. It occurs on grassland slopes or in openings within sagebrush habitats. In Idaho, it has been found on both calcareous and volcanic substrates.

Threats to Snake River goldenweed include mining and perhaps logging activities, herbivory from grasshoppers and other insect related problems, and the direct and indirect impacts of livestock grazing. Poor grazing management has resulted in the widespread degradation of natural grassland and shrub-grassland habitats, and probably represents the most important threat to the long-term viability of the species throughout its range. Conservation planning for this species is certainly warranted.

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INTRODUCTION

The National Forest Management Act and Forest Service policy require that Forest Service land be managed to maintain populations of all existing native animal and plant species at or above the minimum viable population level. A minimum viable population consists of the number of individuals, adequately distributed throughout their range, necessary to perpetuate the existence of the species in natural, genetically stable, self-sustaining populations.

The Forest Service, along with other Federal and State agencies, has recognized the need for special planning considerations in order to protect the flora and fauna on the lands in public ownership. Species recognized by the Forest Service as needing such considerations are those that (1) are designated under the Endangered Species Act as endangered or threatened, (2) are under consideration for such designation, or (3) appear on a regional Forest Service sensitive species list.

Haplopappus radiatus (Snake River goldenweed) is endemic to the dry, rolling hills and canyon slopes near the Snake River in west-central Idaho and adjacent northeastern Oregon (Cronquist 1955; Kaye et al. 1990). Prior to the 1991 survey, Snake River goldenweed was suspected to occur on the Payette NF, but its presence had never been documented. Survey work conducted from July 29 to August 1, 1991 confirmed the presence of this species on the Payette NF. Snake River goldenweed is on the Intermountain Region Sensitive Species List for the Payette NF (Spahr et al. 1991). It is a category 1 candidate for federal listing (U.S. Fish and Wildlife Service 1990). It is also a USFS Pacific Northwest Region Sensitive species (Spahr et al. 1991), and appears on Bureau of Land Management Sensitive species list in both Idaho and Oregon (Moseley and Groves 1990; BLM 1990). A field investigation for Snake River goldenweed was conducted on the Payette NF by the Idaho Department of Fish and Game's Natural Heritage Program through the Cooperative Challenge Cost-share Program.

The primary objectives of this investigation was as follows:

1) Search potential habitats on the Payette NF and contiguous lands for new populations of Snake River goldenweed.

2) Characterize habitat conditions for Snake River goldenweed on the Payette NF.

3) Assess population data on, and threats to existing populations and make management recommendations to the Payette National Forest based on these assessments.

RESULTS

From July 29 to August 1, 1991, a Heritage Program botanist surveyed suitable-appearing habitat for Snake River goldenweed on the western flanks of the Hitt Mountains and southwestern edges of the Cuddy Mountains, on the western side of the Payette NF. Some adjacent Bureau of Land Management, State, and private ownership lands were also searched to gain a more comprehensive view of the distribution and conservation status for this species. The 1991 survey resulted in the first discoveries of Snake River goldenweed on lands administered by the Payette NF.

Prior to the 1991 survey, only five populations of Snake River goldenweed were known for Idaho. Three of these populations were from around the town of Weiser, one from Dennett Creek near Mineral on BLM land below the Payette NF, and one rather vague location from the lower Brownlee Creek drainage on either private or State land. The survey concentrated on the western slopes of the Hitt Mountains and the southwestern slopes of the Cuddy Mountains because several of the previously known populations approach the western edge of the Forest boundary overlooking the Snake River Canyon, and some suitable-appearing habitat of dry, non-forested slopes are present in these areas.

The 1991 survey resulted in the discovery of five new populations on the Payette NF, plus one just west of the Forest boundary. In addition, the population previously known from adjacent BLM land near Mineral was found to extend onto the Payette NF. Three of these Forest populations are very small, with fewer than 50 individuals each, while another population contains approximately 120 individuals. The other two populations are considerably more extensive, both with greater than 1000 plants. One of these larger populations is the one near Mineral, however, in which the majority of plants occur on BLM land. These six populations support a total of approximately 2000 plants on the Payette NF. Besides the occurrence east of Mineral, one other population (Middle Fork Dennett Creek) is known to extend onto adjacent BLM and private lands. Some of the other populations may also extend onto non-Forest Service lands not fully surveyed.

Populations found on the Payette NF were restricted to the open, dry, mid and upper slopes above the Snake River Canyon, and possess a very limited geographic distribution overall. A limited amount of additional potential habitat not searched does exist on the Payette NF, mostly on the west side of the Cuddy Mountains.

The following is a detailed discussion of Snake River goldenweed, including information on its taxonomy and identification, range and habitat, conservation status, and recommendations to the Regional Forester, Payette NF, Bureau of Land Management, and U.S. Fish and Wildlife Service, concerning its status in Idaho.

Haplopappus radiatus (Nutt.) Cronquist

CURRENT STATUS USFS Region 4 Sensitive Species (Payette NF)
USFWS - C1
Idaho Native Plant Society - None
Heritage Rank - G2?S1

TAXONOMY

Family: Asteraceae [Compositae (Aster)]

Common Name: Snake River goldenweed, radiate goldenweed

Citation: Vascular Plants of the Pacific Northwest, Part 5:223, 1955.

Synonymy: Pyrrocoma radaita Nutt., Trans. Amer. Philos. Soc. II 7:333. 1840.
Haplopappus carthamoides var. maximus Gray, Syn. 12:126. 1884.
Haplopappus carthamoides subsp. maximus (Gray) Hall, Publ. Carnegie Inst. Wash. 389:102. 1928.

Technical Description: Herbaceous perennial, 45.5-92 cm tall; stems usually erect, pale, rarely red-tinged, glabrous, 1-8 arising from a woody taproot; basal leaves elliptic to obovate, entire or undulate, occasionally spinulose-dentate, 18-43.5 cm long, 5-15.5 cm wide, glabrous; cauline leaves numerous, oblanceolate to ovate, usually sessile with clasping base, spinulose-serrate, rarely entire on undulate, 4.5 cm long, 2.5-4 cm wide, glabrous; heads (1)-3-12 in an open corymbose inflorescence, occasionally solitary and terminal, long peduncled, 2.5-4 cm wide; involucre hemispheric, subtended by foliaceous bracts, 2.1-3.2 cm high; phyllaries in 5-6 series, imbricate, subequal, ovate to oblong, mucronate, tip reflexed, herbaceous green with scarious base and pale margin, 11-17.1 mm long, 2.5-6 mm wide, glabrous; ray florets 17-30, 7.5-13.5 mm long, 0.5-1.1 mm wide; disk florets 80-100 or more, 10-15 mm long, 1.2-1.7 mm wide; achenes subcylindric, 4-angled; pappus of about 40-60 rigid, unequal, brownish bristles, 9-13.1 mm long; n = 18 (Mayes 1976).

Nontechnical Description: Snake River goldenweed is an erect, herbaceous perennial with a woody taproot. Most individuals are greater than 40 cm tall. Basal leaves are large, mostly greater than 5 cm wide, while the stem leaves are smaller and usually sessile. The leaves can be either entire or with serrations. Upper portions of the flowering stems are light, with a yellow-green, tawny color. The plants are without any pubescence except for a few scattered, small, light-colored hairs that sometimes can be found along the upper stem and/or on the involucre (bracts below the flower head). The involucre is large and herbaceous-looking. Plants have 1-several flowering heads each, these heads with

yellow rays. Snake River goldenweed is green and flowers later in the season than most other species in the grassland habitats where it typically occurs, and is therefore quite easy to spot surrounded by the brown, dormant vegetation of these grasslands. See Appendix 1 for a line drawing, and Appendix 5 for color slides of Snake River goldenweed.

It should be noted that populations on the Payette NF contain occasional individuals that fall outside the species previously reported range of variability for several morphological characteristics. These include: 1) ray florets up to 17 mm long. 2) basal leaves less than 5 cm wide. 3) plants as small as 20 cm in height. The latter two characteristics usually occurred on the same individual and often, but not exclusively, on rockier, shallower soil sites. These smaller statured individuals otherwise matched typical Snake River goldenweed in all other characteristics and could be found growing immediately adjacent to larger plants.

Distinguishing Features and Similar Species: Snake River goldenweed is most similar to the closely related species Haplopappus carthamoides. Differences in several morphological characteristics usually allow for field differentiation of these two species and are noted in the key below. Although Haplopappus carthamoides is known from the Payette NF, it was not found sympatric with any of the Snake River goldenweed populations. Two other common, yellow-flowered composites that can be in flower at the same time and superficially look like Snake River goldenweed, at least from a distance, are Grindelia squarrosa and Helianthella uniflora. The very glandular involucre and smaller foliage of Grindelia, and the generally taller stature, larger flower head and very hirsute and scabrous foliage of Helianthella make both species readily distinguishable upon closer inspection. The following key, modified from Kaye et al. (1990) should help distinguish Haplopappus radiatus from H. carthamoides.

1. Plants robust, mostly 38-92 cm tall, basal leaves mostly 5-19 cm wide, stems glabrous (without hairs) except sometimes with a few stray hairs, upper stem tawny to light brown, involucra bracts glabrous to slightly pubescent at the base... Haplopappus radiatus

1. Plants smaller, mostly 6.5-47 cm tall, basal leaves 1-4.2 cm wide, stems villous (long, soft, mostly bent hairs) especially above, upper stem red-tinged to brown, involucra bracts puberlent (minutely pubescent)..... Haplopappus carthamoides

DISTRIBUTION

Range: Kaye et al. (1990) state that Snake River goldenweed is narrowly endemic to the dry, rolling hills near the Snake River in eastern Oregon and adjacent Idaho, with a global distribution less than 30 x 40 miles. The populations discovered in Idaho during the 1991 survey do not expand this known geographic range to any degree.

Eleven populations of Snake River goldenweed have now been documented in Idaho, although a couple have not been visited for many years and their status is unknown. All populations occur in Washington County in west-central Idaho. The 1991 investigation found six new populations of Snake River goldenweed, five of these fully or partially on the Payette NF. These represent the first populations found on the Payette NF. The other population was found just west of the Payette NF boundary northwest of Monroe Butte near Chinamans Hat. Another population previously documented from nearby BLM land east of Mineral was revisited and found to extend onto the Forest. All of the new populations are confined to the western flanks of the Hitt Mountains, on dry, non-forested slopes that eventually fall to the Snake River or its immediate side drainages. These scattered populations extend from upper Adams Creek north of Monroe Butte, north to the Benton Saddle/Benton Creek area. All of the Payette NF populations occur within one mile of the Forests' western boundary line. Although Payette NF lands north and south of these points were searched, no other populations were found. The Adams Creek population was the only one found east of the ridge system that directly overlooks the Snake River. Some suitable-appearing habitat does occur in other portions of the Hitt Mountains, but none was found to support Snake River goldenweed.

Some lower slopes in the southwestern Cuddy Mountains were also surveyed, and although suitable-appearing habitat does seem evident in places, no Snake River goldenweed was located.

Below is a summary of the six populations of Snake River goldenweed known from the Payette NF (the number in parenthesis refers to the occurrence number of this species in the Heritage Program data base). See Appendix 4 for the Heritage Program's element occurrence records for Snake River goldenweed on the Payette NF. These records provide additional detail on location, ownership and population data, among other things.

Mineral East (001) - Hitt Mountains; this extensive population extends from Payette NF land to adjacent private land and to BLM land further downslope towards Mineral; elevation 4440-5880 feet; upper and middle slopes in bluebunch wheatgrass/Sandberg's bluegrass/balsamroot community; a minimum of approximately 125 widely scattered plants observed on Payette NF land, and several hundred more on adjacent BLM land; total population area is several hundred acres; first documented in 1978.

Upper Adams Creek (005) - Hitt Mountains; elevation 5200 feet; open, rocky, slope site bordering douglas fir forest that is a mosaic shrub/forb/grass community; approximately 50 plants covering about two acres, including a few plants on rock tailings; first documented in 1991.

Monroe Butte (007) - Hitt Mountains; elevation 5450 feet; upper slope, opening within sagebrush/bluebunch wheatgrass community; only seven, plants found, covering an area of approximately 200 sq. ft.; no plants found on adjacent private land although search was not exhaustive there; first documented in 1991.

Middle Fork Dennett Creek (009) - Hitt Mountains; this population extends onto adjacent BLM land and very likely contiguous private lands; elevation 5300-5800 feet; upper, open slopes in bluebunch wheatgrass/Sandberg's bluegrass/balsamroot community; a conservative estimate of 120 widely scattered plants, with 80 found on the Payette NF, covering an area of at least 20 acres; first documented in 1991.

Benton Creek (010) - Hitt Mountains; elevation 4700-4900 feet; open saddle area and adjacent slopes; in Idaho fescue/prairie Junegrass community on north exposures and bluebunch wheatgrass community on other exposures; the most dense population found, with an estimated 800 flowering plants and an equal number of vegetative plants covering an area of 10-15 acres; there remains extensive suitable-appearing habitat to the north on private, State of Idaho and BLM land that was not searched; first documented in 1991.

Benton Saddle (011) - Hitt Mountains; elevation 6000 feet; open, upper slopes just below ridgecrest, in Idaho fescue community; a small population, only 12 plants found covering approximately 1/3 acre; first documented in 1991.

In summary, six populations of Snake River goldenweed supporting approximately 2000 plants covering an area less than 100 acres are known for the Payette NF. The Mineral East (001) and Middle Fork Dennett Creek (009) populations extend off the Forest onto adjacent lands and are known to include several hundred additional plants over several hundred additional acres. Except for the upper Adams Creek population (005), it is possible the other Payette NF populations also extend off the Forest in areas not surveyed. See Appendix 2 for the mapped locations of known Snake River goldenweed populations on the Payette NF and Appendix 3 for a list of areas searched unsuccessfully.

All known populations from the Payette NF occur on the Weiser Ranger District.

Habitat and Associated Species: On the Payette NF Snake River goldenweed is found on dry, rocky, non-forested hillsides, most commonly with a southeast to southwest aspect. Small portions of two populations extend onto slopes with northerly aspects, however. Slopes vary from gentle to very steep and in one case include a flat saddle area. Plants were most commonly found in grassland habitats within the Agropyron spicatum/Poa secunda/Balsamorhiza sagittata (bluebunch wheatgrass/Sandberg's bluegrass/balsamroot) habitat type (Tisdale 1986). Shrubs such as Artemisia tridentata (sagebrush) and Chrysothamnus nauseosus (rabbitbrush) are widely scattered if present. Snake River goldenweed is typically absent from adjacent, usually more northerly slopes supporting Artemisia tridentata dominated communities. Exceptions to these generalities do occur though. For example, the small Monroe Butte population (007) is located in an opening within an Artemisia tridentata community, and the upper Adams Creek population (005) occurs in a rocky opening adjacent to a douglas fir woodland where several shrub species also occur. Snake River goldenweed also extends into the Festuca idahoensis/Koeleria cristata habitat type (Tisdale 1986) where small portions of two populations (001, 010) extend onto northerly slopes, and at the Benton Saddle population (011) at 6000 feet elevation. Years of grazing pressure has altered much of these grassland habitats so that to varying degrees, natural communities have been replaced by exotic species, predominately annuals. Snake River goldenweed was inevitably absent where weedy species were most prominent. Snake River goldenweed was found to occur as widely scattered individuals or small clusters of plants, only at the large Benton Creek population (010) was a more uniform pattern evident.

The Payette NF populations were found between 4700 to 6000 feet elevation. 4430 feet was the highest elevation previously reported, thus the Payette NF sites represent the highest elevations known for the species throughout its range. Kaye et al. (1990) reports all populations visited in his 1988 work were on slightly to very calcareous substrates. Mayes also notes the species occurs on alkaline sites (1976). The largest populations on the Payette NF also occur on calcareous substrate. The relationship between calcareous substrates and the distribution of Snake River goldenweed is unclear, in part because populations on volcanic parent material also occur. In the western Hitt Mountains, calcareous parent material seemed to end just north of Monroe Butte. This also marks the southern limit of where Snake River goldenweed was found on the Payette NF.

Associated species include Agropyron spicatum, Poa secunda, Festuca idahoensis, Koeleria cristata, Bromus tectorum, Bromus sp., Balsamorhiza sagittata, Tragopogon dubius,Chrysothamnus nauseosus, C. viscidiflorus, Cardus acanthoides, Achillea millifolium, Crepis acuminatus, Calochortus macrocarpus, Sisybrium altissimum, Lupinus sericeus, Astragalus cusickii, Amelanchier

utahensis and Lomatium sp.

CONSERVATION STATUS

Conservation Status - Idaho: Snake River goldenweed was originally recommended as an endangered species by the Smithsonian Institution, and proposed for listing by the U.S. Fish and Wildlife Service in 1976. The U.S. Fish and Wildlife Service listed it as a category 2 candidate in the 1980 and 1983 Federal Register lists of candidate plants (Atwood and Charlesworth 1987). Snake River goldenweed appeared in the original Endangered and Threatened Plants of Idaho publication (Johnson 1977), where retention of its federally proposed endangered status was recommended, noting it to be very uncommon in Idaho. It is currently a category 1 candidate species for federal listing (U.S. Fish and Wildlife Service 1990).

Snake River goldenweed is a Forest Service Region 4 Sensitive Species for the Payette NF (Spahr et al. 1991). It is also on the Idaho BLM Sensitive Species list (Moseley and Groves 1990).

The Idaho Native Plant Society does not place a ranking on species that are federally listed or candidates for listing. Snake River goldenweed meets the latter criteria and is therefore not ranked by the Idaho Native Plant Society (Moseley and Groves 1990).

The Idaho Natural Heritage Program currently ranks Snake River goldenweed as G2?/S1 ((G2 = Haplopappus radiatus is imperiled throughout its range because of rarity or because of other factors demonstrably making it very vulnerable to extinction, S1 = is critically imperiled in Idaho because of extreme rarity or because of some factor of its biology making it especially vulnerable to extinction (Moseley and Groves 1990)).

Conservation Status - Elsewhere:

Oregon: Snake River goldenweed is a Forest Service Region 6 Sensitive Species (Spahr et al. 1991), an Oregon BLM Sensitive Species (BLM 1990), and a State of Oregon endangered species (Oregon Department of Agriculture 1989). After intensive survey work in Oregon, Kaye et al. (1990) concur with the Oregon Department of Agricultures' endangered designation, and recommend the federal listing procedure for the species be completed.

Ownership: Four of the eleven Idaho populations of Snake River goldenweed occur fully on lands administered by the Weiser District of the Payette National Forest. Parts of two other populations occur on both the Payette NF and adjacent Bureau of Land Management, Boise District, and private lands. Four occurrences are on private lands, three of these in the Weiser area, and one just west of the Payette NF boundary northwest of

Monroe Butte. The land ownership of one population in the Brownlee Creek drainage is uncertain (either private or State or both) due to vague location data.

Threats: Snake River goldenweed populations are subject to a variety of threats. The most pernicious and widespread seems to be the continuing conversion of large tracts of natural grassland and shrub-grassland habitats by exotic species, especially annual grasses such as cheatgrass (Bromus tectorum). This largescale invasion of exotic species has been ongoing for many years and has followed the introduction of livestock grazing to the area. This habitat modification has apparently had adverse affects on all aspects of population maintenance, from seedling establishment to fruit production. Although not quantified in this survey, evidence of these affects, such as the low numbers or complete absence of juveniles and many aborted fruits, was observed in all populations. Additionally, within a population, Snake River goldenweed was routinely absent from areas where weedy species were the most prominent. These observations are in agreement with Kaye et al. (1990), who found habitat degradation impacts from livestock grazing to be the most serious threat to long-term population viability in Oregon. They also noted the more direct affects of grazing such as the knocking over of flower stems and consumption of flowering heads by cattle. None of this kind of damage was observed during the Payette NF survey.

Another widespread threat to Snake River goldenweed is herbivory from grasshoppers and other insect-related problems such as seed predation. Kaye et al. (1990) noted these problems in Oregon populations too. The severity of this type of threat is likely episodic, and would probably be of minor long-term consequence if habitat loss and accompanying population maintenance problems were not so widespread. To varying degrees, all populations of Snake River goldenweed found on the Payette NF were subject to ongoing grasshopper damage and seed predation. Again it was not quantified, but the two largest populations (Mineral East - 001; Benton Creek - 010) were observed to have the most intense infestations with some plants showing definite deleterious effects.

Mining related activities pose a threat at two Snake River goldenweed sites on the Payette NF. The Adams Creek population (005) is situated adjacent to a gravel quarry, and in fact a few plants are found in some tailings on the quarry perimeter. Resumption of use and especially expansion of this quarry could easily destroy portions of this small population. The upper portions of the Mineral East population (001) on the Payette NF are in close proximity to the Silver Still Gypsum Mine, with some plants found below its immediate perimeter. The construction and expansion of this open pit mine has likely destroyed some Snake River goldenweed plants in the past. A few plants also occur near

the roads servicing the mine. Further expansion of the pit and road system could result in the loss of more plants if not planned properly.

The upper Adams Creek population (005) is partly encircled by forested slopes. Logging operations have occurred in the general vicinity of this population and if initiated very close by could cause the incidental, inadvertent destruction of some Snake River goldenweed plants.

One final factor that may be a threat to Snake River goldenweed conservation is the mixed land ownership where several of the populations occur. The Mineral East (001) and Middle Fork Dennett Creek (009) populations are known to cross two or three jurisdictional boundaries. The Monroe Butte population (007), barely within the Payette NF boundary, is suspected to occur on adjacent lands too, although this was not found in 1991. If comprehensive conservation measures are initiated for this species, coordination among Payette NF, Boise District BLM, State of Idaho and private entities will likely be necessary.

Management Implications: Snake River goldenweed faces a number of threats to its long-term viability on lands administered by the Payette NF. Foremost is the loss of high quality habitat. Fostered mostly by past grazing practices, widespread invasion by exotic plant species into Snake River goldenweed habitat presents a well entrenched and probably irreversible problem. Populations are often comprised of widely scattered individuals or small clusters, usually in places where the abundance of weeds are less and the natural community more intact. In general, any land management decisions that could further degrade Snake River goldenweed habitat in areas where it is known to occur should be avoided. Additionally, TES plant clearances (USDA Forest Service 1988) should be conducted for all habitat-altering activities within the range of Snake River goldenweed. In light of where populations were found during the 1991 investigation, activities on the Payette NF such as livestock grazing, mining and logging warrant particular consideration for their impacts on the long-term viability of Snake River goldenweed.

The impacts of livestock should be monitored as part of Allotment Management Planning. Any planned expansion of mining operations noted in the Threats section above, should exclude any destruction of Snake River goldenweed plants or good quality habitat. This includes considering the impacts of associated roading activities too. If logging of the forest slopes adjacent to the Adams Creek population (005) is planned, avoiding incidental destruction of any part of this population should be incorporated into the sale contract. Although Snake River goldenweed does not occur in forested habitats, roads leading to timber sales often pass through non-forested areas. This is one example where TES

clearance work would be appropriate.

The above management implication are important for this species in Idaho because of its relative rarity and localized distribution, and because none of the populations in the state currently receive any kind of protection or special management considerations.

ASSESSMENT AND RECOMMENDATIONS

Summary: As a result of our 1991 field investigation, Snake River goldenweed was documented on the Payette NF for the first time. Six populations were discovered on the Payette NF, all restricted to the western flanks of the Hitt Mountains. Several of these populations extend onto lands of various other ownership. These populations support approximately 2000 plants over an area less than 100 acres. A total of eleven populations have now been documented for Idaho, all in Washington County. The only other known populations occur in adjacent areas of Oregon. In Idaho, there remains relatively large areas of potential Snake River goldenweed habitat that have not been surveyed. This is due in part to difficult access across private lands. On the Payette NF, the most likely area to find additional populations is on the open slopes of the western Cuddy Mountains overlooking the Snake River.

Snake River goldenweed has an elevation amplitude of nearly 4000 feet, with Payette NF populations being the highest elevation sites yet documented, up to 6000 feet. On the Payette NF, Snake River goldenweed is found on mid to upper grassland slopes or in openings within sagebrush habitats. It occurs on both calcareous and volcanic substrates, with an apparent preference for the former.

Several threats to Snake River goldenweed have been identified. Threats such as those posed by mining or logging operations can be quite localized, whereas the threats associated with grazing and loss of high quality habitat occur throughout the range of the species. Threats posed by grasshopper herbivory and other insect problems has been documented in Oregon (Kaye et al. 1990; Meinke 1979), and noted for Idaho populations too. Any comprehensive conservation measures initiated on the Payette NF will likely require cooperation with the BLM and private land owners.

Recommendations to the Regional Forester - Region 4: Based on data discussed in this report, Snake River goldenweed still meets Sensitive Species criteria and should remain on the Regional List for the Payette NF.

Recommendations to Payette National Forest: All populations on the Payette NF face current or potential threats. Populations that are currently in range allotments should be quantitatively monitored for population trend. In reference to the direct affects of cattle

grazing and its indirect affect of habitat modification, Kaye et al. (1990) also recommend monitoring of Snake River goldenweed in Oregon. Their report details a prioritized monitoring regime that provides a framework for how a monitoring program can be designed. It would be advantageous to coordinate with the monitoring being done in Oregon. This would facilitate comparison and linkage of results. It would also help establish some of the necessary contacts to implement a truly comprehensive conservation strategy for the species.

A monitoring project for Snake River goldenweed was established in Oregon in 1991 as part of a Challenge Cost-share program with the Bureau of Land Management, Vale District. Tom Kaye with the Natural Resource Division of the Oregon Department of Agriculture, and Jean Finley of the Vale District are the people coordinating this project (Kaye pers. comm.).

If the gypsum mine at the Mineral East population (001) or the gravel pit at the Adams Creek population (005) are expanded, every effort should be made to prevent destruction of any part of these populations and monitoring plots established to study the impacts of the expansion. If logging operations were to commence adjacent to the Adams Creek population (005), preventing destruction of this small population should not be too difficult to ensure.

A rare plant clearance should be done at the proper time of the year (late July in most instances, but subject to adjustment for elevation and seasonal weather conditions) for all habitat-altering projects such as road building. If Snake River goldenweed is located in project areas, every effort should be made to prevent the loss of any plants or good quality habitat.

The western flanks of the Hitt Mountains were thoroughly searched, but survey work was much less comprehensive on the western side of the Cuddy Mountains overlooking the Snake River. Further status inventory along the open, west draining slopes north of Brownlee Creek should be conducted as soon as practicable to fully document the abundance and distribution of Snake River goldenweed on the Payette NF.

Land managers and field personnel on the Payette NF should be informed of the occurrence of this species in their area. Possible sightings of this plant should be documented by specimens (only if the size of the population warrants collecting), and should be sent to the University of Idaho Herbarium (Department of Biological Sciences, University of Idaho, Moscow 83843) for verification of their identity. Confirmed sightings of this species should be reported to the Idaho Natural Heritage Program, using Region 4 TES Plant Forms, for entry into their permanent data base on sensitive species.

<u>Recommendations to the Bureau of Land Management:</u> Snake River

goldenweed should remain a BLM Sensitive Species in Idaho. Field surveys should be conducted as soon as practicable on BLM lands north and west of the Hitt Mountains to determine its status at these lower elevations. Areas suggested for survey include: 1) Dennett Creek and drainages to its north and south such as Raft Creek, the upper North Fork Dennett Creek, Sumac Creek, Thorn Spring Creek and Wolf Creek. 2) Slopes and ridges above the Sturgill Creek area north of the Payette NF boundary. 3) Scattered BLM parcels between the Hitt Mountain and Cuddy Mountain portions of the Payette NF.

Recommendations to the US Fish and Wildlife Service: Even though several new populations of Snake River goldenweed were discovered during the 1991 survey, its overall abundance remains low and distribution limited in Idaho. All Idaho populations are subject to a range of threats and currently receive no protective or special management directives. The great majority of Snake River goldenweed habitat has been degraded over the years, mainly due to livestock grazing. The evidence points to a decline in its abundance and problems with population maintenance in these degraded habitats. Much of the potential habitat for this species is on private lands, where any protection measures would probably be more difficult to institute. For these reasons we recommend Snake River goldenweed remain a federal category 1 candidate species. If further surveys do little to change its current conservation outlook, listing as Threatened is recommended.

It should be noted, that after studying the species and completing surveys in Oregon, Kaye et al. (1990) recommend that federal listing be completed for Snake River goldenweed.

REFERENCES

Atwood, D., and N. Charlesworth. 1987. Status report - Haplopappus radiatus. Unpublished report for the U.S. Forest Service; on file at the Idaho Department of Fish and Game, Idaho Natural Heritage Program, Boise.

Bureau of Land Management, Vale District Office. 1990. Annual report - threatened/endangered plant species management program. Unpublished report on file at the Idaho Department of Fish and Game, Idaho Natural Heritage Program, Boise.

Cronquist, A. 1955. Haplopappus. Pages 209-225 In: Vascular Plants of the Pacific Northwest, Part 5, By C.L. Hitchcock, A. Cronquist, M. Ownbey, and J.W. Thompson. University of Washington Press, Seattle.

Johnson, F.D. 1977. Haplopappus radiatus. Page 14 In:

Endangered and threatened plants of Idaho - a summary of current knowledge, by the Rare and Endangered Plants Technical Committee of the Idaho Natural Areas Council, Bull. No. 21, Forest, Wildlife, and Range Experiment Station, University of Idaho, Moscow.

Kaye, T. 1991. Personal communication. Oregon Department of Agriculture, Natural Resources Division, Salem, OR.

Kaye, T., S. Massey, W. Messinger, R. Meinke, T. Magee. 1990. Unpublished report for the Vale District, Bureau of Land Management, Challenge Cost-share project no. 89-11; on file at the Idaho Department of Fish and Game, Idaho Natural Heritage Program, Boise. 34 p.

Mayes, R.A. 1976. A cytotaxonomic and chemosystematic study of the genus Pyrrocoma (Asteraceae, Astereae). Ph.D. Dissertation, University of Texas, Austin.

Meinke, R.J. 1979. Notes on the rare, threatened, and endangered vascular plants of northeast Oregon. II. Supplement. Unpublished report for the Baker District, Bureau of Land Management; on file at the Idaho Department of Fish and Game, Idaho Natural Heritage Program, Boise. 112 p.

Moseley, R., and C. Groves. 1990. Rare, threatened and endangered plants and animals of Idaho. Natural Heritage Section, Nongame and Endangered Wildlife Program, Idaho Department of Fish and Game, Boise, ID. 33 p.

Oregon Department of Agriculture. 1989. State list of endangered and threatened plant species. OAR 603-73-070. Unpublished list; on file at the Idaho Department of Fish and Game, Idaho Natural Heritage Program, Boise.

Spahr, R., L. Armstrong, D. Atwood, and M. Rath. 1991. Threatened, endangered, and sensitive species of the Intermountain Region. USDA Forest Service, Intermountain Region, Ogden, UT.

Tisdale, E.W. 1986. Canyon grasslands and associated shrublands of west-central Idaho and adjacent areas. Bull. No. 40, Forest, Wildlife and Range Experiment Station, University of Idaho, Moscow. 42 p.

USDA Forest Service. 1988. Sensitive Plant Program Handbook R-4 FSH 2609.25. Intermountain Region, Ogden, UT.

U.S. Fish and Wildlife Service. 1990. Endangered and threatened wildlife and plants; Review of plant taxa for listing as endangered or threatened species; Notice of review. Federal

Register 50 CFR Part 17:6184-6229 (Wednesday, 21 February 1990).

Appendix 1

Line drawings of Haplopappus radiatus.
(From Hitchcock et al. 1955)

Appendix 2

Locations of Haplopappus radiatus
on and near the Payette NF.

Map 1. Overview of distribution on and near the Payette NF. Portion of Payette NF Visitors map (1984).

Map 2. Benton Saddle population (011). Portion of Neil Gulch 7.5' USGS quadrangle.

Map 3. Benton Creek population (010). Portion of Sturgill Creek 7.5' USGS quadrangle.

Map 4. Mineral East (001) and Middle Fork Dennett Creek (009) populations. Portion of Monroe Butte 7.5' USGS quadrangle.

Map 5. Upper Adams Creek (005), Monroe Butte (007) and Chinamans Hat (008) populations. Portion of Monroe Butte 7.5' USGS quadrangle.

Appendix 3

List of areas searched unsuccessfully for
Haplopappus radiatus on the Payette NF
during the 1991 field investigation.

Hitt Mountains

1. North and east of Arrowhead Springs in the upper reaches of West Brownlee Creek.

2. Ridge and associated slopes north of Benton Creek between the Benton Saddle (011) and Benton Creek (010) populations.

3. Telephone Saddle area.

4. Upper Cherry Creek and adjacent slopes in West Brownlee Creek drainage.

5. Middle Brownlee Creek drainage, northwest of Conner Gulch.

6. Spring Creek, open slopes north of Spring Creek Campground.

7. Slopes above the confluence of Fourth of July and Mann Creeks.

8. Adams Creek, along USFS Road # 025.

9. Fourth of July Creek, along USFS Road # 024.

10. Monroe Butte, south to near USFS boundary in upper Monroe Creek/Rock Creek area.

Cuddy Mountains

1. Lower Seid Creek.

2. Slopes north of Brownlee Guard Station to Brownlee Campground, in East Brownlee Creek drainage.

Appendix 5

Slides of Haplopappus radiatus
and its habitat on the Payette National Forest.

1. close-up, note relative large size and glabrous nature of plant.

2. close-up of flowering head, note large involucre.

3. in grassy, open slope habitat (Middle Fork Dennett Creek population) overlooking the Snake River; water bottle for scale.

4. in opening within sagebrush community habitat (Monroe Butte population).

5. habitat and scattered distribution pattern on slopes below Silver Still Gypsum Mine (upper portion of Mineral East population); note calcareous substrate.

Appendix 4

Element occurrence records for
Haplopappus radiatus
on and near the Payette National Forest.

NOT INCLUDED IN CDC HOME PAGE VERSION OF THIS REPORT