



**Idaho Conservation
Data Center**
Idaho Department of
Fish and Game
PO Box 25
Boise, Idaho
83707



**Field Survey for
Spalding's catchfly
(*Silene spaldingii* Wats.)
in the
Canyon Grasslands of the
Lower Salmon River, Idaho**

**Janice Hill
Michael Mancuso
Karen Gray**

2006



**Challenge Cost-share Project
The Bureau of Land Management
Coeur d'Alene District
and
Idaho Department of Fish and Game**

ABSTRACT

Spalding's catchfly (*Silene spaldingii* Wats.) is a rare plant endemic to bunchgrass grasslands, sagebrush-steppe, and open pine communities of the inland Pacific Northwest. It was listed as Threatened by the U.S. Fish and Wildlife Service in 2001 and is a high priority conservation concern for The Bureau of Land Management (BLM) in Idaho. The purpose of this project was to conduct a field survey for Spalding's catchfly on BLM land containing potential Canyon Grasslands habitat in the lower Salmon River area.

Surveyed parcels were selected on the basis of potential habitat, accessibility, and landowner permission. Two new occurrences of Spalding's catchfly were documented, each consisting of several small subpopulations, were documented, as well as an extension of a previously known occurrence. Several new occurrences of other BLM special status plants were also documented. Locations, abundance, habitat, threats, and other conservation information was collected for all new occurrences and entered into the Idaho Conservation Data Center database.

Table of Contents

Abstract.....	i
Table of Contents.....	ii
Introduction.....	1
Site Description.....	1
Canyon Grassland Habitat for Spalding's catchfly.....	3
Species Description and Life History.....	3
Methods.....	4
Results.....	4
Survey Areas.....	4
Hogback Ridge.....	6
Wickiup Creek.....	11
Billy Creek.....	15
Oxbow.....	19
Cottonwood Creek.....	25
Lyons Bar.....	29
Pine Bar.....	32
Rice Creek.....	35
Survey Summary.....	39
Sensitive Plants.....	40
Invasive Weeds.....	41
Discussion.....	42
Verification of Potential Spalding's catchfly Habitat.....	42
Season of Survey and Population Size.....	42
References Cited.....	43

List of Figures

Figure 1 – Canyon Grasslands.....	2
Figure 2 – Survey Areas.....	5
Figure 3 – Hogback Ridge Survey Area/Potential Habitat.....	7
Figure 4 – Wickiup Creek Survey Area/Potential Habitat.....	12
Figure 5 – Billy Creek Survey Area/Potential Habitat.....	16
Figure 6 – Oxbow Survey Area/Potential Habitat.....	20
Figure 7 – Cottonwood Survey Area/Potential Habitat.....	26
Figure 8 – Lyons Bar Survey Area/Potential Habitat.....	30
Figure 9 – Pine Bar Survey Area/Potential Habitat.....	33
Figure 10 – Rice Creek Survey Area/Potential Habitat.....	36

List of Tables

Table 1 – Summary of Areas Surveyed for <i>Silene spaldingii</i>	39
Table 2 – Sensitive Plants Discovered during the 2005 Survey.....	40
Table 3 – Summary of Invasive Weeds by Survey Area.....	41

Appendix

Rare Plant Observation Forms

Element Occurrence Records

Map Locations of *Silene spaldingii* and other Special Status Plant Species

INTRODUCTION

Spalding's catchfly (*Silene spaldingii* Wats.) is a rare plant endemic to bunchgrass grasslands, sagebrush-steppe, and open pine communities of the inland Pacific Northwest. Large portions of these ecosystems have been eliminated by conversion to agriculture or degraded by livestock grazing and weed invasion. Spalding's catchfly was listed as Threatened in 2001 (U.S. Fish and Wildlife Service [USFWS] 2001). Prior to 1993, only a few, small occurrences of Spalding's catchfly were known in Idaho, mostly on private land in Palouse Grasslands. The discovery of Spalding's catchfly in the Snake River Canyon at Craig Mountain in 1993 (Mancuso and Moseley 1994) opened up large areas of potential Canyon Grasslands habitat where targeted surveys had not been done. Since then, numerous occurrences have been located in this area. Presently, the largest known occurrences of Spalding's catchfly in Idaho occur in the Canyon Grasslands (Idaho Conservation Data Center [IDCDC] 2006). Areas of potentially suitable canyon grassland habitat on BLM property in the lower Salmon River Canyon south of Craig Mountain have received only minimal targeted surveys for Spalding's catchfly. The only documented occurrences of Spalding's catchfly known from the lower Salmon River prior to this survey were near the confluence of Rice Creek, the Oxbow area, and Eagle Creek on Craig Mountain (IDCDC 2006). This federally listed species is of high priority conservation concern for The Bureau of Land Management. Knowledge of the extent and condition of Spalding's catchfly populations on BLM lands is necessary for implementation of management activities such as fire, pesticide spraying, and biological weed control, and formulating a conservation strategy. The purpose of this project was to conduct field surveys for Spalding's catchfly in Canyon Grassland habitat on BLM land in the lower Salmon River.

Site Description

Canyon Grasslands occupy canyons of the Snake and Salmon Rivers and their tributaries in the tri-state area of Idaho, Oregon, and Washington (Figure 1) (Tisdale 1986). Elevations of the grasslands range from 710 feet to 7,800 feet (213-2,340 m) with slopes from 45 to 70 percent. The Canyon Grasslands are dominated by native perennial bunchgrasses with smaller inclusions of shrubland and forest communities. These major vegetation types occur across the landscape in a distinct pattern related to a moisture gradient determined by aspect, elevation and soils (Tisdale 1986; Mancuso 1993). Many highly competitive weed species became established and have seriously degraded or displaced native bunchgrass communities in many areas of the Canyon Grasslands (Mancuso and Moseley 1994; Hill and Gray 1999).

Considerable portions of BLM land occur within Canyon Grasslands along the lower Salmon River Canyon from its confluence with the Snake River to Hammer Creek near White Bird, a distance of 55 river miles (BLM 2005). Scattered BLM in-holdings in Canyon Grasslands also occur in the breaks of Joseph Plains, a large upland plateau between the lower Salmon River and the Snake River. Much of this BLM land is surrounded by private land with limited accessibility.

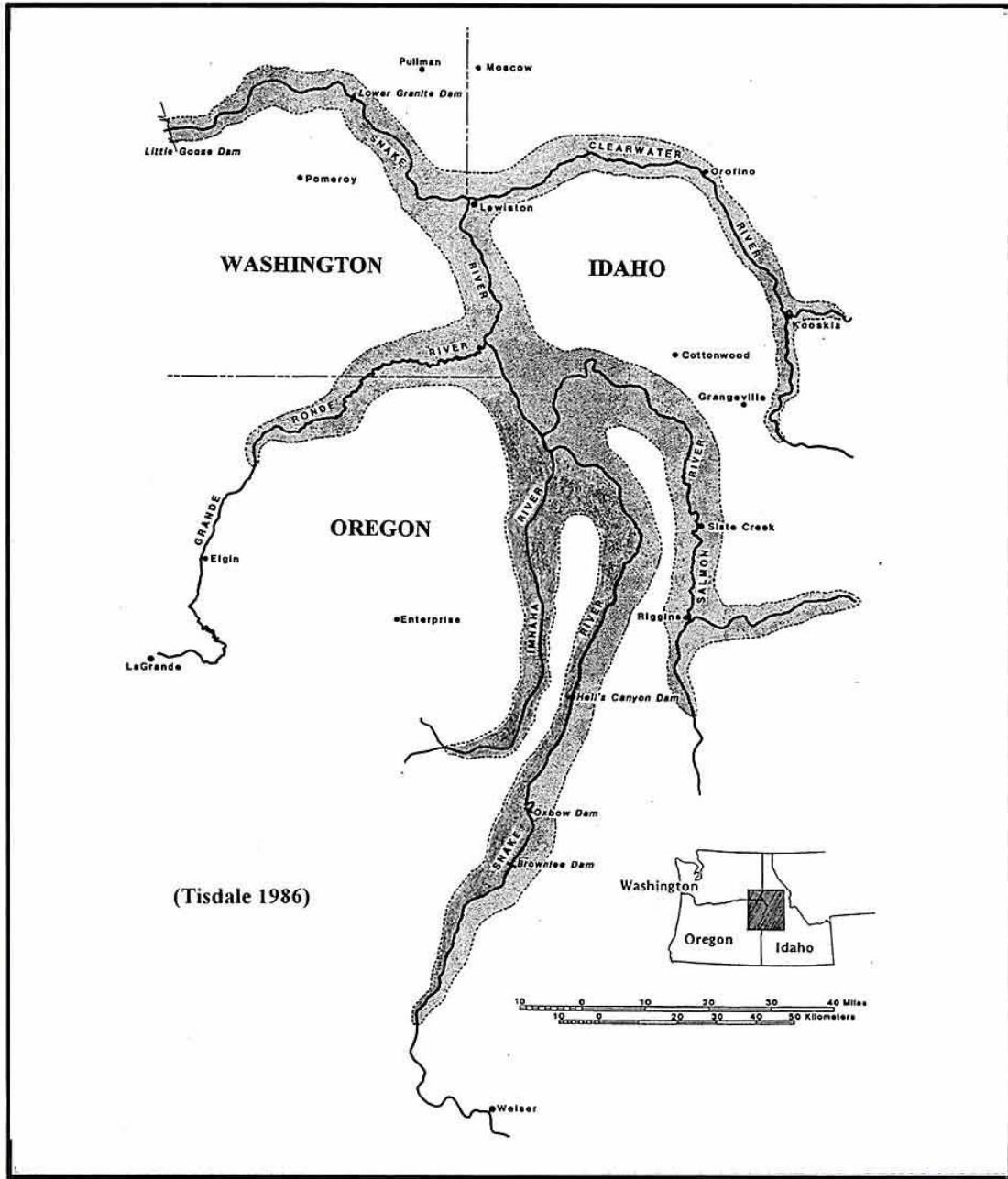


FIGURE 1
Canyon Grasslands



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Canyon Grassland Habitat for Spalding's catchfly

Based on known locations in Canyon Grasslands on Craig Mountain, Spalding's catchfly appears to be restricted to mesic Idaho fescue (*Festuca idahoensis*) grasslands that typically occur on northerly aspects from west-northwest to north to east-northeast aspects between 1,300 feet and 4,000 feet (390-1,200 m) (Hill and Gray 1999; Menke 2003; Hill and Gray 2004; IDCDC 2006). Mesic Idaho fescue communities include the Idaho fescue-prairie junegrass (*Festuca idahoensis-Koeleria macrantha*) (Tisdale 1986; Johnson and Simon 1987), Idaho fescue/snowberry (*Festuca idahoensis/Symphoricarpos albus*), and Idaho fescue/rose (*Festuca idahoensis/Rosa* spp.) (Daubenmire 1970) habitat types. Johnson and Simon (1987) divided the Idaho fescue-prairie junegrass habitat type into a high elevation type that occurs on the younger Grande Ronde/Picture Gorge Basalt Flows and a low elevation type that occurs on the older Imnaha Basalt Flows. Spalding's catchfly in the Canyon Grasslands of Idaho is not known to occur in the drier Idaho fescue-bluebunch wheatgrass (*Festuca idahoensis-Pseudoroegneria spicata*) habitat types (Tisdale 1986; Johnson and Simon 1987) that typically occur on southerly aspects at higher elevations (Hill and Gray 1999). Mesic Idaho fescue communities can extend to low elevations in the generally dry region of Hells Canyon as topographic climaxes, taking advantage of the higher soil moisture conditions on northerly aspects compared to southerly aspects at the same elevation. Moisture is retained longer on northerly slopes due to less direct insolation, less evaporation, and the higher moisture-holding capacity of the loess- and ash-influenced soils that exist on these aspects (Daubenmire 1970; Franklin and Dryness 1973; Tisdale 1986; Johnson and Simon 1987; Mancuso 1993).

Species Description and Life History

Spalding's catchfly is an herbaceous perennial plant that commonly grows to 60 cm, and occasionally to 75 cm. Individual plants typically produce one stem or one rosette, or occasionally both, but can also produce multiple stems or rosettes. Each stem bears up to 10 pairs of leaves that are 5-8 cm long and 2-4 (6) cm wide. The foliage, stem, and flower bracts are densely covered with sticky, gland-tipped hairs that give the species its common name, 'catchfly'. Stems arise from a simple or branched caudex (persistent stem just beneath the soil surface) that surmounts a long, narrow taproot that can grow up to 85 cm (Menke 2003). Cream-to pink- to light green-colored flowers typically have 5 petals, each with a long, narrow claw that is largely concealed by the calyx tube, the outer green portion of the flower. The only visible part of the flower is the short (2 mm), expanded blade portion of the petal at the summit of the claw. The barely-protruding blade of the flower petals is a diagnostic feature, distinguishing this species from other sympatric species of the genus *Silene*.

Spalding's catchfly is a geophyte; it possesses a subterranean, perenating caudex that makes the plant undetectable aboveground during periods of dormancy. All plants are dormant during the winter months; however, this dormancy can continue for some plants through one or more growing seasons, a phenomenon known as prolonged dormancy (Lesica and Steele 1994). In Canyon Grasslands, new growth begins emerging aboveground at the end of April. In long-term demography studies in Canyon Grasslands of Idaho, approximately 2/3 of plants emerging aboveground each year were stemmed plants and 1/3 were rosette plants (Hill and Gray 2006). Stemmed plants either became reproductive or remained vegetative at flowering . Rosette plants remained vegetative, they did not bolt into stemmed plants during the growing season, and most were produced by mature plants, although seedlings also produce a rosette the first year of growth. Flower buds start to form in early July and flowering continues into October. Many

plants present early in the season disappeared or senesced and were undetectable by flowering, particularly the ephemeral rosette plants (Hill 2006).

METHODS

Eight parcels of BLM land consisting of a total of approximately 2,000 acres (800 ha) were targeted for survey in Canyon Grasslands of the lower Salmon River and Joseph Plains area (Figure 2) based on potential habitat for Spalding's catchfly, accessibility, and landowner permission. Much of BLM land in the proposed survey area is surrounded by private property and cooperation with and permission from private landowners was critical in reaching parcels targeted for survey.

Prior to the survey, potential Spalding's catchfly habitat, i.e., grasslands with northerly aspects (northwest to northeast), within the eight parcels was highlighted on 7.5' topographical maps to identify the appropriate aspects and focus the survey in areas with high potential habitat. Grasslands on west, south, and east slopes were eliminated because they are generally too dry to support mesic Idaho fescue grasslands. Areas delineated as forests on topographic maps were consistently within the aspect range for potential habitat, but were eliminated because forested areas are generally not potential habitat for Spalding's catchfly.

Potential habitat was further evaluated on-ground during the survey. Some areas determined to be potential habitat based on aspect were eliminated as inappropriate habitat because they were either converted to weedy vegetation, consisted of dense shrubfields, or consisted of large amounts of rock outcrops or talus. Conversely, some areas delineated as forests on the topographic maps contained scattered fescue grassland patches that were potential habitat and therefore were targeted for survey.

The survey was conducted in late July because the flower is the most diagnostic feature to distinguish Spalding's catchfly from other sympatric *Silene* species. All locations of Spalding's catchfly and other sensitive species encountered during the survey were recorded with the use of a GPS. Rare plant observation forms were completed with location, population size and extent, condition and landscape context, and habitat information and entered into the IDCDC database.

RESULTS

Survey Areas

A description of each survey area follows, including: 1) general description, 2) a map of the survey area and potential Spalding's catchfly habitat, 3) native vegetation, 4) invasive weeds, 5) sensitive species, and 6) photographs.

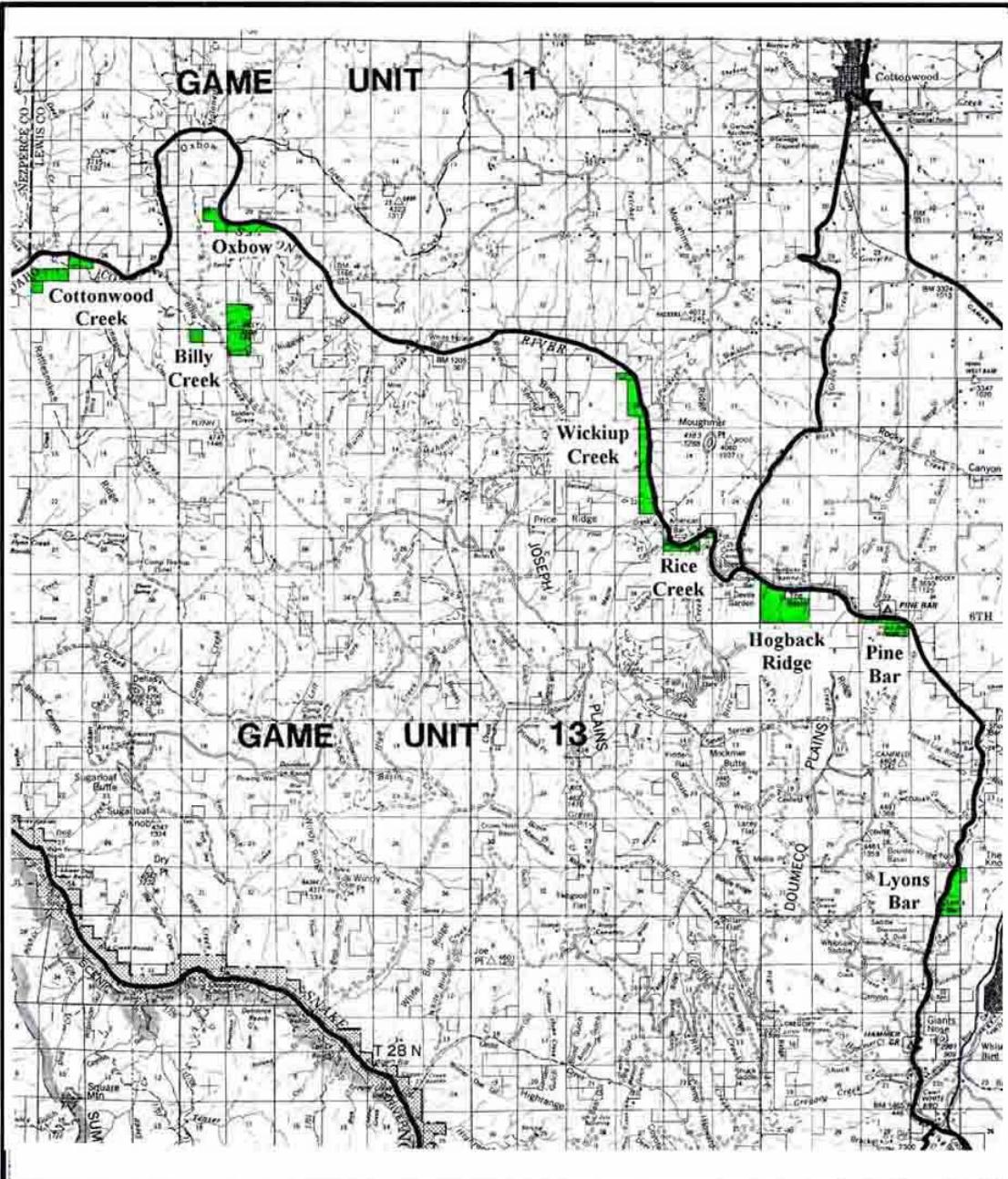


FIGURE 2
Survey Areas



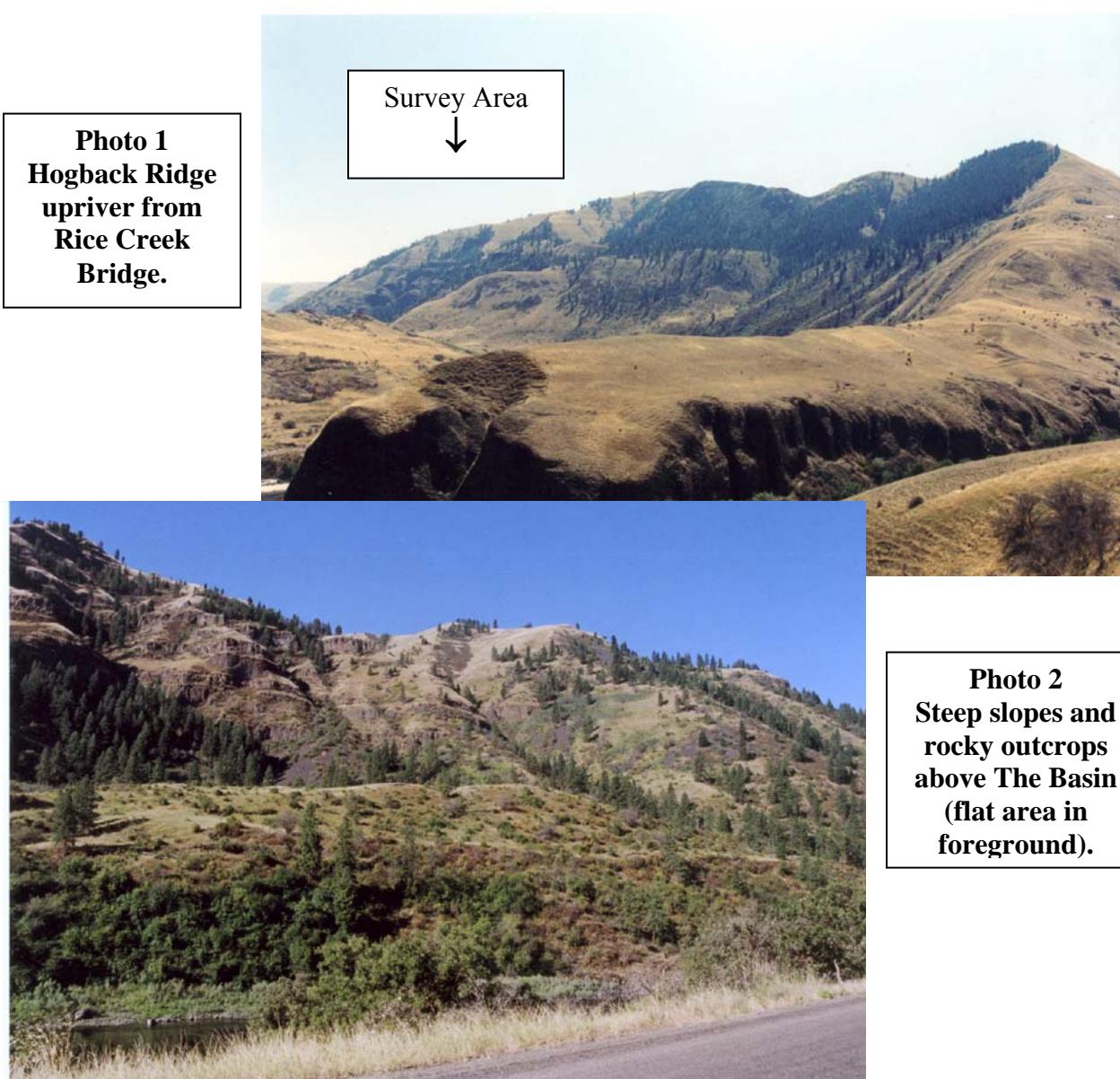
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HOGBACK RIDGE

General Description: The Hogback Ridge survey area (Figure 3) was a southwest- to northeast-trending ridge located on the south side of the Salmon River between River Miles 39 and 41 approximately $\frac{1}{2}$ mile (0.8 km) upriver from Cooper Bar and 1 mile (1.6 km) upriver from the Rice Creek Bridge. Much of the parcel consisted of steep northerly slopes, with some easterly and westerly slopes on north-trending spur ridges. Two small drainages bisected the area. Elevations ranged from 1,300 to 3,500 feet (390-1,050 m). The parcel was bordered on the west by State land in an area referred to as "Devils Garden" and on the north by private land in a large flat above the river referred to as "The Basin". Vegetation consisted primarily of grassland slopes, shrubland patches, and forest stringers. A large area on the west side of the parcel consisted of a mosaic of shrubfields, grassy openings, and scattered conifer trees. Numerous rocky outcrops and talus fields were also present. (Photos 1 & 2)



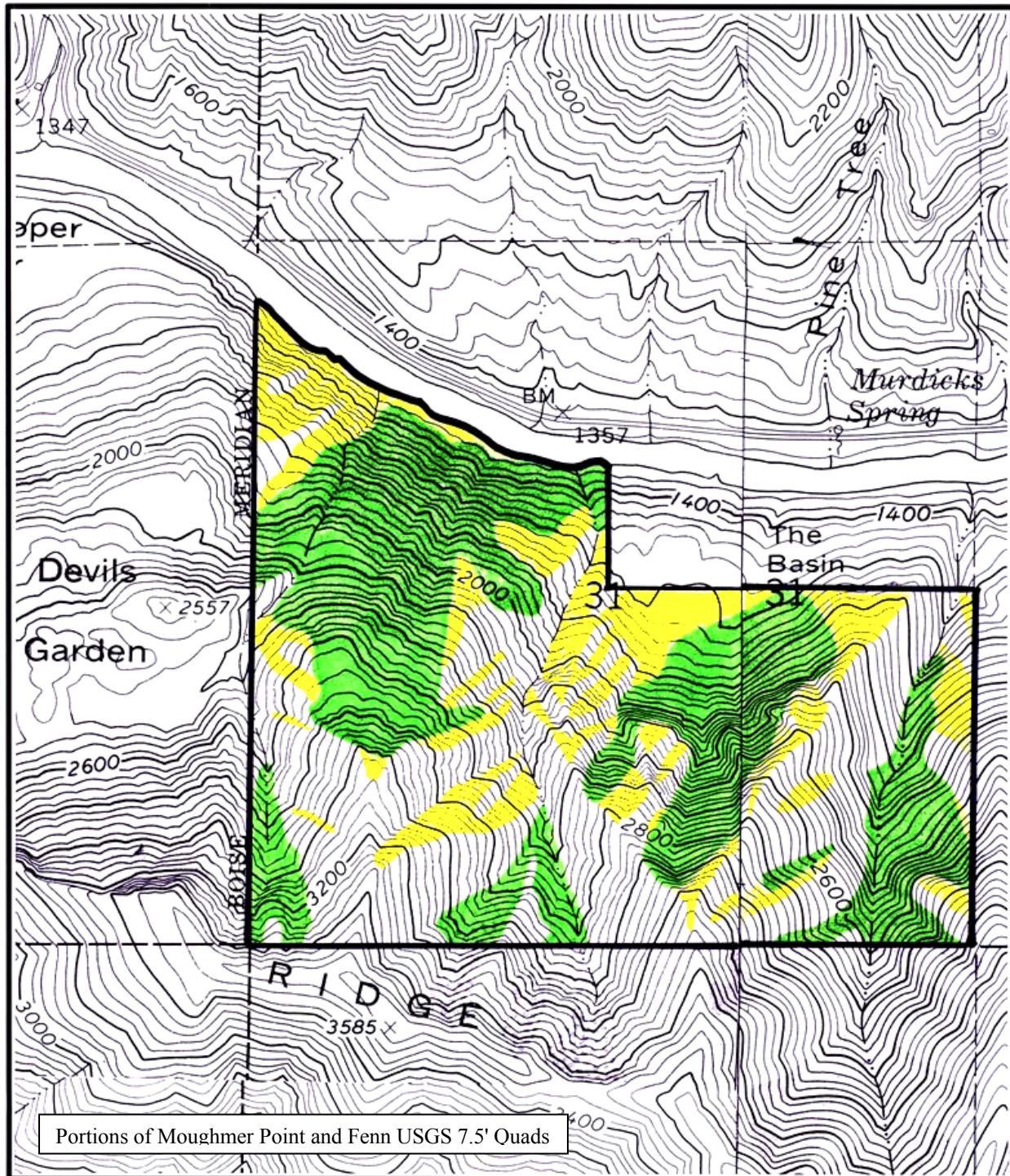


FIGURE 3
Hogback Ridge Survey Area
Potential Spalding's catchfly Habitat (yellow)



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Survey Information: The Hogback Ridge survey area consisted of 403 acres (161 ha), of which 21%, 84 acres (34 ha), fell within the potential aspect range for Idaho fescue grassland habitat types known to support Spalding's catchfly in Canyon Grasslands (Figure 3). A total of 63%, 53 acres (21 ha), of the potential habitat was surveyed as well as 88 acres (35 ha) of other BLM land on the parcel and 19 acres (8 ha) of State land en-route to the parcel. Some of the area delineated as forest on the topographic map (green on map) and not originally included as potential habitat, was actually a mosaic of shrubfields, scattered conifer trees, and patches of mesic grasslands that were potential habitat.

Vegetation: Grassland slopes on northwest to north to northeast aspects consisted of mesic Idaho fescue grassland habitat types. The easterly and westerly slopes associated with the small drainages bisecting the parcel consisted of drier bluebunch wheatgrass grassland habitat types. Shrubland patches associated with these grasslands consisted of ninebark (*Physocarpus malvaceus*), snowberry, and rose species. Forest stringers at higher elevations supported Douglas-fir/ninebark (*Pseudotsuga menziesii/Physocarpus malvaceus*) habitat types. The shrub-grass-forest mosaic occurred on a north-facing slope on the west side of the parcel and supported shrubfields of ninebark, ocean spray (*Holodiscus discolor*), snowberry, rose, black hawthorn (*Crataegus douglasii*), chokecherry (*Prunus virginiana*), hackberry (*Celtis reticulata*), serviceberry (*Amelanchier alnifolia*), cascara (*Rhamnus purshiana*), and Rocky Mountain maple (*Acer glabrum*), scattered Ponderosa pine (*Pinus ponderosa*) and Douglas-fir, and mesic Idaho fescue grassland openings. The shrub species in this mosaic were primarily tall shrubs.

Invasive Weeds: Large portions of the parcel were very weedy with a wide variety of non-native, invasive weed species of varying abundance and distribution. Generally, the drier bluebunch wheatgrass grassland types had large infestations of yellow starthistle and cheatgrass. Mesic Idaho fescue grassland types were generally in better ecological condition with less weed cover overall, although they often supported a number of invasive species including Dalmatian toadflax (*Linaria dalmatica*), sulfur cinquefoil (*Potentilla recta*), Japanese brome, Kentucky bluegrass (*Poa pratensis*), leafy spurge (*Euphorbia esula*), common crupina (*Crupina vulgaris*), teasel (*Dipsacus sylvestris*), and St. Johnswort (*Hypericum perforatum*). Snowberry patches often supported dense infestations of St. Johnswort. The non-native, invasive shrub, sweetbriar (*Rosa eglanteria*), with stout, strongly curved prickles and large hips, was scattered in mesic grasslands and the shrub-grass-forest mosaic.

Sensitive Species: A new occurrence of Spalding's catchfly, consisting of three subpopulations and a total of 29 plants, was located on the Hogback Ridge parcel. Subpopulations 1 and 2 consisted of several small clusters. Subpopulation 1 was located on a grassy ridge east of The Basin (Photo 3). Subpopulation 2 was located on the western portion of the parcel with two clusters in the shrub-grass-forest mosaic and one cluster in grasslands within a bowl-like area (Photo 4). Subpopulation 3 was located on a grassy slope on State land below Devils Garden en-route from the parcel. All subpopulations occurred on northwest to northeast aspects between 1,660 feet and 2,160 feet (498-648 m) on 15-45 degree slopes. Cluster 2B was located within a Douglas-fir/ninebark habitat with tall shrubs, Rocky Mountain maple, cascara, and chokecherry (Photo 5). The remaining subpopulations and clusters were within Idaho fescue-prairie junegrass or Idaho fescue/snowberry habitat types (Photos 6 & 7). Associated mesic forbs included prairie smoke (*Geum triflorum*), white-stemmed frasera (*Frasera albicaulis*), western hawkweed (*Hieracium albertinum*), Scouler's silene (*Silene scouleri*), mouse-ear chickweed (*Cerastium arvense*), stoneseed (*Lithospermum ruderale*), yarrow (*Achillea millefolium*), rose, and alumroot (*Heuchera* sp.). Scouler's silene, a look-alike congener with Spalding's catchfly, blooms earlier

and was seeding at the time of the survey. Non-native, invasive weed species associated with the Spalding's catchfly subpopulations included sulfur cinquefoil, Dalmatian toadflax, St. Johnswort, Kentucky bluegrass, Japanese brome, and sweetbriar. Surrounding vegetation was also very weedy with infestations of yellow starthistle, leafy spurge, teasel, and common crupina. Small, scattered, relatively weed-free Idaho fescue grasslands provided the best habitat; some of these areas supported Spalding's catchfly but others did not. An occurrence of Palouse thistle (*Cirsium brevifolium*) was also located on State land adjacent to the west side of the parcel.



Photo 3
Spalding's catchfly
site east of
The Basin
(grasslands on right
side of ridge).

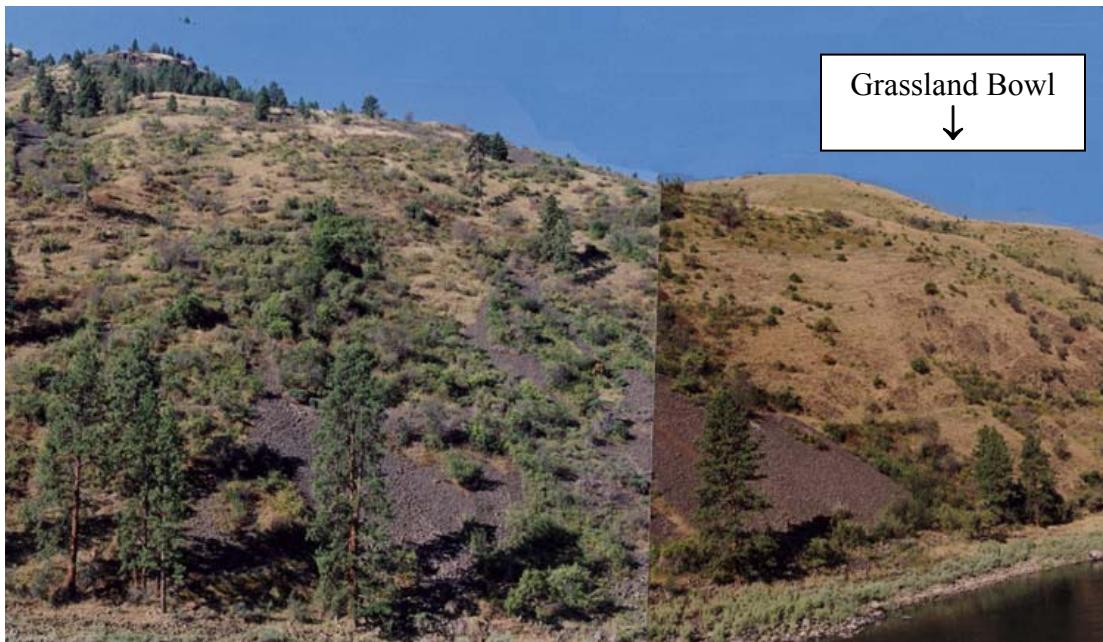


Photo 4 - Spalding's catchfly sites in shrub-grass-forest mosaic (on left)
and grassland bowl (upper right) on west side of survey area.



Photo 5
Spalding's
catchfly under
Rocky
Mountain
maple.
Douglas-fir/
ninebark
habitat type.



Photo 6
Spalding's catchfly.
(Grassland Bowl Site)



Photo 7
Spalding's catchfly Habitat.
(Grassland Bowl Site)

WICKIUP CREEK

General Description: The Wickiup Creek survey area (Figure 4) was a three-mile (5-km) strip of land located on the west side of the Salmon River between River Miles 32 and 36. The southern-most border began approximately two miles (3 km) downriver from Rice Creek Bridge. Elevations on the parcel ranged from 1,200 feet to 2,100 feet (360-630 m). The majority of this survey area consisted of generally east-facing, steep slopes bisected by small drainages, including Second Creek and Wickiup Creek that created a small percentage of southerly and northerly aspects. Vegetation consisted primarily of grassland slopes, shrublands, and an occasional forested stringer. (Photos 8-11).



Photo 8
**Wickiup Creek Survey Area (First Creek, Second Creek and
Wickiup Creek visible). American Bar in foreground.**

Survey Information: The Wickiup Creek survey area consisted of 450 acres (180 ha), of which 18%, 80 acres (32 ha), fell within the potential aspect range for Idaho fescue grassland habitat types known to support Spalding's catchfly in Canyon Grasslands (Figure 4). A total of 93%, 74 acres (30 ha), of the potential habitat was surveyed as well as 230 acres (92 ha) of other BLM land on the parcel and 55 acres (22 ha) of private land en-route to the parcel.

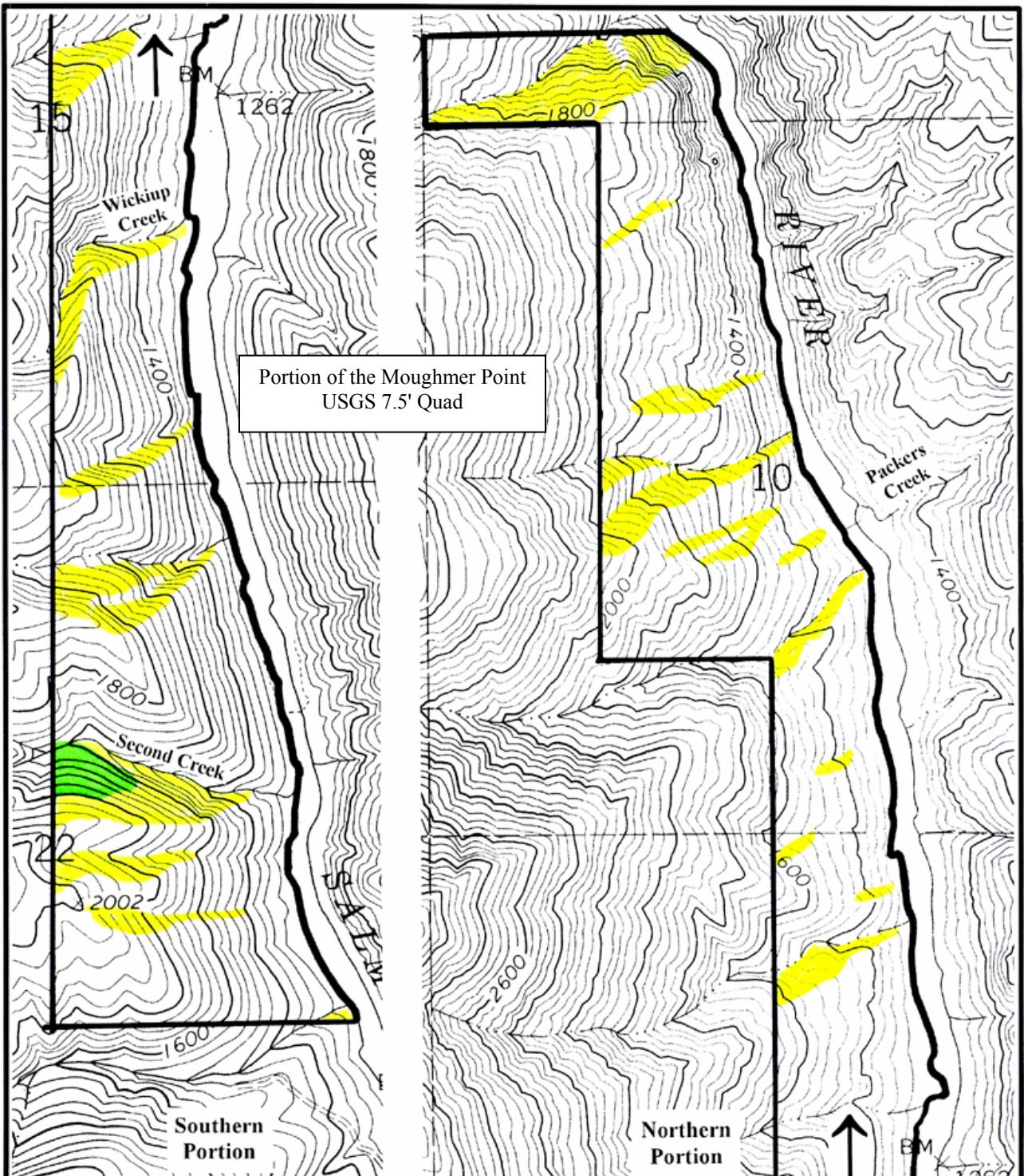


FIGURE 4
Wickiup Creek Survey Area
Potential Spalding's catchfly Habitat (yellow)



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Vegetation: Grassland slopes on easterly and southerly aspects consisted of xeric grasslands that had been largely replaced by non-native, invasive forbs and grass species. Some sand dropseed (*Sporobolus cryptandrus*) grassland types occurred at the very lowest elevations adjacent to river at the southern end of the parcel. A very small percentage of native grasslands existed on the parcel. The only mesic Idaho fescue grasslands encountered were on northerly aspects associated with two small drainages, one a small area in Section 10 just upstream from the confluence of Packers Creek (east side of the river) and another larger area at the most northerly extent of the parcel where the river starts to bear westerly. The majority of vegetation on northerly aspects consisted of a mix of shrub species, including black hawthorn, hackberry, rose, snowberry, ocean spray, ninebark, plums (*Prunus* spp.), and cascara (Photo 10). A small portion of a forested stringer associated with northerly aspects along Second Creek consisted of Douglas-fir/ninebark habitat type.

Invasive Weeds: The Wickiup Creek parcel was dominated by non-native, invasive grasses, forbs, and one shrub species. The most consistent weedy forbs were Dalmatian toadflax and St. Johnswort. Yellow starthistle was widespread but more patchy, and sulfur cinquefoil was patchy in the more mesic areas. Vetch (*Vicia villosa*) formed thick patches in some spots. Cheatgrass and ventenata (*Ventenata dubia*) often formed dense infestations. Canada bluegrass (*Poa compressa*), medusahead (*Taeniatherum caput-medusae*), six weeks fescue (*Festuca megalura*), Kentucky bluegrass, and timothy (*Phleum pratense*) occurred in patches. Southerly, westerly and easterly facing slopes were dominated by weedy species in most places, while northerly aspects were much less weedy. Evidence of domestic livestock use was evident on gentler bench areas but minimal on steep northerly slopes. The invasive shrub sweetbriar often occurred on northerly aspects. (Photos 9, 10 & 11)



Photo 9
Upriver from the Wickiup Creek area.
Moth mullein in foreground; sweetbriar bushes on next ridge back.



Photo 10
**Upriver from near
Packers Creek.
Northerly aspects
with shrubfields.**



Photo 11
**Downriver from
near Packers Creek.
Sweetbriar in
foreground.**

Sensitive Species: Only two small areas of good condition, mesic Idaho fescue grasslands were encountered during the survey and Spalding's catchfly was not observed in either area. New occurrences of Palouse goldenweed (*Haplopappus liatiformis*) and broad-fruit mariposa lily (*Calochortus nitidus*) were located in a mesic Idaho fescue grassland areas on private land in Section 10 at the far north end of the parcel. An occurrence of a rare moss, *Tripterocladium leucocladulum*, was located on private land at the far southern end of the parcel near First Creek.

BILLY CREEK

General Description: The Billy Creek survey area (Figure 5) was located in the Salmon River breaklands on the northern portion of Joseph Plains, the high plateau between the Snake and Salmon Rivers. The parcel occurred along Billy Creek approximately 1 ½ miles (2 km) from its confluence with the Salmon River at River Mile 16. Two separate parcels were included, a larger 320-acre (128 ha) parcel above a hayfield on private land on the east side of Billy Creek and a smaller 40-acre (16 ha) parcel on the west side of Billy Creek. The elevational range, 2,600 to 4,300 feet (780-1,290 m), was the highest of any of the eight surveyed parcels. Differential erosion of Columbia River Basalts in this area has created a well-defined 'bench' area marking the interface of the lower, more resistant, rounded slopes of Imnaha Basalts and the upper, less resistant, steepened, layered Yakima (Grande Ronde/Picture Gorge) Basalts (Vallier 1974; Johnson and Simon 1987). Benchlands are typically heavily grazed and native plant communities have been replaced by non-native invasive plants. The hayfield below the lower parcel and jeep road to the Oxbow were located on the gentler benchlands in this area. The Billy Creek parcels were located just above this interface within the Grande Ronde/Picture Gorge Basalts and rose steeply above the hayfield. Numerous rock outcrops were associated with the layered basalt flows in the parcels. Spur ridges trended east-west on the parcel, creating alternating northerly and southerly aspects that support grasslands, shrubland patches, and forested stringers. (Photo 12).



Photo 12
Billy Creek Survey Area.
(parcel above hayfield)

Survey Information: The Billy Creek survey area consisted of 360 acres (144 ha), of which 20%, 71 acres (28 ha) fell within the potential aspect range for Idaho fescue grassland habitat types known to support Spalding's catchfly in Canyon Grasslands (Figure 5). A total of 86%, 61 acres (24 ha) of the potential habitat was surveyed as well as 90 acres (36 ha) of other BLM land on the parcel and 80 acres (32 ha) of private land en-route to the parcels.

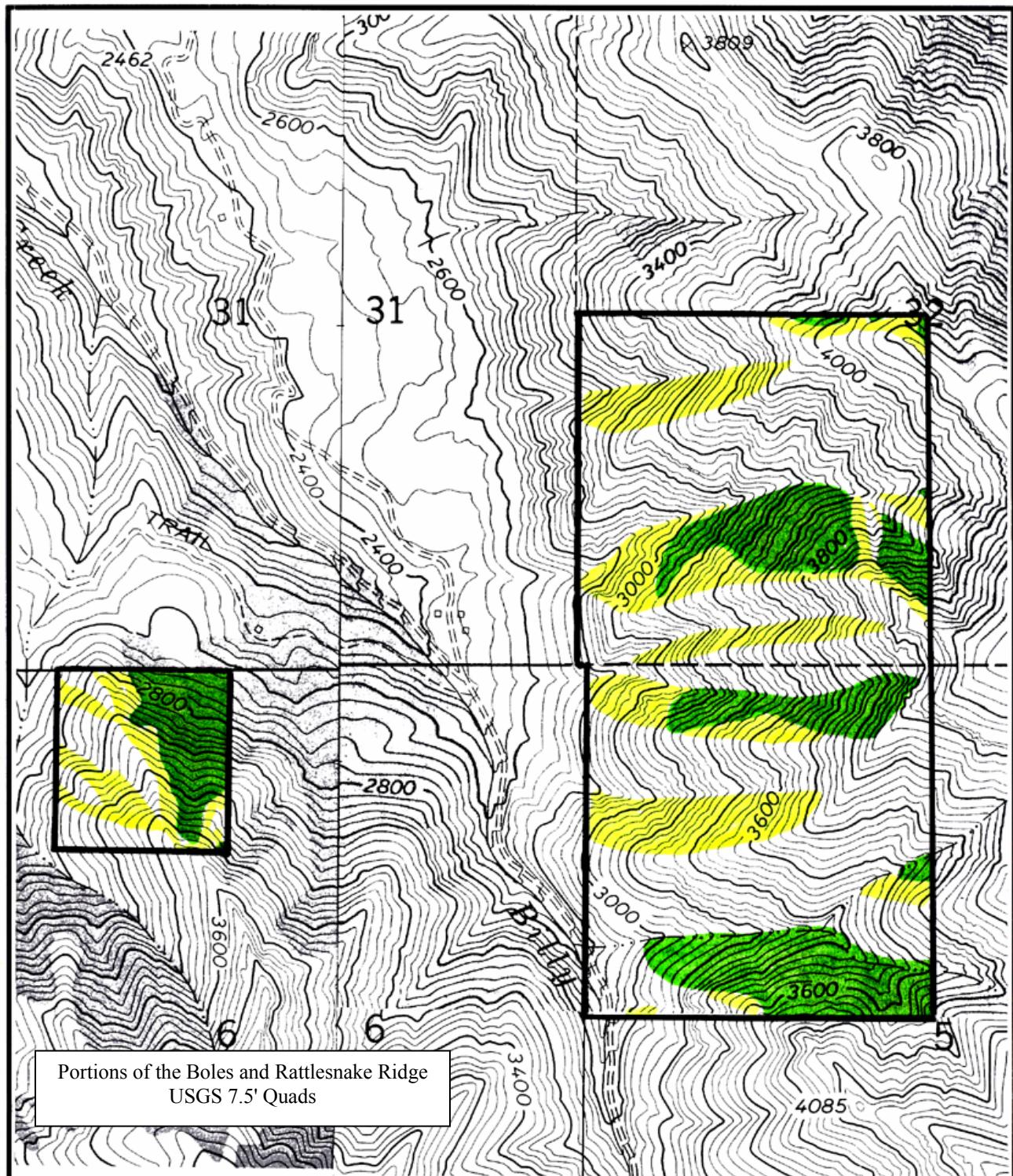


FIGURE 5
Billy Creek Survey Area
Potential Spalding's catchfly Habitat (yellow)



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Vegetation: Mesic Idaho fescue grasslands occurred up to approximately 4,000 feet (1,200 m) on northerly aspects. More xeric bluebunch wheatgrass grasslands occurred up to the highest elevations on the parcel, 4,300 feet (1,290 m), on southwesterly and westerly slopes (Photo 13). Douglas-fir/ninebark forest stringers occurred above 4,000 feet (1,200 m) on northerly aspects. Some forest stringers extended down to 3,000 feet (900 m) interfingering with mesic grasslands on these aspects. Shrubland patches consisting of ninebark, snowberry, rose, and scattered conifer trees were often associated with the mesic grasslands (Photo 14). The mesic Idaho fescue grasslands consisted of the Idaho fescue-prairie junegrass and Idaho fescue-snowberry habitat types known to support Spalding's catchfly. Associated mesic forbs included prairie smoke, mouse-ear chickweed, Missouri goldenrod (*Solidago missouriensis*), Scouler's silene, red besseya (*Besseyea rubra*), western hawkweed, and slender cinquefoil (*Potentilla gracilis*).

Photo 13
**Mesic Idaho fescue grasslands
on northerly aspect
right of ravine.
Xeric bluebunch wheatgrass
grasslands on southerly aspect
left of ravine.
(parcel above hayfield)**



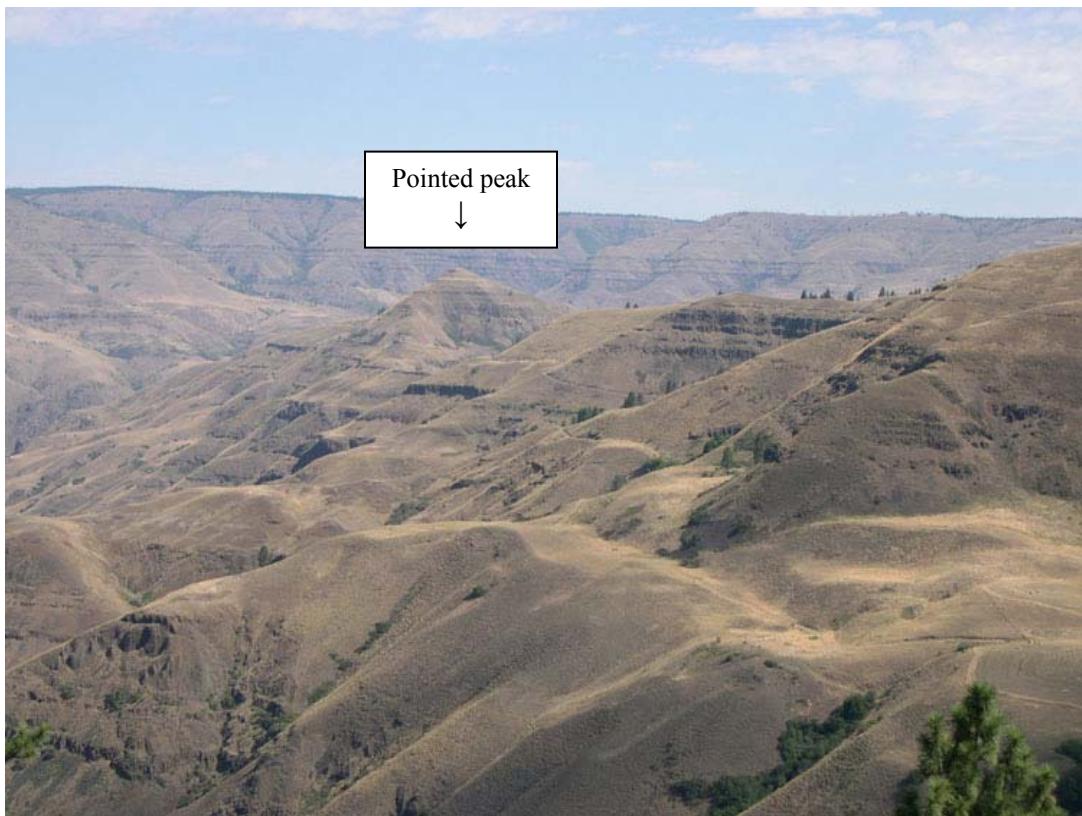
Photo 14
**Shrubland patch in
mesic grasslands on
northerly aspect.
(40-acre parcel)**

Invasive Weeds: The Billy Creek parcel was in generally good ecological condition with relatively low cover of invasive weeds. The most prevalent invasive species included yellow starthistle and cheatgrass on southerly aspects and sulfur cinquefoil, St. Johnswort, and Japanese brome on northerly aspects. Southerly aspects tended to be weedier than northerly aspects.

Sensitive Plants: No Spalding's catchfly occurrences were located on the Billy Creek parcels even though the appropriate mesic Idaho fescue grassland types were present and there was very low cover of invasive weeds. No other sensitive plants were located on the parcels.

OXBOW

General Description: The Oxbow survey area (Figure 6) was located between River Miles 22 and 24 on the Oxbow, a five-mile (8 km) loop of the Salmon River (Photo 15). The survey area included the east side of the neck of the Oxbow and upriver, including the confluence of Long Canyon. Within the east neck area, east-trending spur ridges had northerly and southerly aspects. The upper portions of these ridges were greatly steepened but tended to flatten out into small benches above the river at lower elevations (Photo 16). Long Canyon occurred just upriver from the Oxbow where the river flowed, west creating northerly slopes along the south side of the river. Long Canyon and a smaller drainage bisected this area; Snow Hole Rapids occurred near the confluence of Long Canyon (Photos 17, 18, & 19). Elevations on the parcel ranged from 1,100 to 2,200 feet (330-660 m). Much of the survey area adjacent to the river, especially between Long Canyon and the east neck area, was dominated by steep cliffs and rocky outcrops. Grassland slopes with shrub patches were the predominant vegetation in the area; only the lowest portions of a few forest stringers extended into the survey area on northerly aspects.



**Photo 15 - Oxbow (pointed peak in distance)
from Billy Creek survey area.**

Survey Information: The Oxbow survey area consisted of 220 acres (88 ha), of which 64%, 140 acres (56 ha), fell within the potential aspect range for Idaho fescue grassland habitat types known to support Spalding's catchfly in Canyon Grasslands (Figure 6). A total of 70%, 98 acres (39 ha) of the potential habitat was surveyed as well as 40 acres (16 ha) of other BLM land on the parcel and 40 acres (16 ha) of private land en-route to the parcel.

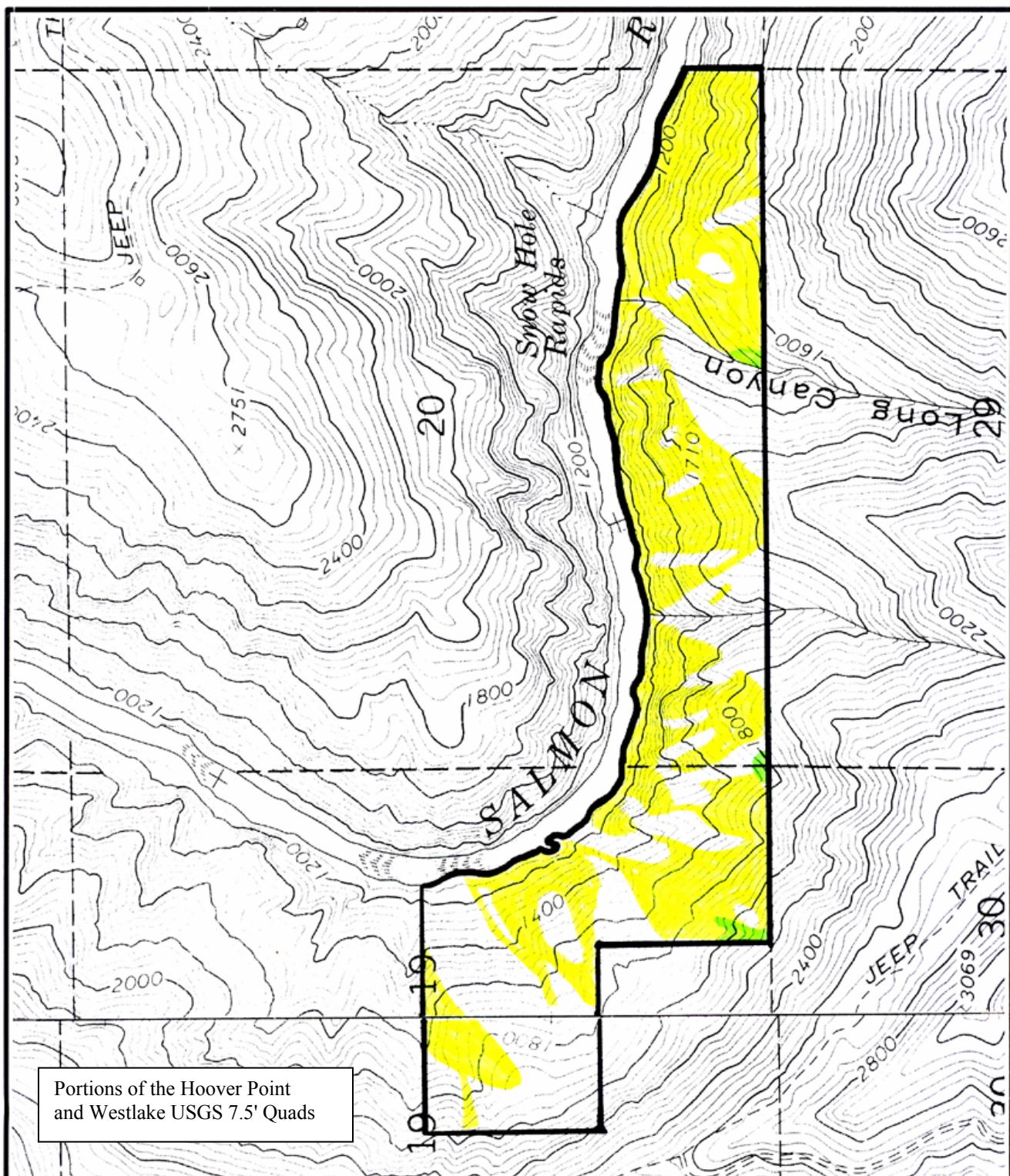


FIGURE 6
Oxbow Survey Area
Potential Spalding's catchfly Habitat (yellow)



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Photo 16 (right)
East Neck of
Oxbow Loop
from Long Canyon.

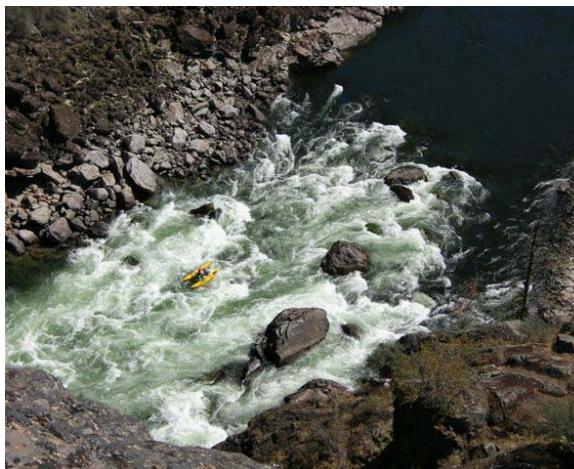


Photo 17 (below)
Long Canyon from East
Neck of Oxbow.



Photo 18 (below)
Long Canyon from
top of ridge.

Photo 19 (lower left)
Snow Hole Rapids.



Vegetation: Northerly aspects of the easterly-trending ridges in the east neck area consisted of a mix of mesic Idaho fescue grasslands, shrub patches of snowberry, rose, serviceberry, cascara, sumac (*Rhus glabra*), and ocean spray, with scattered ponderosa pine trees. Bluebunch wheatgrass grasslands occurred on easterly, westerly and southerly aspects. Mountain mahogany (*Cercocarpus ledifolius*) occurred at lower elevations in the large expanses of steep rocky outcrops adjacent to and above the river (Photo 20). In the Long Canyon area, cliffs, rocky outcrops, and large shrubfields with some grassland patches dominated northerly aspects. Only due-north aspects supported mesic Idaho fescue grasslands, which comprised a relatively small fraction of this area. Grasslands on northwest aspects were drier bluebunch wheatgrass types. The small flat on the east side of Long Canyon was heavily infested with invasive weeds, and the steep, north-facing slope down to the river below the flat supported primarily shrubfields consisting of ninebark, snowberry, black hawthorn, rose, with scattered ponderosa pine and small grassland patches (Photo 21). Very rocky, steep cliffs and outcrops occurred above the river on the west side of Long Canyon and continued downriver past the small middle drainage and into the east neck of the Oxbow (Photo 22).



Photo 20
Steep, rocky
outcrops with
mountain mahogany.
Upriver toward
Long Canyon
from East Neck Area.

Photo 21 – Shrubfields below weedy flat upriver from Long Canyon.



Photo 22 – Rocky outcrops downriver from Long Canyon.

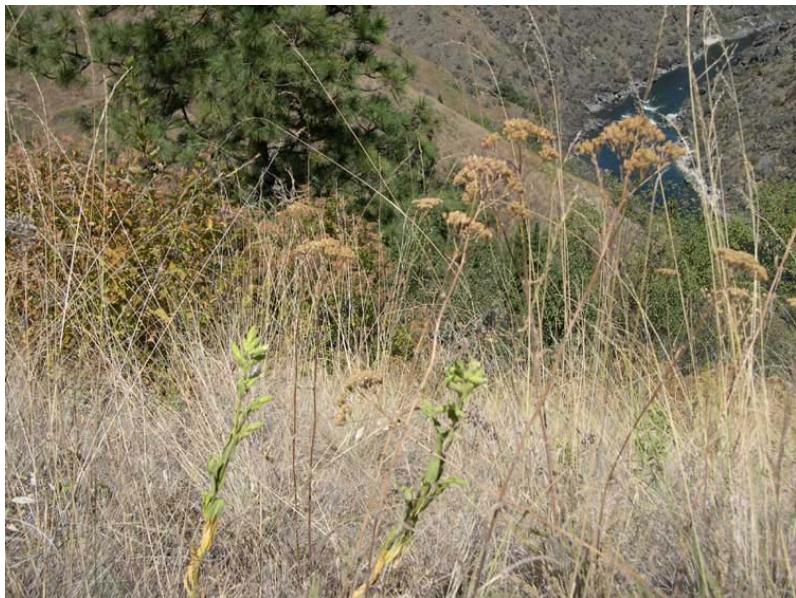


Invasive Weeds: In the east neck area, east, west and south aspects were heavily invaded with yellow starthistle and cheatgrass. Northerly aspects had patches of St. Johnswort and sulfur cinquefoil; these species often co-occurred with snowberry. Dense patches of ventenata occurred in some areas. The lower Long Canyon area was very weedy with only pockets of native-dominated vegetation. Annual bromes were widespread and formed 100% cover in places, especially on gently sloping areas where animals rest. Sulfur cinquefoil and yellow starthistle were widespread and locally common. Other weeds, such as teasel, prickly lettuce (*Lactuca serriola*), houndstongue (*Cynoglossum officinale*), moth mullein (*Verbascum blattaria*), and Dalmatian toadflax, were spotty, with low cover overall. The small 'flat' and adjacent slopes on the east side of Long Canyon were dominated by annual bromes, sulfur cinquefoil, St. Johnswort and some yellow starthistle. Old cowpies were observed, especially on flatter areas. The grassland patches in the shrubfields on the north-facing slope below flat on east side of Long Canyon were infested with sulfur cinquefoil.

Sensitive species: Four small subpopulations of Spalding's catchfly and a total of 13 plants were located within the east neck loop area (Photos 23, 24, 25, & 26). All were located within 1 km of each other and of the known Spalding's catchfly EO # 14 and therefore were considered part of this occurrence. Subpopulation 2 was located on private land just below the Oxbow trail on a northeast aspect at ca. 2,380 feet (714 m). The other three subpopulations occurred on the Oxbow parcel between 1,660 and 1,700 feet (498-510 m) on north-northwest to north to north-northeast aspects. All occurrences were within mesic Idaho fescue grasslands, Idaho fescue-prairie junegrass or Idaho fescue/snowberry habitat types. Associated species included prairie smoke, Wyeth's buckwheat (*Eriogonum heracleoides*), white-stemmed frasera, western hawkweed, mouse-ear chickweed, stoneseed, Missouri goldenrod, red besseya, spurred lupine (*Lupinus arbustus*), yarrow, rose, alumroot, blanket flower (*Gaillardia aristata*), and occasional ocean spray. Non-native, invasive species associated with the Spalding's catchfly subpopulations included sulfur cinquefoil, St. Johnswort, and Japanese brome. Infestations of yellow starthistle, annual bromes, and ventenata occurred in surrounding vegetation. No Spalding's catchfly was located in the Long Canyon area.

Photos 23 & 24 – Spalding' catchfly subpopulation # 3 and habitat. East Oxbow.





Photos 26 & 27
Spalding's catchfly
subpopulation # 4 and habitat
(flats in foreground).
East Neck of Oxbow.



Other sensitive species located during the survey of the Oxbow parcel included a new occurrence of Palouse goldenweed on private land in Long Canyon. No Palouse goldenweed was observed on the Oxbow survey parcel. A new occurrence of Palouse thistle, consisting of four small subpopulations, was located in the east neck area.

COTTONWOOD CREEK

General Description: The Cottonwood Creek survey area (Figure 7) was located approximately $\frac{1}{2}$ mile (0.8 km) downriver from the confluence of Cottonwood Creek and across the river from Deer Creek and Eagle Creek on Craig Mountain. This survey area consisted of two parcels, a 90-acre (36 ha) lower parcel adjacent to the river between River Miles 14 and 15 and a 160-acre (64 ha) upper parcel upslope and west of the lower parcel. Elevations ranged from 1,000 to 2,900 feet (300-870 m). The lower parcel consisted of steep northerly slopes, terraced in some areas, that are bisected by one small drainage (Photo 28). The upper parcel consisted primarily of very steep northerly slopes that became gentler as they reached the river on private land below (Photo 29). This parcel was bisected by two small drainages. A northerly sloping, gentler bench area was located between 2,400 and 2,600 feet (720-780 m), just below large rock outcrops at top of the ridge along the southern border of the upper parcel. Grasslands, large shrubfields, and scattered conifer trees were the dominant vegetation with some rock outcrops and talus slopes.



Photo 28
Terraced northerly slope.
(Lower Parcel)



Photo 29
Steep northerly slopes
with shrub patches,
mesic grasslands and
scattered rock
outcrops and talus.
(Upper Parcel)

Survey Information: The Cottonwood Creek survey area consisted of 250 acres (100 ha), of which 69%, 172 acres (69 ha) fell within the potential aspect range for Idaho fescue grassland habitat types known to support Spalding's catchfly in Canyon Grasslands (Figure 7). A total of 83%, 143 acres (57 ha) of the potential habitat was surveyed as well as 29 acres (12 ha) of other BLM land on the parcel and 10 acres (4 ha) of private land en-route to the parcel.

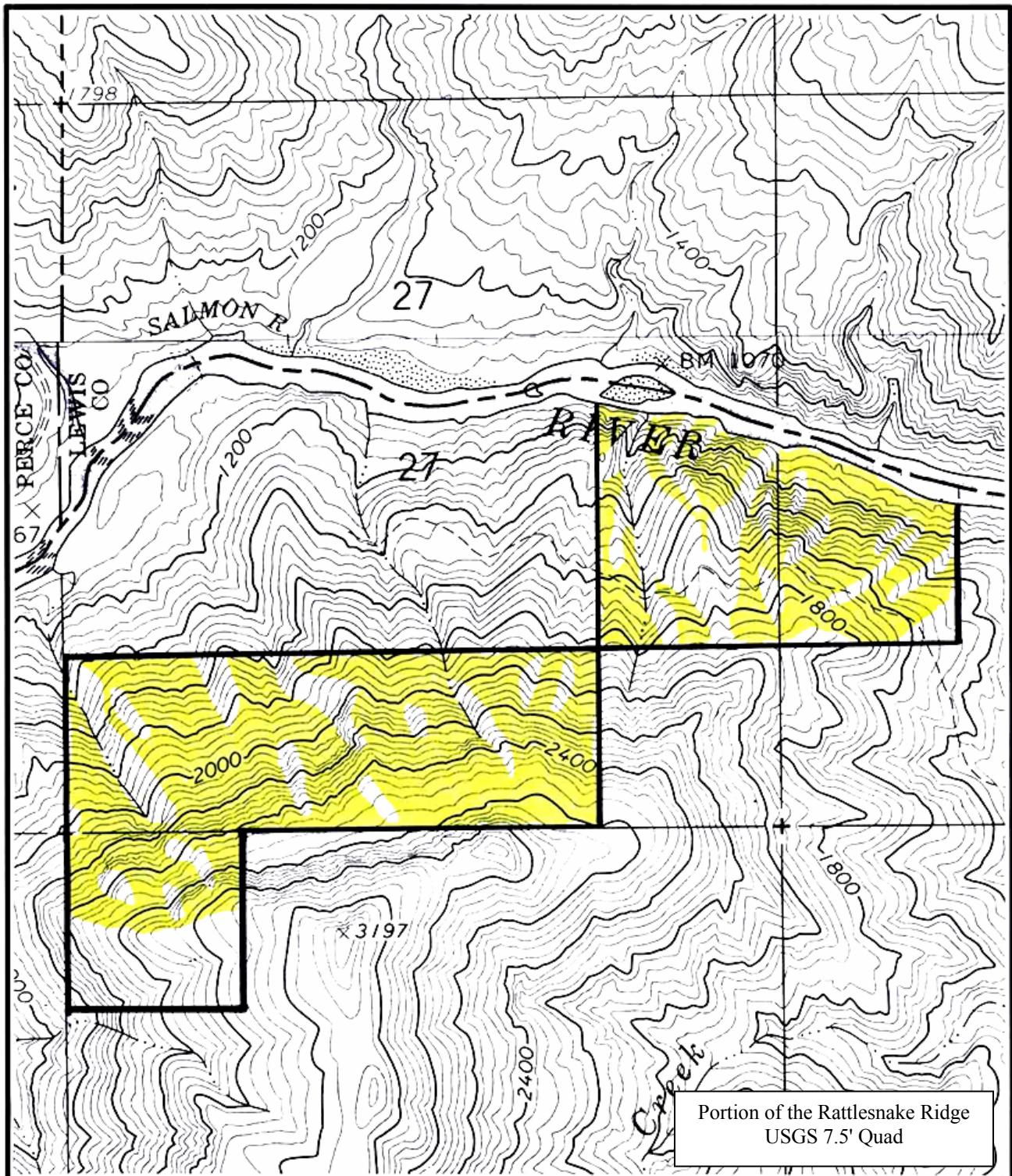


FIGURE 7
Cottonwood Creek Survey Area
Potential Spalding's catchfly Habitat (yellow)



Vegetation: Due-north slopes in the lower parcel supported drier Idaho fescue-bluebunch wheatgrass grasslands and scattered weedy shrub patches. West and northwest slopes and east and northeast slopes supported bluebunch wheatgrass grasslands. No mesic Idaho fescue grasslands were observed in this parcel. Northwest to north to northeast slopes in the upper parcel supported mesic Idaho fescue grasslands as well as large shrubfields composed primarily of snowberry and rose species on the steeper portions. All other aspects supported bluebunch wheatgrass grasslands. Shrubfields and poison ivy (*Rhus radicans*) occurred along the relatively gentle upper slope near base of outcrop at top of ridge.

Invasive Weeds: Sulfur cinquefoil and St. Johnswort were widespread. Yellow starthistle and annual bromes were widespread with locally dense patches. St. Johnswort often co-occurred with snowberry and rose on northerly slopes forming large weedy shrubfields (Photo 30). Steeper slopes tended to be less weedy than downslope areas where sloping bench topography was very weedy, especially with sulfur cinquefoil, annual bromes, and St. Johnswort.



Photo 30
Large weedy
shrubfield of
snowberry and
St. Johnswort.

Sensitive Species: A new occurrence of Spalding's catchfly, consisting of four subpopulations and a total of 37 plants, was located within the Cottonwood Creek survey area (Photo 31). All subpopulations were located within 1 km of each other. Subpopulations occurred on west-northwest to northeast aspects between 1,800 and 2,500 feet (540-750 m) on 15-40 degree slopes within mesic Idaho fescue grasslands, Idaho fescue-prairie junegrass, Idaho fescue/snowberry, and Idaho fescue/rose habitat types (Photo 32). There was similar habitat in the area that did not support Spalding's catchfly. Associated species included arrowleaf balsamroot (*Balsamorhiza sagittata*), Scouler's catchfly, prairie smoke, white-stemmed frasera, western hawkweed, mouse-ear chickweed, stoneseed, yarrow, rose, and alumroot. Associated invasive weed species included low cover of sulfur cinquefoil, yellow starthistle, annual bromes, and St. Johnswort.



Photo 31
Spalding's catchfly
Subpopulation # 1.



Photo 32
Spalding's catchfly
habitat.
Upper Parcel.

LYONS BAR

General Description: The Lyons Bar survey area (Figure 8) was located between Lyons Bar at River Mile 49 and Shut-In Canyon at River Mile 50 on the east side of the Salmon River approximately three miles (5 km) north of White Bird. Elevations on the parcel ranged from 1,400 to 2,600 feet (420-780 m). The steep, generally west-facing slopes in this area are bisected by two small drainages that created small areas of north and northwest aspects. Slopes in this area were dominated by grasslands and associated shrubfields with some rock outcrops and talus slopes. (Photos 33-35)



Photo 33
Downriver from
Lyons Bar.



Photo 34
Upriver from
Shut-In
Canyon.

Survey Information: The Lyons Bar survey area consisted of 140 acres (56 ha), of which 23%, 32 acres (13 ha) fell within the potential aspect range for Idaho fescue grassland habitat types known to support Spalding's catchfly in Canyon Grasslands (Figure 8). A total of 81%, 26 acres (10 ha) of the potential habitat was surveyed as well as 52 acres (21 ha) of other BLM land on the parcel.

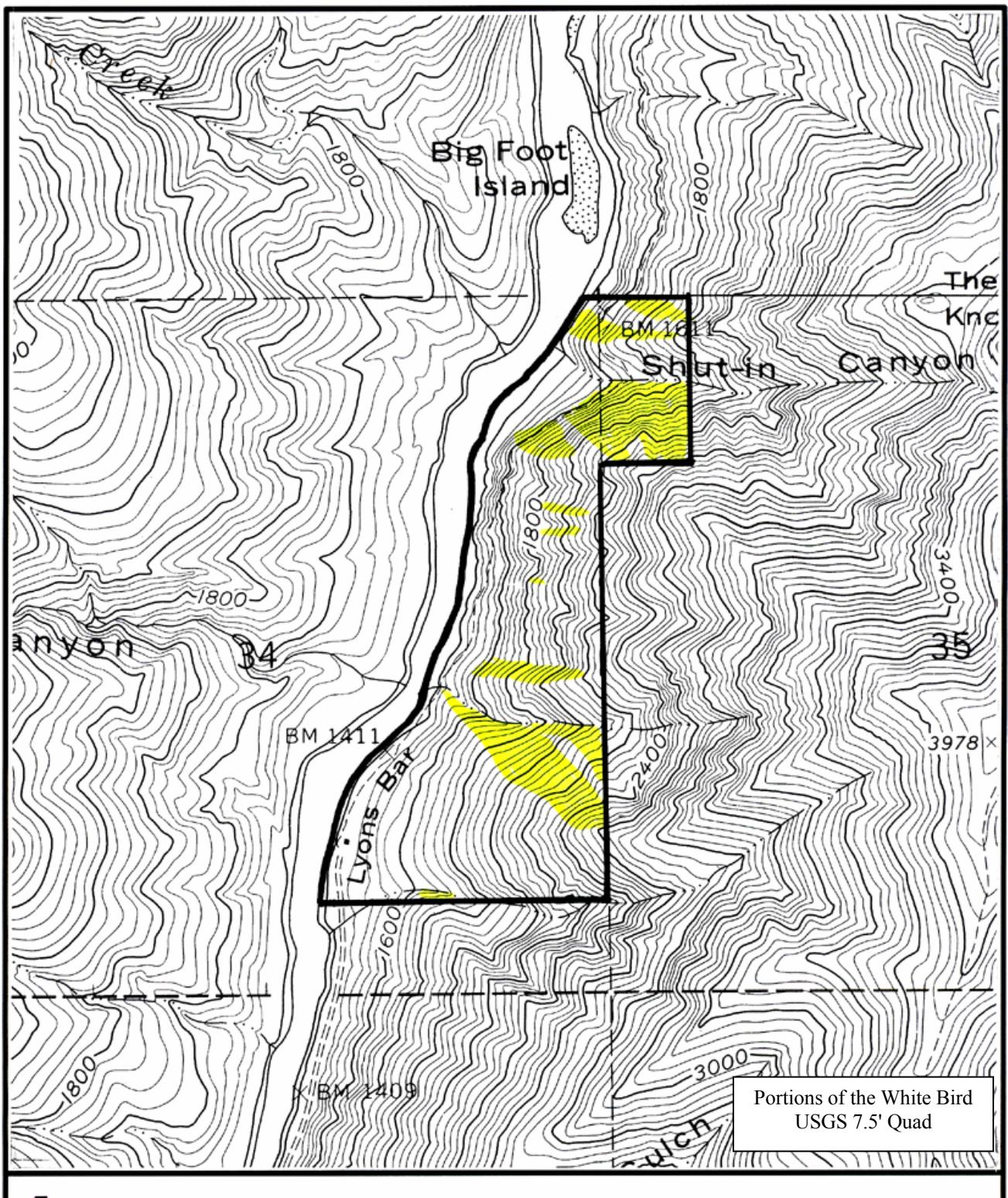


FIGURE 8
Lyons Bar Survey Area
Potential Spalding's catchfly Habitat (yellow)



FIGURE 8

Lyons Bar Survey Area

Potential Spalding's catchfly Habitat (yellow)

N

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Vegetation: The westerly and southwesterly aspects on the parcel supported bluebunch wheatgrass grasslands. Shrub patches consisted of snowberry and rose with scattered mountain mahogany, ocean spray, and poison ivy. The north-northwest to north aspects associated with the first small drainage downriver from Lyons Bar and slopes on the south side of Shut-In Canyon supported mesic Idaho fescue grasslands and mesic forbs commonly associated with Spalding's catchfly, including mouse-ear chickweed, western hawkweed, prairie smoke, white-stem frasera, deerhorn (*Clarkia pulchella*), sticky penstemon (*Penstemon glandulosus*), and Scouler's catchfly (Photo 35). Some areas within the mesic Idaho fescue grasslands had weedy patches, but much of these areas were generally in good ecological condition; the mesic Idaho fescue grasslands on south side of Shut-In Canyon had a good moss layer. Northwest aspects supported mostly bluebunch wheatgrass grasslands and some shrubfields with only small amounts of Idaho fescue and no prairie junegrass.



Photo 35
Mesic Idaho fescue
grassland on
northerly slope.
Shut-In Canyon.

Invasive Weeds: Yellow starthistle and annual bromes were widespread in the area. Snowberry patches were often heavily infested with St. Johnswort. An infestation of bur chervil (*Anthriscus caucalis*) was observed in a swale on the northerly slope in lower Shut-In Canyon. Dalmatian toadflax was observed on the ridgeline in this area.

Sensitive Species: The mesic Idaho fescue grasslands known to support Spalding's catchfly and the mesic forbs commonly associated with Spalding's catchfly occurred on the Lyons Bar parcel, but no Spalding's catchfly was located. A known occurrence of Spalding's catchfly has been located in similar habitat between Lyons Bar and Hammer Creek near the town of White Bird (L. Eno, personal communication, 2005).

PINE BAR

General Description: The Pine Bar survey area (Figure 9) was located on the south side of the Salmon River between River Miles 42 and 43 across the river from the Pine Bar Campground on the north side of the river. Elevations on the parcel ranged from 1,300 to 2,200 feet (390-660 m). The majority of the parcel consisted of relatively gently-sloping, northerly aspects with only a few easterly and westerly aspects. Shrubfields were the dominant vegetation, and occasional rocky outcrops were present. (Photos 36 & 37)



**Photos 36 & 37
Northerly slopes
dominated by
weedy shrubfields
of snowberry
and St. Johnswort.**



Survey Information: The Pine Bar parcel consisted of 110 acres (44 ha), of which 70%, 77 acres (31 ha), fell within the potential aspect range for Idaho fescue grassland habitat types known to support Spalding's catchfly in Canyon Grasslands (Figure 9). This parcel was not physically surveyed because the shrubfield vegetation that dominated the parcel was not potential habitat for Spalding's catchfly. The parcel was observed from across the river at the Pine Bar Campground and cursorily surveyed with binoculars.

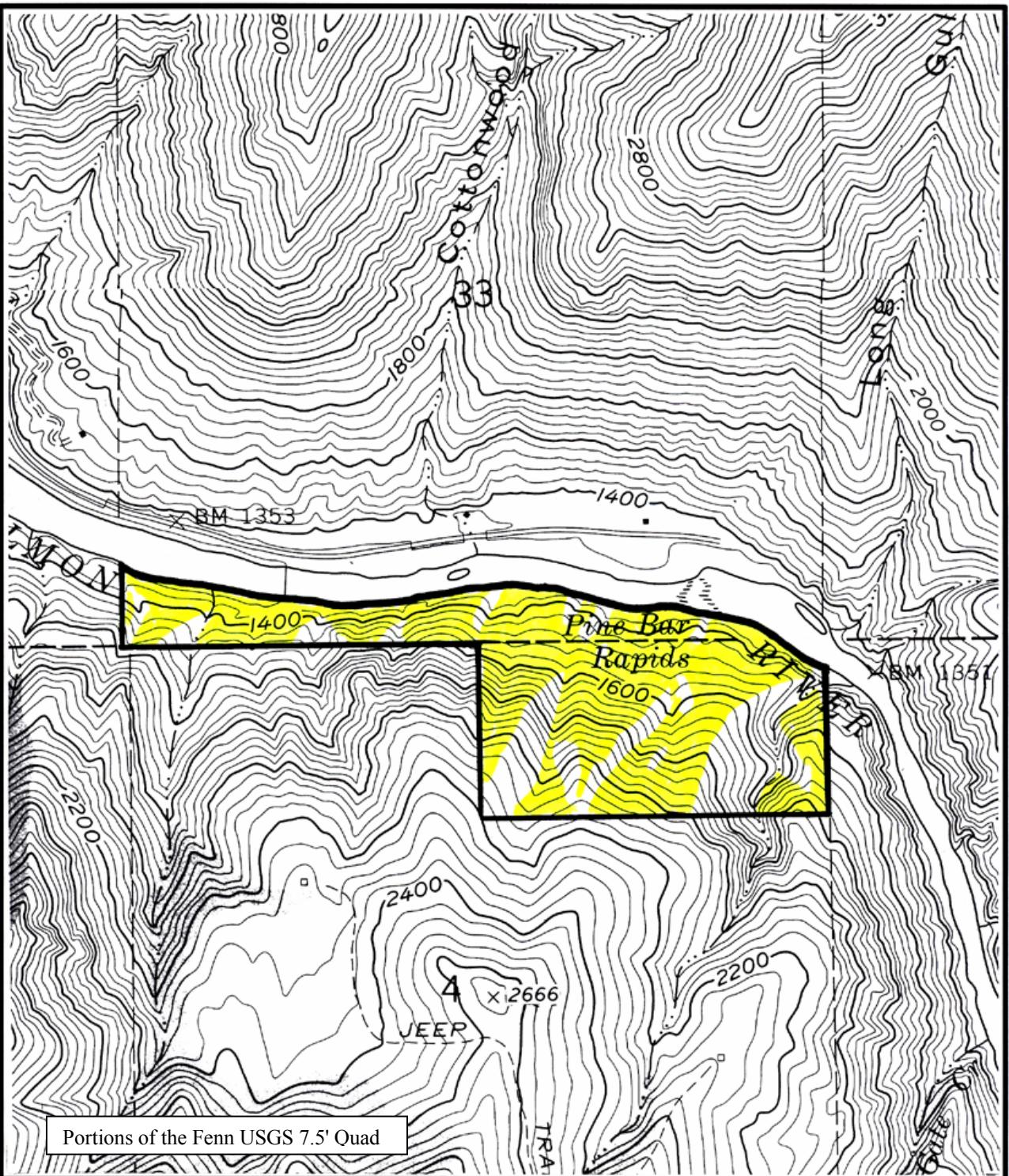


FIGURE 9
Pine Bar Survey Area
Potential Spalding's catchfly Habitat (yellow)



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Vegetation: The majority of vegetation on this parcel consists of low shrubfields of snowberry on all aspects; a few medium to tall deciduous shrubs were scattered throughout the shrubfields. Only small scattered grassland patches occurred within these shrubfields; most of these were located on easterly aspects and likely supported bluebunch wheatgrass grasslands that are too dry to support Spalding's catchfly. Potential Spalding's catchfly habitat appeared to be very limited on this parcel. Only occasional, small grassland patches occurred on northerly aspects. A narrow strip of hackberry occurred adjacent to the river.

Invasive Weeds: The low shrubfields dominating this parcel were heavily infested with St. Johnswort (the orange-brown color on photos). This snowberry/St. Johnswort community type was very common throughout the survey area and did not provide habitat for Spalding's catchfly. Sweetbriar bushes were scattered throughout the shrubfields. Scotch thistle (*Onopordum acanthium*) was observed along the river's edge and appears to have been sprayed with herbicide.

Sensitive Species: Based on aspect and elevation, the Pine Bar survey area had a large amount of potential habitat for Spalding's catchfly; however, the majority of vegetation on the parcel was weedy shrubfields that had very low potential to support Spalding's catchfly.

RICE CREEK

General Description: The Rice Creek survey area (Figure 10) was located on the south side of the Salmon River between River Miles 36 and 37 across from American Bar and approximately 1/4 mile (0.4 km) downriver from the Rice Creek Bridge. Elevations on the parcel ranged from 1,300 to 1,850 feet (390-555 m). The majority of the parcel consisted of steep northerly aspects bordering the river (Photos 38 & 39) and some gentler, southerly and easterly slopes facing Rice Creek Road. Two drainages, Andrew Canyon and Maple Canyon, bisected the parcel, and their confluences with the Salmon River occurred on the parcel. The north-trending Andrew Canyon drainage created some easterly and westerly aspects in the center of the parcel. The Salmon River zig-zagged in this area, with a sharp curve to north on west side of parcel and sharp curve to south on east side of parcel. The majority of the vegetation consisted of grasslands. A large Douglas-fir/ninebark forest stringer descended to the river between Andrew and Maple Canyons.



Photo 38
Steep northerly slopes
with mesic
Idaho fescue grasslands.
(looking upriver)



Photo 39
Terracing of steep mesic
grassland slopes
Forested stringer extending
to river between Andrew
Canyon and Maple Canyon.
(looking downriver)

Survey Information: The Rice Creek survey area consisted of 111 acres (44 ha) with 47 acres (19 ha) of potential Spalding's catchfly habitat (Figure 10). Approximately 46 acres (18 ha), including 34 acres (14 ha) of potential habitat, was previously surveyed in 2003 (Gray and Lichhardt 2003). The remaining 65 acres (26 ha) on this parcel were surveyed during this project. Of these 65 acres (26 ha), 20%, 13 acres (5 ha), fell within the potential aspect range for Idaho fescue grassland habitat types known to support Spalding's catchfly in Canyon Grasslands. A total of 92%, 12 acres (5 ha), of this potential habitat was surveyed, as well as 25 acres (10 ha) of other BLM land on the parcel.

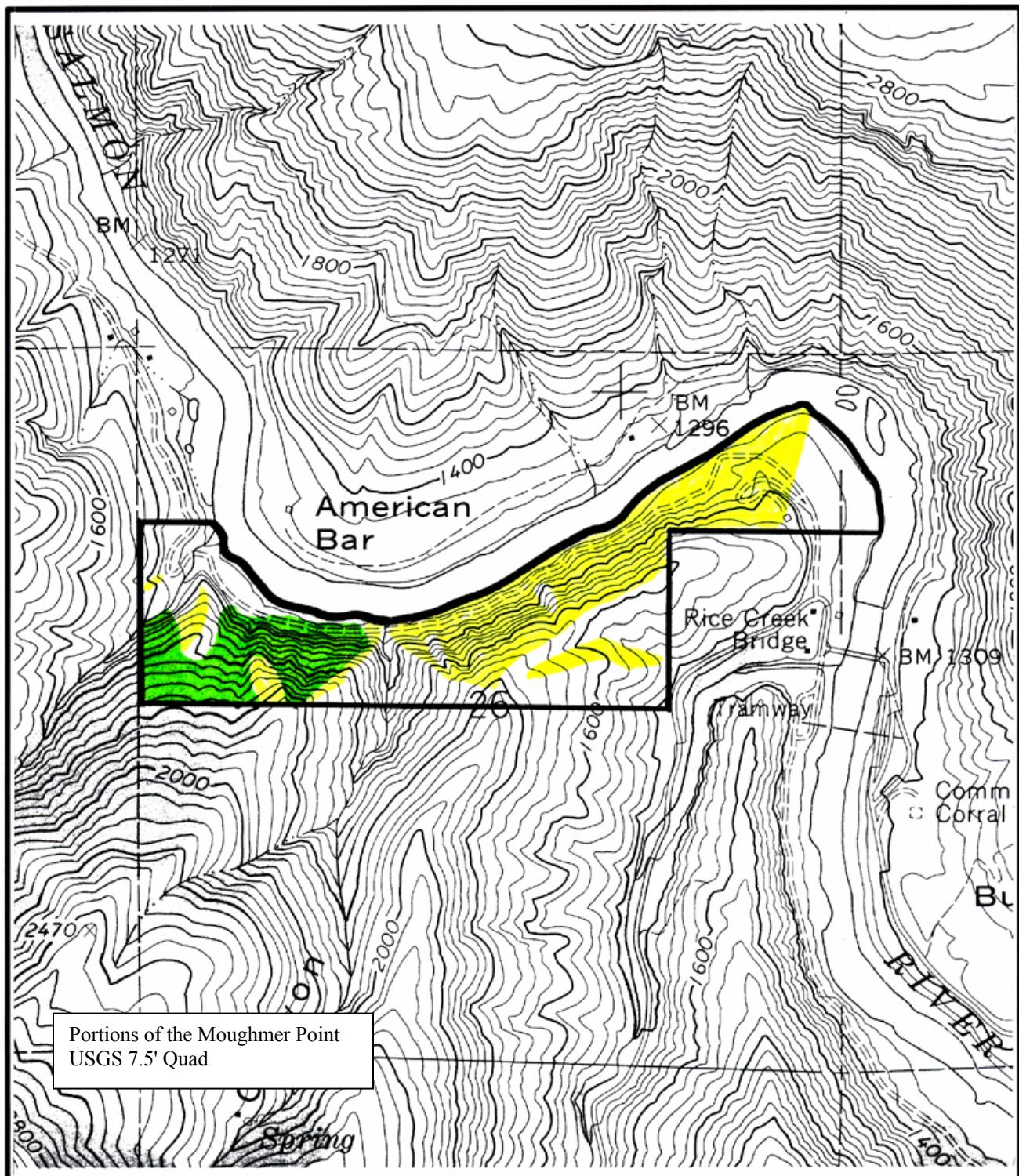


FIGURE 10
Rice Creek Survey Area
Potential Spalding's catchfly Habitat (yellow)



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Vegetation: Northerly aspects supported mesic Idaho fescue grasslands from Andrews Canyon to the far eastern border of the parcel. Northerly aspects between Andrews Canyon and Maple Canyon consisted of forest and shrub habitat types with considerable rock outcrops and cliffs. The westerly and easterly slopes bordering lower Andrew Canyon supported bluebunch wheatgrass grasslands. Southerly and easterly slopes above Rice Creek Road also supported bluebunch wheatgrass grasslands and sand dropseed/red three-awn (*Sporobolus cryptandrus*-*Aristida longiseta*) grasslands.

Invasive Weeds: The gently-sloping southerly and easterly slopes above Rice Creek Road were heavily infested with invasive weeds, including yellow starthistle, annual bromes, ventenata, Jim Hill mustard (*Sisymbrium altissimum*), and chicory (*Cichorium intybus*) (Photo 40). A small northeasterly slope in this area also supported many of these weedy species (Photo 41). A large infestation of leafy spurge was located previously at the point of the ridge extending down onto northerly slopes ca. $\frac{1}{4}$ mile (0.4 km) east of Andrews Canyon. A few large infestations of whitetop (*Cardaria* spp.) were located previously just off the eastern border of the parcel on private land.



Photo 40
Gentle easterly slope with
large weed infestation.



Sensitive Species: A known occurrence of Spalding's catchfly, EO # 18, was discovered on this parcel in 2003 (Gray and Lichthardt 2003). A long-term demographic plot was established in 2004 (Photo 42) and data collected in 2004 and 2005 (Hill and Gray 2005; Gray and Hill 2006). This plot had 14 plants recorded in early June of 2005. On 20 August 2005, none of these plants was observed in the plot.



Photo 42
Spalding's catchfly
Demography Plot.
June 2004.

Survey Summary

The 2005 survey information from each survey area is summarized in Table 1, and includes: 1) the elevational range of each parcel, 2) total acreage (ha) of each parcel, 3) acres (ha) of potential Spalding's catchfly habitat (determined by aspect range), 4) acres (ha) of potential habitat surveyed (includes those areas actually searched and those areas eliminated by on-ground observation as either too weedy, shrubby or rocky), 5) other BLM land surveyed (non-potential habitat as well as forested areas that contained some potential habitat), 6) total acres (ha) surveyed on each parcel, and 7) acres (ha) of private land/State land surveyed en-route to each survey area.

Table 1 - Summary of Areas Surveyed for *Silene spaldingii*.

Survey Area	Elevation Range Feet (m)	Total Acres (ha)	Potential Habitat	Potential Habitat Surveyed	Other BLM land surveyed	Total BLM land surveyed	Private/ State land surveyed
Hogback Ridge	1,300-3,500 (390-1,050)	403 (161)	84 (34)	53 (21)	88 (35)	141 (56)	19 (8)
Wickiup Creek	1,200-2,100 (360-630)	450 (180)	80 (32)	74 (30)	230 (92)	304 (122)	55 (22)
Billy Creek	2,600-4,300 (780-1,290)	360 (144)	71 (28)	61 (24)	90 (36)	151 (60)	80 (32)
Oxbow	1,100-2,200 (330-660)	220 (88)	140 (56)	98 (39)	40 (16)	138 (55)	40 (16)
Cottonwood Creek	1,000-2,900 (300-870)	250 (100)	172 (69)	143 (143)	29 (12)	172 (69)	10 (4)
Lyons Bar	1,400-2,600 (420-780)	140 (56)	32 (13)	26 (10)	52 (21)	78 (31)	0
Pine Bar	1,300-2,200 (390-660)	110 (44)	77 (31)	66 (26)	0 (26)	66 (26)	0
Rice Creek	1,300-1,850 (390-555)	65 (26)	13 (5)	12 (5)	25 (10)	37 (15)	0
TOTAL		1,998 (799)	669 (268)	533 (212)	554 (222)	1,087 (435)	204 (82)

A total of 1,998 acres (799 ha) of BLM land was targeted for survey within the eight survey areas. About 1/3 of this area, 669 acres (268 ha), supported aspects that were potential Spalding's catchfly habitat. The percentage of potential habitat on each parcel varied from the lowest 18% at Wickiup Creek to 69% and 70% at Cottonwood Creek and Pine Bar, respectively. Of the 669 acres of potential habitat, 80%, 533 acres (212 ha), was physically surveyed or determined to be inappropriate habitat based upon on-ground observation. Twenty percent of potential habitat on these parcels was not surveyed due to limited time and access.

Seven of the eight survey areas occurred at low elevations along the Salmon River from Cottonweed Creek at River Mile 13 to Lyons Bar at River Mile 50. The Billy Creek survey area was the only parcel that did not border the river; its location in the northern breaklands of Joseph Plains above the river had the highest elevations, 2,600 to 4,300 feet (780-1,290 m), of all eight parcels.

Sensitive Plants

The locations of sensitive plants within the eight survey areas and on private or state land discovered during the 2005 survey are summarized in Table 2.

Table 2 - Sensitive Plants Discovered during the 2005 Survey.

Sensitive Plant (scientific name)	Survey Areas							Private/ State
	Hogback Ridge	Wickiup Creek	Oxbow	Billy Creek	Cottonwood Creek	Rice Creek	Lyons Bar	
<i>Calochortus nitidus</i>								X
<i>Cirsium brevifolium</i>			X					X
<i>Haplopappus latifolius</i>								X
<i>Silene spaldingii</i>	X		X		X			X
<i>Tripterocladium leucocladum</i>								X

Spalding's catchfly occurrences located in the survey area consisted of small, scattered subpopulations consisting of small numbers of plants. Two new Spalding's catchfly occurrences were located during the survey: 1) an occurrence consisting of three subpopulations and 29 plants within the Hogback Ridge survey area and extending onto State land and 2) an occurrence consisting of four subpopulations and 37 plants within the Cottonwood Creek survey area. An extension of a known occurrence, Spalding's catchfly EO 14, consisting of four subpopulations and a total of 13 plants, was located within the Salmon River Oxbow. Three of these subpopulations occurred within the Oxbow survey area and 1 subpopulation extended onto private land. Spalding's catchfly EO 18, an occurrence previously documented in 2003 (Gray and Lichhardt 2003), is located within the Rice Creek survey area; however, no additional Spalding's catchfly was discovered there during the 2005 survey.

All occurrences of Spalding's catchfly discovered during the 2005 survey area were located between 1,660 and 2,500 feet (498-750 m) on aspects ranging from west-northwest to northeast. This aspect range typically supported mesic Idaho fescue grasslands, Idaho fescue-prairie junegrass, Idaho fescue/snowberry, and Idaho fescue/rose habitat types, known to support Spalding's catchfly in other Canyon Grassland areas. There was a tendency for this aspect range to narrow, becoming limited to due north aspects, as elevations decreased. For example, in the lower parcel of the Cottonwood Creek survey area (the lowest elevation survey area at 1,000 feet), moisture was apparently not sufficient to support mesic Idaho fescue grasslands even on due north aspects; instead this aspect supported the drier Idaho fescue-bluebunch wheatgrass types. At slightly higher elevations in the upper parcel, however, mesic Idaho fescue grasslands were supported on northwest to northeast aspects. Generally, westerly, southerly, and easterly aspects throughout the survey area supported bluebunch wheatgrass grasslands that were too dry to support Spalding's catchfly.

Two new occurrences of Palouse thistle were discovered during the survey, one on State land adjacent to the Hogback Ridge survey area and the other within the Oxbow survey area and extending onto adjacent private land. Two new occurrences of Palouse goldenweed were discovered both on private land, one adjacent to the Wickiup Creek survey area and the other in the area of Long Canyon near the Oxbow survey area. One new occurrence of broad-fruit

mariposa lily was discovered co-occurring with the Palouse goldenweed occurrence on private land near the Wickiup Creek survey area. One new occurrence of *Tripterocladium leucocladulum* were located on private land on First Creek near the Wickiup Creek survey area.

Rare plant observation forms, maps, and element occurrence records of all sensitive plants discovered during the 2005 survey are included in the Appendix.

Invasive Weeds

Most of the survey area had high cover of invasive weeds. The distribution of the most commonly encountered non-native, invasive grasses, forbs, and shrub species in each survey area is summarized in Table 3.

Table 3 - Summary of Invasive Weeds by Survey Area.

Weed Species	Hogback Ridge	Pine Bar	Wickiup Creek	Oxbow	Billy Creek	Cottonwood Creek	Rice Creek	Lyons Bar
Grasses								
Annual Bromes	X	X	X	X	X	X	X	X
Canada bluegrass			X					
Kentucky bluegrass	X		X				X	
Medusahead rye			X					
Ventenata			X	X			X	
Forbs								
Bur chervil								X
Common crupina	X							
Dalmatian toadflax	X		X	X				X
Leafy spurge	X						X	
St. Johnswort	X	X	X	X	X	X	X	X
Sulfur cinquefoil	X	X	X	X	X	X	X	
Teasel	X			X				
Vetch			X					
Whitetop							X	
Yellow starthistle	X	X	X	X	X	X	X	X
Shrubs								
Sweetbriar	X	X	X			X		

The most commonly occurring invasive species were the annual bromes, St. Johnswort, sulfur cinquefoil and yellow starthistle. Common crupina was observed only at Hogback Ridge. Bur chervil was observed only at Lyons Bar. Whitetop was observed only at Rice Creek. Wickiup Creek supported several invasive species not observed at other survey areas, including Canada bluegrass, medusahead rye, and vetch.

In general, the drier bluebunch wheatgrass grasslands had higher cover of weedy species, especially yellow starthistle and annual bromes. The more mesic Idaho fescue grasslands were in better ecological condition, with lower cover of invasive species and higher percentage of native grassland species. Regardless of aspect, flatter areas used by domestic livestock tended to have higher invasive weed cover than nearby steeper slope areas. Invasive weed species that

were particular problems in mesic Idaho fescue habitat types that support Spalding's catchfly include St. Johnswort, sulfur cinquefoil, Kentucky bluegrass, and Japanese brome.

DISCUSSION

Verification of Potential Canyon Grassland Spalding's catchfly Habitat

Potential habitat identified in this survey, grasslands on northwest to north to northeast slopes, was verified to support mesic Idaho fescue habitat types known to support Spalding's catchfly in Canyon Grasslands elsewhere in Idaho. All eleven subpopulations located during this survey occurred within this identified potential habitat. One cluster of one subpopulation occurred within an open-canopy, Douglas-fir/ninebark habitat type that was part of a larger shrub-grass-tree vegetation mosaic. All occurrences of Spalding's catchfly in the survey area were located within relatively weed-free areas. Good-condition habitat was also encountered that did not support Spalding's catchfly. This was particularly the case at the Billy Creek survey area where the majority of the mesic Idaho fescue grasslands were in excellent condition with very low invasive weed cover, but no Spalding's catchfly was found.

Season of Survey and Population Size

Surveys for Spalding's catchfly in Canyon Grasslands in late July may not detect plants that were present earlier in the growing season. Demography studies at Craig Mountain from 2002 through 2005 indicated that up to half of the plants present early in June soon after emergence had disappeared or senesced and become undetectable by flowering in late July (Hill 2006). The demography plot at Rice Creek had 14 plants present aboveground in early June 2005; by 20 July 2005, five of those plants had disappeared (Gray and Hill 2006). It is likely that there were more plants present earlier in the growing season at each of the Spalding's catchfly subpopulations observed during this survey.

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APPENDIX

Rare Plant Observation Forms

IDAHO RARE PLANT OBSERVATION REPORT

Species: Calochortus nitidus

Date of Observation: 26 July 2005

Observer(s): Michael Mancuso

Agency/Organization/Company: ID Dept F&G Conservation Data Center

Address: PO Box 25, Boise, ID 83707

Phone: (208) 334-3402

Survey Site: Northwest of Packers Creek

Directions: Salmon River Canyon ca. 10 miles south of Cottonwood. West side of canyon, northwest of the mouth of Packers Creek. Access is via a cross-country hike from the end of road at First Creek. Located ca. 2 miles downriver from the Rice Creek Bridge. Permission from private landowner is required to access this area.

Addition or update of an existing occurrence?: Yes No Unsure?

Element Occurrence # if known: 159

County: Idaho

Quad: Moughmer Point

Township: 30N Range: 1W NW 1/4 of NW 1/4 of Section 10

GPS Information:

NAD-27	11	MM 317	542717.46	5089559.98	+/-	
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Accuracy: Within 25 m (0 - 1 mm. on map)

Population Information:

Total # of individuals in the entire population, including all subpopulations is 200+ Actual Estimated

What was counted? Genets Ramets N/A (non-vascular etc.) Unknown

Phenology: _____ % seedling _____ % non-reproductive _____ % reproductive _____ % dormant
_____ % unknown

The size of the population area is 3 acres

Population vigor is excellent good fair poor

Do you feel you mapped the full extent of the population? Yes No Unsure

Is there more potential habitat in the area that hasn't been surveyed? Yes No Unsure

The survey was: very thorough fairly thorough cursory incidental observation

Additional population comments: Unsure if plants extend further downslope to lower slope areas. The occurrence has the potential to be considerably larger than the 3 acres surveyed.

Are there any monitoring or research needs for this population? _____

CONDITION is an integrated measure of the quality of biotic and abiotic factors, structures, and processes within the occurrence, and the degree to which they affect the continued existence of the occurrence. Condition has the following components: reproduction and health for species, ecological processes, species composition and biological structure, and abiotic/chemical factors.

CONDITION of the occurrence: Introduced weed cover is low on the northerly slope supporting Calochortus. This is in sharp contrast to nearly all of the surrounding area not having a northerly aspect. These areas are strongly dominated by weed species. Overall condition assessed as good.

Overall condition is: **B (good)**

LANDSCAPE CONTEXT is an integrated measure of the quality of biotic and abiotic factors, structures, and processes surrounding the occurrence, and the degree to which they affect the continued existence of the EO. Components of Landscape Context are: landscape structure and extent, including genetic connectivity, and condition of the surrounding landscape.

LANDSCAPE in the area surrounding the population. Include factors such as current and past land use (farmland, residential area etc.), disturbance factors, and fragmentation: Most of the surrounding canyon slopes are dominated by multiple weed species. Pockets of relatively intact canyon grassland habitat seem to be restricted to northerly aspects. Livestock grazing probably has a long history in the area.

Overall landscape is: **B (good)**

EO Rank indicates the relative value of the Element Occurrence based on an assessment of estimated viability, i.e., the probability of persistence (based on condition, size, and landscape context). In other words, EO ranks provide an assessment of the likelihood that if current conditions prevail the occurrence will persist for a defined period of time, typically 20-100 years.

EO Rank: B- Good Estimated Viability

Habitat Description (information for the entire population):

General habitat description: Canyon Grasslands; ridgecrest - upper to middle slope positions

Aspect: NW to NE Slope: 25-45 %

Substrate/soil: dark loamy soil.

Light regime: open

Community type: Festuca idahoensis-Koeleria cristata h.t.

Associated Species include: Symporicarpos albus, Balsamorhiza sagittata, Geum triflorum, Frasera albicaulis, Physocarpus malvaceus, Haplopappus liatiformis. Low cover of Hypericum perforatum, Linaria dalmatica and non-native Rosa sp..

Look-alike species that are present: none

Threats to the population and its immediate habitat including **level** and **imminency** of threat: Low cover of Linaria dalmatica, Hypericum perforatum, and a non-native Roas sp. occur within the occurrence.
Several additonal weed species occur in nearby areas, including Centaurea solstitialis, Vicia sp., Poa compressa, and annual Bromus spp. (including B. tectorum). Potentilla recta is less common. Cattle use the gentle bench topography downslope of occurrence, but do not appear to venture much onto the steep northerly slopes where Calochortus occurs. A salt block box was observed on the bench downridge (east) of the occurrence, but did not have salt.

Minimum Elevation: 1900 ft.

Maximum Elevation: 2200 ft.

Land Owner/Managers (forest/ranger district/BLM/ or private land owner if known): private

Owner Comments: _____

Management Needs: _____

Collector/Collection #:_____

Herbarium:_____

Photo Attached? Yes No

Other knowledgeable individuals: Karen Gray and Janice Hill

IDAHO RARE PLANT OBSERVATION REPORT

Species: Cirsium brevifolium

Date of Observation: 27 July 2005

Observer(s): Karen Gray

Agency/Organization/Company: ID Dept F&G Conservation Data Center

Address: PO Box 25, Boise, ID 83707

Phone: (208) 334-3402

Survey Site Name: Salmon River Oxbow

Directions: On Joseph Plains ca. 5 miles NW of Boles, drive down Billy Creek Road ca. 3 miles. Bear right at fork leading to old homestead and large hayfield. Hike jeep trail north from north edge of hayfield to where trail splits into two jeep trails ca. 0.75 miles east of the Idaho/Lewis county line; occurrence is located in two subpopulations on slope below jeep trail.

Addition or update of an existing occurrence?: Yes No Unsure?

Element Occurrence # if known: 045

County: Idaho

Quad: Hoover Point and Westlake

Township: 31N Range: 2W NW 1/4 of SE 1/4 of Section 19

Township: 31N Range: 2W SE 1/4 of SE 1/4 of Section 19

GPS Information:

NAD-27	11	KG 207	528787.86	5095060.01	+/-	
NAD-27	11	KG 214, 215	529326.37	5094732.76	+/-	
NAD-27	11	KG 218	529241.58	5094727.71	+/-	

Accuracy: Within 25 m (0 - 1 mm. on map)

Population Information:

Total # of individuals in the entire population, including all subpopulations is 30 Actual

Estimated

What was counted? Genets Ramets N/A (non-vascular etc.) Unknown

Phenology: _____ % seedling 73 % non-reproductive 27 % reproductive _____ % dormant

_____ % unknown

The size of the population area is 4 m x 5 m

Population vigor is excellent good fair poor

Do you feel you mapped the full extent of the population? Yes No Unsure

Is there more potential habitat in the area that hasn't been surveyed? Yes No Unsure

The survey was: very thorough fairly thorough cursory incidental observation

Additional population comments: Occurrence consists of 2 subpopulations; Subpopulation 2 has two clusters, 2A and 2B.

Monitoring or research needs for this population? _____

CONDITION is an integrated measure of the quality of biotic and abiotic factors, structures, and processes within the occurrence, and the degree to which they affect the continued existence of the occurrence. Condition has the following components: reproduction and health for species, ecological processes, species composition and biological structure, and abiotic/chemical factors.

CONDITION of the occurrence: Large proportion of occurrence consists of native plant community with moderate weed infestations of Hypericum perforatum, Potentilla recta, and Centaurea solstitialis

Overall condition is: **B - C (fair to good)**

LANDSCAPE CONTEXT is an integrated measure of the quality of biotic and abiotic factors, structures, and processes **surrounding** the occurrence, and the degree to which they affect the continued existence of the EO. Components of Landscape Context are: landscape structure and extent, including genetic connectivity, and condition of the surrounding landscape.

LANDSCAPE in the area surrounding the population: The occurrence is located on northerly slopes that typically have low weed cover which is in sharp contrast to nearly all of the surrounding non-northerly aspects which are strongly dominated by weed species.

Overall landscape is: **B (good)**

EO Rank indicates the relative value of the Element Occurrence based on an assessment of estimated viability, i.e., the probability of persistence (based on condition, size, and landscape context). In other words, EO ranks provide an assessment of the likelihood that if current conditions prevail the occurrence will persist for a defined period of time, typically 20-100 years.

EO Rank: BC- Good or Fair Estimated Viability

Habitat Description – (Includes information for the **entire population**):

General habitat description: Canyon Grasslands

Aspect: NE to E Slope: _____

Substrate/soil: _____

Light regime: open

Community type: grasslands with scattered shrubs; shrubby hillside; edge of rose patch

Associated Species include: Festuca idahoensis, Pseudoroegneria spicata, Symphoricarpos albus, Cerastium arvense, Lupinus arbustus, Rhamnus purshiana, Rhus radicans, Artemisia ludoviciana, Achillea millefolium, Solidago missouriensis.

Look-alike species that are present: none

Threats to the population and its immediate habitat including **level** and **imminency** of threat if known.
Potentilla recta, Centaurea solstitialis, Bromus tectorum, Hypericum perforatum.

Minimum Elevation: 1640 ft.

Maximum Elevation: 2020 ft.

Land Owner/Managers (forest/ranger district/BLM/ or private land owner if known): private and Bureau of Land Management.

Owner Comments: _____

Management Needs (include any steps that you think should be taken by the land manager to protect the population): _____

Collector/Collection #:_____

Herbarium:_____

Photo Attached? Yes No

Other knowledgeable individuals: Michael Mancuso and Janice Hill

Subpopulation Information

Subpopulation # 1

Subpopulation area: 50 cm X 50 cm

The total # of individuals in subpopulation is 8 Actual Estimated

Population vigor is excellent good fair poor

Habitat information: bluebunch wheatgrass grasslands

Threats to this subpopulation: Potentilla recta, Centaurea solstitialis, Bromus tectorum

Additional subpopulation information: _____

Datum	Zone	Way Point or ID#	UTM Northing (Y) or Latitude	UTM Easting (X) or Longitude
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Accuracy

NAD-27	11	KG 207	528787.86	5095060.01	+/-
NAD-27	11				+/-

Subpopulation Information

Subpopulation # 2

Subpopulation area: 3 m x 4 m

The total # of individuals in subpopulation is 22 Actual Estimated

Population vigor is excellent good fair poor

Habitat information: shrubby hillside; bunchgrasses w/scattered shrubs

Threats to this subpopulation: Hypericum perforatum, Potentilla recta, scattered Centaurea solstitialis

Additional subpopulation information: This subpopulation consists of two clusters, 2A and 2B.

Datum Zone Way Point or ID# UTM Northing (Y) or Latitude UTM Easting (X) or Longitude

Accuracy

NAD-27	11	KG 214, 215	529326.37	5094732.76	+/-
NAD-27	11	KG 218	529241.58	5094727.71	+/-

IDAHO RARE PLANT OBSERVATION REPORT

Species: Cirsium brevifolium

Date of Observation: 25 July 2005

Observer(s): Karen Gray

Agency/Organization/Company: ID Dept F&G Conservation Data Center

Address: PO Box 25, Boise, ID 83707

Phone: (208) 334-3402

Survey Site Name: Hogback Ridge

Directions: On west side of Salmon River at the Rice Creek Bridge, follow road along river (upriver) ca. 1 mile to Cooper Bar on private land. Occurrence is ca. 1/2 mile upriver on land owned by Idaho Department of Lands below an area referred to as "Devils Garden".

Addition or update of an existing occurrence?: Yes No Unsure?

Element Occurrence # if known: 046

County: Idaho

Quad: Moughmer Point

Township: 30N Range: 1W SE 1/4 of NE 1/4 of Section 36

GPS Information:

NAD-27	11	KG 196		547212.02		5082732.41	+/-	
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Accuracy: Within 25 m (0 - 1 mm. on map)

Population Information:

Total # of individuals in the entire population, including all subpopulations is 3 Actual

Estimated

What was counted? Genets Ramets N/A (non-vascular etc.) Unknown

Phenology: _____ % seedling _____ % non-reproductive 100 % reproductive _____ % dormant

_____ % unknown

The size of the population area is 3m x3m

Population vigor is excellent good fair poor

Do you feel you mapped the full extent of the population? Yes No Unsure

Is there more potential habitat in the area that hasn't been surveyed? Yes No Unsure

The survey was: very thorough fairly thorough cursory incidental observation

Additional population comments: _____

Monitoring or research needs for this population? _____

CONDITION is an integrated measure of the quality of biotic and abiotic factors, structures, and processes within the occurrence, and the degree to which they affect the continued existence of the occurrence. Condition has the following components: reproduction and health for species, ecological processes, species composition and biological structure, and abiotic/chemical factors.

Condition of the occurrence: Dense Linaria dalmatica and some Hypericum perforatum.

Overall condition is: C - D (fair to poor)

LANDSCAPE CONTEXT is an integrated measure of the quality of biotic and abiotic factors, structures, and processes **surrounding** the occurrence, and the degree to which they affect the continued existence of the EO. Components of Landscape Context are: landscape structure and extent, including genetic connectivity, and condition of the surrounding landscape.

LANDSCAPE in the area surrounding the population: Canyon grassland landscape where density of
weed cover is much higher on southerly aspects than northerly aspects

Overall landscape is: B (good)

EO Rank indicates the relative value of the Element Occurrence based on an assessment of estimated viability, i.e., the probability of persistence (based on condition, size, and landscape context). In other words, EO ranks provide an assessment of the likelihood that if current conditions prevail the occurrence will persist for a defined period of time, typically 20-100 years.

EO Rank: B- Good Estimated Viability

Habitat Description (information for the entire population)

General habitat description: mesic Canyon Grasslands

Aspect: NW Slope:

Substrate/soil:

Light regime: open

Community type: Ic

Associated Species include: *Lupinus sericeus*, Balsa

milllefolium.
Leaved like a mullein, the leaves narrow,

Look at the species that are present: none

Threats to the population and its immediate habitat including level and immediacy of threat if known.

Thick *Limaria damascica* with some *Hypericum perforatum*, and *Gaultheria pedemontana* in occurrence.

very weedy in surrounding area.

Minimum Elevation: 2000 ft.

Maximum Elevation: 2100 ft.

Land Owner/Managers (forest/ranger district/BLM/ or private land owner if known): Idaho Department of Lands

Owner Comments: _____

Management Needs (include any steps that you think should be taken by the land manager to protect the population): _____

Collector/Collection #:_____

Herbarium:_____

Photo Attached? Yes No

Other knowledgeable individuals: Michael Mancuso and Janice Hill

IDAHO RARE PLANT OBSERVATION REPORT

Species: Haplopappus liatiformis
2005

Date of Observation: 26 July

Observer(s): Michael Mancuso

Agency/Organization/Company: ID Dept F&G Conservation Data Center

Address: PO Box 25, Boise, ID 83707

Phone: (208) 334-3402

Survey Site Name: Northwest of Packers Creek

Directions: Salmon River Canyon ca. 10 miles south of Cottonwood. West side of canyon, northwest of the mouth of Packers Creek. Access is via a cross-country hike from the end of road at First Creek, Located ca. 2 miles downriver from the Rice Creek Bridge. Permission from private landowner is required to access this area.

Addition or update of an existing occurrence?: Yes No Unsure?

Element Occurrence # if known: 071

County: Idaho

Quad: Moughmer Point

Township: 30N Range: 1W NW 1/4 of NW 1/4 of Section 10

GPS Information:

NAD-27	11	MM 317	542717.46	5089559.98	+/-	
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Accuracy: Within 25 m (0 - 1 mm. on map)

Population Information:

Total # of individuals in the entire population, including all subpopulations is 250-500 Actual
 Estimated

What was counted? Genets Ramets N/A (non-vascular etc.) Unknown

Phenology: _____ % seedling _____ % non-reproductive _____ % reproductive _____ % dormant
_____ % unknown

The size of the population area is 3 acres

Population vigor is excellent good fair poor

Do you feel you mapped the full extent of the population? Yes No Unsure

Is there more potential habitat in the area that hasn't been surveyed? Yes No Unsure

The survey was: very thorough fairly thorough cursory incidental observation

Additional population comments: Unsure if plants extend further downslope to lower slope areas. The occurrence has the potential to be considerably larger than the 3 acres surveyed.

Monitoring or research needs for this population? _____

CONDITION is an integrated measure of the quality of biotic and abiotic factors, structures, and processes within the occurrence, and the degree to which they affect the continued existence of the occurrence. Condition has the following components: reproduction and health for species, ecological processes, species composition and biological structure, and abiotic/chemical factors.

CONDITION of the occurrence: Introduced weed cover is low on the northerly slope supporting Haplopappus. This is in sharp contrast to nearly all of the surrounding area not having a northerly aspect. These areas are strongly dominated by weed species. Overall condition assessed as good.

Overall condition is: **B (good)**

LANDSCAPE CONTEXT is an integrated measure of the quality of biotic and abiotic factors, structures, and processes surrounding the occurrence, and the degree to which they affect the continued existence of the EO. Components of Landscape Context are: landscape structure and extent, including genetic connectivity, and condition of the surrounding landscape.

LANDSCAPE in the area surrounding the population. Include factors such as current and past land use (farmland, residential area etc.), disturbance factors, and fragmentation: Most of the surrounding canyon slopes are dominated by multiple weed species. Pockets of relatively intact canyon grassland habitat seem to be restricted to northerly aspects. Livestock grazing probably has a long history in the area.

Overall landscape is: **C (fair)**

EO Rank indicates the relative value of the Element Occurrence based on an assessment of estimated viability, i.e., the probability of persistence (based on condition, size, and landscape context). In other words, EO ranks provide an assessment of the likelihood that if current conditions prevail the occurrence will persist for a defined period of time, typically 20-100 years.

EO Rank: B- Good Estimated Viability

Habitat Description (information for the entire population):

General habitat description: Canyon Grasslands; ridgecrest, upper to middle slope positions.

Aspect: NW to NE

Slope: 25-45 %

Substrate/soil: dark loamy soil.

Light regime: open

Community type: Festuca idahoensis-Koeleria cristata h.t.

Associated Species include: Symporicarpos albus, Balsamorhiza sagittata, Geum triflorum, Frasera albicaulis, Physocarpus malvaceus, Calochortus nitidus. Low cover of Hypericum perforatum, Linaria dalmatica and non-native Rosa sp..

Look-alike species that are present: none

Threats to the population and its immediate habitat including **level** and **imminency** of threat if known.

Low cover of Linaria dalmatica, Hypericum perforatum, and a non-native Roas sp. occur within the occurrence. Several additonal weed species occur in nearby areas, including Centaurea solstitialis, Vicia sp., Poa compressa, and annual Bromus spp. (including B. tectorum). Potentilla recta is less common. Cattle use the gentle bench topography downslope of occurrence, but do not appear to venture much onto the steep northerly slopes where Haplopappus occurs. A salt block box was observed on the bench downridge (east) of the occurrence, but did not have salt.

Minimum Elevation: 1900 ft.

Maximum Elevation: 2200 ft.

Land Owner/Managers (forest/ranger district/BLM/ or private land owner if known): private

Owner Comments: _____

Management Needs (include any steps that you think should be taken by the land manager to protect the population): _____

Collector/Collection #: Michael Mancuso #2798
Herbarium

Herbarium: U. of ID Stillinger

Photo Attached? Yes No

Other knowledgeable individuals: Karen Gray and Janice Hill

IDAHO RARE PLANT OBSERVATION REPORT

Species: Haplopappus liatiformis

Date of Observation: 27 July 2005

Observer(s): Michael Mancuso

Agency/Organization/Company: ID Dept F&G Conservation Data Center

Address:PO Box 25, Boise, ID 83707

Phone: (208) 334-3402

Survey Site Name: Long Canyon Ridge

Directions:Drive to Joseph Plains ca. 5 miles NW of Boles. From the top, drive down Billy Creek Road ca. 3 miles. A low gear vehicle is required. Bear right at fork that leads to old homestead and associated hayfields. Hike jeep trail heading N from north edge of hayfield. Continue to north-trending ridge located roughly 0.2 miles west of Long Canyon. Descend the ridgecrest <0.2 miles.

Addition or update of an existing occurrence?: Yes No Unsure?

Element Occurrence # if known:072

County:Idaho

Quad: Westlake

Township: 31N Range: 2W SE 1/4 of NW 1/4 of Section 29

GPS Information:

NAD-27	11		530117.00	5094061.00	+/-	
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Accuracy: Within 25 m (0 - 1 mm. on map)

Population Information:

Total # of individuals in the entire population, including all subpopulations is 25 Actual Estimated

What was counted? Genets Ramets N/A (non-vascular etc.) Unknown

Phenology: _____ % seedling _____ % non-reproductive _____ % reproductive _____ % dormant
_____ % unknown

The size of the population area is 100 meters square

Population vigor is excellent good fair poor

Do you feel you mapped the full extent of the population? Yes No Unsure

Is there more potential habitat in the area that hasn't been surveyed? Yes No Unsure

The survey was: very thorough fairly thorough cursory incidental observation

Additional population comments: No additional plants observed further downridge, all the way to Salmon River. Nearby steep easterly and westerly slopes not searched, but likely have potential habitat.

Monitoring or research needs for this population? _____

CONDITION is an integrated measure of the quality of biotic and abiotic factors, structures, and processes within the occurrence, and the degree to which they affect the continued existence of the occurrence. Condition has the following components: reproduction and health for species, ecological processes, species composition and biological structure, and abiotic/chemical factors.

CONDITION of the occurrence: Canyon grassland vegetation dominated by native species. Light cattle and wildlife use are only ground disturbance. Overall condition assessed as good.

Overall condition is: B (good)

LANDSCAPE CONTEXT is an integrated measure of the quality of biotic and abiotic factors, structures, and processes **surrounding** the occurrence, and the degree to which they affect the continued existence of the EO. Components of Landscape Context are: landscape structure and extent, including genetic connectivity, and condition of the surrounding landscape.

LANDSCAPE in the area surrounding the population: Majority of surrounding landscape appears to support native plant communities in good ecological condition. Habitat in general area not fragmented. Livestock grazing is main landuse in the general area. Overall landscape context assessed as good.

Overall landscape is: B (good)

EO Rank indicates the relative value of the Element Occurrence based on an assessment of estimated viability, i.e., the probability of persistence (based on condition, size, and landscape context). In other words, EO ranks provide an assessment of the likelihood that if current conditions prevail the occurrence will persist for a defined period of time, typically 20-100 years.

EO Rank: E - Verified Extant (Viability Not Assessed)

Habitat Description (information for the entire population)

General habitat description: Steep narrow ridgecrest in canyon grassland habitat

Aspect: N Slope: 40 degrees

Substrate/soil: skeletal-loam soil.

Light regime: open

Community type: Festuca idahoensis-Koeleria cristata h.t.

Associated Species include: Pseudoroegneria spicata, Achillea millefolium, Balsamorhiza sagittata, Hieracium albertinum.

Look-alike species that are present: none

Threats to the population and its immediate habitat including **level** and **imminency** of threat if known.

Some sulfur cinquefoil and annual brome species occur within the occurrence. Further downridge the vegetation gets much more weedy with only pockets of native grassland habitat. Sulfur cinquefoil and yellow starthistle are widespread and locally common. Annual brome spp. form carpets of 100% ground cover in some places, especially in flat to gentle slope areas. Old cowpies scattered along the ridge; more downridge from this occurrence when get into sections of more gentle terrain.

Minimum Elevation: 2400 ft.

Maximum Elevation: 2400 ft.

Land Owner/Managers (forest/ranger district/BLM/ or private land owner if known): private

Owner Comments: _____

Management Needs (include any steps that you think should be taken by the land manager to protect the population): _____

Collector/Collection #:_____

Herbarium:_____

Photo Attached? Yes No

Other knowledgeable individuals: Karen Gray and Janice Hill

IDAHO RARE PLANT OBSERVATION REPORT

Species: Silene spaldingii

Date of Observation: 27 July 2005

Observer(s): Karen Gray

Agency/Organization/Company: ID Dept F&G Conservation Data Center

Address: PO Box 25, Boise, ID 83707

Phone: (208) 334-3402

Survey Site Name: Salmon River Oxbow

Directions: At neck of Salmon River Oxbow, ca. 0.75 miles east of the Idaho/Lewis county line, just below where road splits into two jeep trails. Subpopulations 2 - 5 are located on slope below subpopulation # 1 down to ca. 1600-1700 ft.

Addition or update of an existing occurrence?: Yes No Unsure?

Element Occurrence # if known: 014

County: Idaho

Quad: Hoover Point and Westlake

Township: 31N Range: 2W NE 1/4 of SW 1/4 of Section 19

Township: 31N Range: 2W NW 1/4 of SE 1/4 of Section 19

Township: 31N Range: 2W ... SE 1/4 of SE 1/4 of Section 19

GPS Information:

NAD-27	11	KG 206	528706.96	5094897.75	+/-	
NAD-27	11	KG 208	529024.71	5095220.23	+/-	
NAD-27	11	KG 216	529148.43	5094941.71	+/-	

More coordinates on the last page of this form.

Accuracy Within 25 m (0 - 1 mm. on map)

Population Information:

Total # of individuals in the entire population, including all subpopulations is 63 Actual Estimated

What was counted? Genets Ramets N/A (non-vascular etc.) Unknown

Phenology: _____ % seedling 46 % non-reproductive 39 % reproductive _____ % dormant 15 % unknown

The size of the population area is 3 acres

Population vigor is excellent good fair poor

Do you feel you mapped the full extent of the population? Yes No Unsure

Is there more potential habitat in the area that hasn't been surveyed? Yes No Unsure

The survey was: very thorough fairly thorough cursory incidental observation

Additional population comments: The original location of this occurrence in 2001 comprises subpopulation 1 which consisted of 50 estimated genets in ca. 1 acre; the 2005 locations consist of 4 additional subpopulations consisting of 13 plants in ca. 5 m x 10 m (Phenology cited above refers to the 13 plants discovered in 2005).

Monitoring or research needs for this population? _____

CONDITION is an integrated measure of the quality of biotic and abiotic factors, structures, and processes within the occurrence, and the degree to which they affect the continued existence of the occurrence. Condition has the following components: reproduction and health for species, ecological processes, species composition and biological structure, and abiotic/chemical factors.

CONDITION of the occurrence: Subpopulations occur on northerly aspects where weed cover is much lower than that on adjacent southerly aspects which are strongly dominated by weeds. Subpopulations 2-5 have low weed cover with few scattered Potentilla recta and high proportion of native plant composition.

Overall condition is: B (good)

LANDSCAPE CONTEXT is an integrated measure of the quality of biotic and abiotic factors, structures, and processes surrounding the occurrence, and the degree to which they affect the continued existence of the EO. Components of Landscape Context are: landscape structure and extent, including genetic connectivity, and condition of the surrounding landscape.

LANDSCAPE in the area surrounding the population. Include factors such as current and past land use (farmland, residential area etc.), disturbance factors, and fragmentation: The occurrence is located on northerly slopes that typically have low weed cover which is in sharp contrast to nearly all of the surrounding non-northerly aspects which are strongly dominated by weed species.

Overall landscape is: B (good)

EO Rank indicates the relative value of the Element Occurrence based on an assessment of estimated viability, i.e., the probability of persistence (based on condition, size, and landscape context). In other words, EO ranks provide an assessment of the likelihood that if current conditions prevail the occurrence will persist for a defined period of time, typically 20-100 years.

EO Rank: B- Good Estimated Viability

Habitat Description (information for the entire population)

General habitat description: mesic Canyon Grasslands

Aspect: N to NE

Slope: 50-70%

Substrate/soil: _____

Light regime: open

Community type: Idaho fescue-prairie junegrass h.t; Idaho fescue/snowberry h.t.

Associated Species include: Pseudoroegneria spicata, Lupinus sericeus, Balsamorhiza sagittata, Gaillardia aristata, Achillea millefolium, Eriogonum heracleoides, Cerastium arvense, Frasera albicaulis, Besseya rubra, Lithospermum ruderale, Heuchera sp., Lupinus arbustus, Hieracium albertinum, Geum triflorum, Solidago missouriensis, Rosa nutkana, Prunus virginiana, Amelanchier alnifolia, and Holodiscus discolor.

Look-alike species that are present: _____

Threats to the population and its immediate habitat including **level** and **imminency** of threat if known.
few scattered Potentilla recta, Bromus japonicus, and Hypericum perforatum in occurrence; however, dense infestations of Bromus tectorum, Centaurea solstitialis, Ventenata dubia in surrounding areas.

Minimum Elevation: 1660 ft.

Maximum Elevation: 2500 ft.

Land Owner/Managers (forest/ranger district/BLM/ or private land owner if known): The Bureau of Land Management

Owner Comments: _____

Management Needs (include any steps that you think should be taken by the land manager to protect the population): _____

Collector/Collection #:_____

Herbarium:_____

Photo Attached? Yes No

Other knowledgeable individuals: Michael Mancuso and Janice Hill

Subpopulation Information

Subpopulation # 2

Subpopulation area: 1 m x 1 m

The total # of individuals in subpopulation is 3 Actual Estimated

Population vigor is excellent good fair poor

Habitat information: mesic Idaho fescue grassland

Threats to this subpopulation: _____

Additional subpopulation information: 100% vegetative

Datum	Zone	Way Point or ID#	UTM Northing (Y) or Latitude	UTM Easting (X) or Longitude	
Accuracy					
NAD-27	11	KG 206	528706.96	5094897.75	+/-
NAD-27	11				+/-

Subpopulation Information

Subpopulation # 3 Subpopulation area: 3 m x 9 m

The total # of individuals in subpopulation is 5 Actual Estimated

Population vigor is excellent good fair poor

Habitat information: Idaho fescue/snowberry h.t.

Threats to this subpopulation: scattered Potentilla recta

Additional subpopulation information: this subpopulation consisted of 4 stemmed plants (budding) and one rosette plant

Datum	Zone	Way Point or ID#	UTM Northing (Y) or Latitude	UTM Easting (X) or Longitude	
Accuracy					

NAD-27	11	KG 208	529024.71	5095220.23	+/-
NAD-27	11				+/-

Subpopulation Information

Subpopulation # 4 Subpopulation area: _____

The total # of individuals in subpopulation is 3 Actual Estimated

Population vigor is excellent good fair poor

Habitat information: mesic Idaho fescue grassland with scattered Holodiscus discolor

Threats to this subpopulation: scattered Potentilla recta

Additional subpopulation information: _____

Datum	Zone	Way Point or ID#	UTM Northing (Y) or Latitude	UTM Easting (X) or Longitude	
Accuracy					

NAD-27	11	KG 216	529306.59	5094733.57	+/-
NAD-27	11				+/-

Subpopulation Information

Subpopulation # 5 Subpopulation area: 1 m x 0.25 m

The total # of individuals in subpopulation is 2 Actual Estimated

Population vigor is excellent good fair poor

Habitat information: Idaho fescue/snowberry h.t.

Threats to this subpopulation: Bromus japonicus; dense Ventenata dubia nearby

Additional subpopulation information: _____

Datum Zone Way Point or ID# UTM Northing (Y) or Latitude UTM Easting (X) or Longitude

Accuracy

NAD-27	11	KG 220	529148.43	5094941.71	+/-
NAD-27	11				+/-

Additional GPS Coordinates

Datum Zone Way Point or ID# UTM Northing (Y) or Latitude UTM Easting (X) or Longitude Accuracy

Subpopulation #

NAD-27	11	KG 220	529148.43	5094941.71	+/-	
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IDAHO RARE PLANT OBSERVATION REPORT

Species: Silene spaldingii

Date of Observation: 25 July 2005

Observer(s): Michael Mancuso, Karen Gray, Janice Hill

Agency/Organization/Company: ID Dept F&G Conservation Data Center

Address: PO Box 25, Boise, ID 83707

Phone: (208) 334-3402

Survey Site Name: Hogback Ridge

Directions: On west side of Salmon River at Rice Creek Bridge, follow road along river (upriver) ca. 1 mile to Cooper Bar on private land. Occurrence is ca. 1/2 to 1 mile upriver below "Devils Garden" on land owned by Idaho Department of Lands and on BLM land on either side of "The Basin".

Addition or update of an existing occurrence?: Yes No Unsure?

Element Occurrence # if known: 022

County: Idaho

Quad: Moughmer Point

Township: 30N Range: 1E SW 1/4 of NW 1/4 of Section 31

Township: 30N Range: 1E SE 1/4 of NE 1/4 of Section 31

Township: 30N...Range.1W...SE 1/4 of NE 1/4 of Section 36

GPS Information:

NAD-27	11	JH 191	548707.85	5082474.21	+/-	
NAD-27	11	JH 192	548812.92	5082501.26	+/-	
NAD-27	11	JH 193	548881.27	5082512.16	+/-	

More coordinates in the space on the last page of this form.

Accuracy: Within 25 m (0 - 1 mm. on map)

Population Information:

Total # of individuals in the entire population, including all subpopulations is 29 Actual Estimated

What was counted? Genets Ramets N/A (non-vascular etc.) Unknown

Phenology: _____ % seedling 7 % non-reproductive 93 % reproductive _____ % dormant 3 % unknown

The size of the population area is ca.1/2 acre

Population vigor is excellent good fair poor

Do you feel you mapped the full extent of the population? Yes No Unsure

Is there more potential habitat in the area that hasn't been surveyed? Yes No Unsure

The survey was: very thorough fairly thorough cursory incidental observation

Additional population comments: Occurrence consists of 3 subpopulations: 1) Subpopulation #1 consists of four clusters and is located on east side of "The Basin", 2) Subpopulation #2 consists of 3 clusters and is located on west side of "The Basin", and 3) Subpopulation #3 consists of one cluster and is located below "Devils Garden".

Monitoring or research needs for this population? _____

CONDITION is an integrated measure of the quality of biotic and abiotic factors, structures, and processes within the occurrence, and the degree to which they affect the continued existence of the occurrence. Condition has the following components: reproduction and health for species, ecological processes, species composition and biological structure, and abiotic/chemical factors.

CONDITION of the occurrence: The majority of subpopulations are located in areas with relatively low weed cover and are in fairly good ecological condition with a high proportion of native plant composition and low proportion of invasive weed species.

Overall condition is: **B (good)**

LANDSCAPE CONTEXT is an integrated measure of the quality of biotic and abiotic factors, structures, and processes surrounding the occurrence, and the degree to which they affect the continued existence of the EO. Components of Landscape Context are: landscape structure and extent, including genetic connectivity, and condition of the surrounding landscape.

LANDSCAPE in the area surrounding the population: The degree of weed infestation in the area is dependent on aspect; southerly aspects have dense infestations, whereas, northerly aspects that support *Silene spaldingii* have low weed cover and are in relatively good ecological condition.

Overall landscape is: **B (good)**

EO Rank indicates the relative value of the Element Occurrence based on an assessment of estimated viability, i.e., the probability of persistence (based on condition, size, and landscape context). In other words, EO ranks provide an assessment of the likelihood that if current conditions prevail the occurrence will persist for a defined period of time, typically 20-100 years.

EO Rank: B- Good Estimated Viability

Habitat Description (information for the entire population)

General habitat description: mesic Canyon Grasslands

Aspect: NW to NE

Slope: 15-45%

Substrate/soil: dark, loamy soil

Light regime: open

Community type: Idaho fescue-prairie junegrass h.t., Idaho fescue/snowberry h.t. (snowberry in this community often consists of small, scattered individual stems); Douglas-fir/ninebark h.t.

Associated Species include: Pseudoroegneria spicata, Geum triflorum, Frasera albicaulis, Hieracium albertinum, Silene scouleri, Cerastium arvense, Lupinus arbustus, L. sericeus, Perideridia gairdneri, Balsamorhiza sagittata, Castilleja hispida, Gaillardia aristata, Penstemon glandulosus, Lithospermum ruderale, Achillea millefolium, Rosa sp., and Heuchera sp., Acer glabrum, Rhamnus purshiana, Prunus virginiana, Amelanchier alnifolia, occasional Pinus ponderosa.

Look-alike species that are present: Silene scouleri

Threats to the population and its immediate habitat including **level** and **imminency** of threat if known.

Invasive weed species within the occurrence include Hypericum perforatum, Linaria dalmatica, Potentilla recta, Rosa eglanteria, Centaurea solstitialis, Dipsacus sylvestris, Poa pratensis. Invasive weeds in surrounding area that have high potential to invade mesic fescue grasslands include Crupina vulgaris, Euphorbia esula, Bromus japonicus.

Minimum Elevation: 1660 ft.

Maximum Elevation: 2160 ft.

Land Owner/Managers (forest/ranger district/BLM/ or private land owner if known): The Bureau of Land Management and Idaho Department of Lands

Owner Comments: _____

Management Needs (include any steps that you think should be taken by the land manager to protect the population): _____

Collector/Collection #:_____

Herbarium:_____

Photo Attached? Yes No

Other knowledgeable individuals: _____

Subpopulation Information

Subpopulation # 1

Subpopulation area: 10 m x 10 m

The total # of individuals in subpopulation is 17 Actual Estimated

Population vigor is excellent good fair poor

Habitat information: Idaho fescue/snowberry h.t. (snowberry present as small, scattered, individual stems); Idaho fescue-prairie junegrass h.t.

Threats to this subpopulation: Hypericum (several); scattered Linaria dalmatica and Rosa eglanteria
Additional subpopulation information: Consists of 4 clusters, 1A, 1B, 1C, and 1D (J. Hill Waypoints 191 [1A], 192 [1B], 193 [1C]; M. Mancuso Waypoint 316 [1D]); see coordinates on first and last pages of this form.

Datum Zone Way Point or ID# UTM Northing (Y) or Latitude UTM Easting (X) or Longitude

NAD-27	11				+/-
NAD-27	11				+/-

See coordinates on the last page of this form.

Subpopulation Information

Subpopulation # 2 Subpopulation area: 5 m x 5 m

The total # of individuals in subpopulation is 4 Actual Estimated

Population vigor is excellent good fair poor

Habitat information: Douglas-fir/ninebark h.t./ Idaho fescue-prairie junegrass h.t.

Threats to this subpopulation: *Poa pratensis*, *Linaria dalmatica*, *Potentilla recta*, *Hypericum perforatum*.

Additional subpopulation information: Consists of 3 clusters: 1) 2A (K. Gray Waypoints 194), 2) 2B (K.

Gray Waypoint 192), and 3) 2C (M. Mancuso Waypoint 315); see coordinates on last page of this form

Datum Zone Way Point or ID# UTM Northing (Y) or Latitude UTM Easting (X) or Longitude

Accuracy

NAD-27	11				+/-
NAD-27	11				+/-

See coordinates on the last page of this form.

Subpopulation Information

Subpopulation # 3 Subpopulation area: 1 m x 4 m

The total # of individuals in subpopulation is 8 Actual Estimated

Population vigor is excellent good fair poor

Habitat information: Idaho fescue-prairie junegrass h.t.

Threats to this subpopulation: *Hypericum perforatum*, *Linaria dalmatica* (20 ft away), *Rosa eglanteria*

Additional subpopulation information: Karen Gray Waypoints 199 and 200; See coordinates on last page of this form

NAD-27	11				+/-
NAD-27	11				+/-

See coordinates on the last page of this form.

Additional GPS Coordinates

NAD-27	11	KG 194	547555.89	5082607.26	+/-	
NAD-27	11	KG 192	547682.88	5082638.24	+/-	
NAD-27	11	MM 315	547392.81	5082961.03	+/-	
NAD-27	11	KG 199/200	547199.72	5082792.70	+/-	
NAD-27	11	MM 316	548762.77	5082684.05	+/-	

IDAHO RARE PLANT OBSERVATION REPORT

Species: Silene spaldingii

Date of Observation: 28 July 2005

Observer(s): Michael Mancuso

Agency/Organization/Company: ID Dept F&G Conservation Data Center

Address: PO Box 25, Boise, ID 83707

Phone: (208) 334-3402

Survey Site Name: Cottonwood Creek

Directions: Drive to Joseph Plains ca. 5 miles NW of Boles. From the top, drive down Billy Creek Road to ca. 1/2 mile from confluence with the Salmon River. Turn west on dirt road for 1/2-3/4 mile to BLM parcel.

Addition or update of an existing occurrence?: Yes No Unsure?

Element Occurrence # if known: 023

County: Idaho

Quad: Rattlesnake Ridge

Township: 31N Range: 3W SW 1/4 of SW 1/4 of Section 27

Township: 31N Range: 3W SE 1/4 of SW 1/4 of Section 27

Township: 31N...Range.3W...SW 1/4 of SE 1/4 of Section 27

GPS Information:

NAD-27	11	MM 322	523084.68	5093157.06	+/-	
NAD-27	11	MM 321	523269.67	5093210.05	+/-	
NAD-27	11	MM 320	523338.66	5093097.04	+/-	

More coordinates in the space on the last page of this form.

Accuracy: Within 25 m (0 - 1 mm. on map)

Population Information:

Total # of individuals in the entire population, including all subpopulations is 37 Actual
 Estimated

What was counted? Genets Ramets N/A (non-vascular etc.) Unknown

Phenology: _____ % seedling _____ % non-reproductive _____ % reproductive _____ % dormant
_____ % unknown

The size of the population area is ca. 1/4 acre

Population vigor is excellent good fair poor

Do you feel you mapped the full extent of the population? Yes No Unsure

Is there more potential habitat in the area that hasn't been surveyed? Yes No Unsure

The survey was: very thorough fairly thorough cursory incidental observation

Additional population comments: Occurrence consists of 4 subpopulations; Subpopulation 1 consists of 3 clusters, 1A, 1B, and 1C.

Monitoring or research needs for this population? _____

CONDITION is an integrated measure of the quality of biotic and abiotic factors, structures, and processes within the occurrence, and the degree to which they affect the continued existence of the occurrence. Condition has the following components: reproduction and health for species, ecological processes, species composition and biological structure, and abiotic/chemical factors.

Condition of the occurrence: High proportion of native species and low levels of invasive weeds in the occurrence.

Overall condition is: **B (good)**

LANDSCAPE CONTEXT is an integrated measure of the quality of biotic and abiotic factors, structures, and processes surrounding the occurrence, and the degree to which they affect the continued existence of the EO. Components of Landscape Context are: landscape structure and extent, including genetic connectivity, and condition of the surrounding landscape.

LANDSCAPE in the area surrounding the population. Weed cover on northerly slopes that support the Silene is considerably lower than surrounding southerly aspects which are strongly dominated by weed species.

Overall landscape is: **B (good)**

EO Rank indicates the relative value of the Element Occurrence based on an assessment of estimated viability, i.e., the probability of persistence (based on condition, size, and landscape context). In other words, EO ranks provide an assessment of the likelihood that if current conditions prevail the occurrence will persist for a defined period of time, typically 20-100 years.

EO Rank: B- Good Estimated Viability

Habitat Description (information for the entire population)

General habitat description: mesic Canyon Grasslands

Aspect: WNW to NE

Slope: 15 - 40 degrees

Substrate/soil: _____

Light regime: open

Community type: Idaho fescue-prairie junegrass h.t.; Idaho fescue/snowberry h.t; Idaho fescue/rose h.t.

Associated Species include: Pseudoroegneria spicata, Silene scouleri, Balsamorhiza sagittata, Achillea millefolium, Geum triflorum, Cerastium arvense, Frasera albicaulis, Lithospermum ruderale, Heuchera sp., and Rosa sp.

Look-alike species that are present: Silene scouleri

Threats to the population and its immediate habitat including **level** and **imminency** of threat if known.

low weed cover in occurrence but large, dense weed infestations in surrounding area, including
Centaurea solstitialis, Bromus spp., Potentilla recta, Hypericum perforatum, Sisymbrium altissimum.

Minimum Elevation: 1800 ft.

Maximum Elevation: 2500 ft.

Land Owner/Managers (forest/ranger district/BLM/ or private land owner if known): The Bureau of Land Management

Owner Comments: _____

Management Needs (include any steps that you think should be taken by the land manager to protect the population): _____

Collector/Collection #:_____

Herbarium:_____

Photo Attached? Yes No

Other knowledgeable individuals: Karen Gray and Janice Hill

Subpopulation Information

Subpopulation # 1

Subpopulation area: 20 m x 20 m

The total # of individuals in subpopulation is 14 Actual Estimated

Population vigor is excellent good fair poor

Habitat information: Idaho fescue-prairie junegrass h.t.; Idaho fescue/snowberry h.t.

Threats to this subpopulation: surrounding large weed infestations of Potentilla recta, Hypericum perforatum, and Centaurea solstitialis

Additional subpopulation information: Subpopulation consists of 3 clusters, 1A, 1B, 1C

NAD-27	11	MM 322 [1A]	523084.68	5093157.06	+/-
NAD-27	11	MM 321 [1B]	523269.67	5093111.05	+/-

See more coordinates in the space on the last page of this form.

Subpopulation Information

Subpopulation # 2

Subpopulation area: 5 m x 10 m

The total # of individuals in subpopulation is 9 Actual Estimated

Population vigor is excellent good fair poor

Habitat information: Idaho fescue-prairie junegrass h.t.

Threats to this subpopulation: weedy area occurs 50-100 meters east of subpopulation; large weed infestations in surrounding area

Additional subpopulation information: _____

Datum Zone Way Point or ID# UTM Northing (Y) or Latitude UTM Easting (X) or Longitude
Accuracy

NAD-27	11	MM 319	523826.65	5093097.04	+/-
NAD-27	11				+/-

Subpopulation Information

Subpopulation # 3

Subpopulation area: 4 meter square

The total # of individuals in subpopulation is 4 Actual Estimated

Population vigor is excellent good fair poor

Habitat information: Idaho fescue/snowberry h.t.

Threats to this subpopulation: located near a dirt roadbed that is very weedy with Centaurea solstitialis, Hypericum perforatum, Sisymbrium altissimum, Bromus spp.

Additional subpopulation information: one plant a few inches above cut slope of roadbed; the other 3 plants ca 20 m further upslope in a few square meter area.

Datum Zone Way Point or ID# UTM Northing (Y) or Latitude UTM Easting (X) or Longitude
Accuracy

NAD-27	11	MM 323	5238880.65	5093097.04	+/-
NAD-27	11				+/-

Subpopulation Information

Subpopulation # 4

Subpopulation area: 0.1 acre

The total # of individuals in subpopulation is 10 Actual Estimated

Population vigor is excellent good fair poor

Habitat information: [Idaho fescue/rose h.t.](#)

Threats to this subpopulation: [dense patches of Potentilla recta nearby.](#)

Additional subpopulation information: _____

Datum	Zone	Way Point or ID#	UTM Northing (Y) or Latitude	UTM Easting (X) or Longitude	Accuracy
NAD-27	11	MM 318	524227.63	5093089.04	+/-
NAD-27	11				+/-

Additional GPS Coordinates

Datum	Zone	Way Point or ID#	UTM Northing (Y) or Latitude	UTM Easting (X) or Longitude	Accuracy	
Subpopulation #						
NAD-27	11	MM 319	523826.65	5093097.04	+/-	
NAD-27	11	MM 323	523880.65	5093386.04	+/-	
NAD-27	11	MM 318	524227.63	5093089.04	+/-	
NAD-27	11				+/-	
NAD-27	11				+/-	
NAD-27	11				+/-	
NAD-27	11				+/-	
NAD-27	11	MM 320 [1C]	523338.66	5093097.04	+/-	

IDAHO RARE PLANT OBSERVATION REPORT

Species: Tripterocladium leucocladulum

Date of Observation: 26

July 2005

Observer(s): Karen Gray

Agency/Organization/Company: ID Dept F&G Conservation Data Center

Address: PO Box 25, Boise, ID 83707

Phone: (208) 334-3402

Survey Site Name: First Creek

Directions: First Creek, about 0.2 miles from confluence with Salmon River. On basalt rubble on edge of old road south of creek.

Addition or update of an existing occurrence?: Yes No Unsure?

Element Occurrence # if known: 008

County: Idaho

Quad: Moughmer Point

Township: 30N Range: 1W SE 1/4 of SE 1/4 of Section 22

Township: _____ Range: _____ 1/4 of _____ 1/4 of Section _____

GPS Information:

Datum	Zone	Way Point or ID#	UTM Northing (Y) or Latitude	UTM Easting (X) or Longitude	
Accuracy	Subpop#				
NAD-83	11	KG 201	543731.39	5085092.36	+/-

Accuracy: Within 25 m (0 - 1 mm. on map)

Population Information:

Total # of individuals in the entire population, including all subpopulations is _____ Actual Estimated

What was counted? Genets Ramets N/A (non-vascular etc.) Unknown

Phenology: _____ % seedling _____ % non-reproductive _____ % reproductive _____ % dormant
_____ % unknown

The size of the population area is <1 meter square

Population vigor is excellent good fair poor

Do you feel you mapped the full extent of the population? Yes No Unsure

Is there more potential habitat in the area that hasn't been surveyed? Yes No Unsure

The survey was: very thorough fairly thorough cursory incidental observation

Additional population comments: _____

Monitoring or research needs for this population? _____

CONDITION is an integrated measure of the quality of biotic and abiotic factors, structures, and processes within the occurrence, and the degree to which they affect the continued existence of the occurrence. Condition has the following components: reproduction and health for species, ecological processes, species composition and biological structure, and abiotic/chemical factors.

CONDITION of the occurrence: Tripterocladium leucocladulum usually occurs in small patches; this one covers a few basalt rocks.

Overall condition is: **B (good)**

LANDSCAPE CONTEXT is an integrated measure of the quality of biotic and abiotic factors, structures, and processes surrounding the occurrence, and the degree to which they affect the continued existence of the EO. Components of Landscape Context are: landscape structure and extent, including genetic connectivity, and condition of the surrounding landscape.

LANDSCAPE in the area surrounding the population. Include factors such as current and past land use (farmland, residential area etc.), disturbance factors, and fragmentation: Tripterocladium leucocladulum is probably only competing with other mosses at the rock level. If the shrubs shading the rocks are cut down or if there were road work, the mosses could be threatened.

Overall landscape is: **B (good)**

EO Rank indicates the relative value of the Element Occurrence based on an assessment of estimated viability, i.e., the probability of persistence (based on condition, size, and landscape context). In other words, EO ranks provide an assessment of the likelihood that if current conditions prevail the occurrence will persist for a defined period of time, typically 20-100 years.

EO Rank: AB - Good or Excellent Viability

Habitat Description (information for the entire population)

General habitat description: Road edge in riparian zone surrounded by Canyon Grasslands

Aspect: N Slope: _____

Substrate/soil: moss-coverd basalt rubble.

Light regime: shaded

Community type: riparian zone

Associated Species include: In shade of Rhamnus purshiana and Holodiscus discolor

Look-alike species that are present: none

threats to the population and its immediate habitat including **level** and **imminency** of threat if known.

If the shrubs shading the rocks are cut down or if there were roadwork, the mosses could be threatened.

Minimum Elevation: 1520 ft.

Maximum Elevation: 1520 ft.

Land Owner/Managers (forest/ranger district/BLM/ or private land owner if known): private

Owner Comments: _____

Management Needs (include any steps that you think should be taken by the land manager to protect the population): _____

Collector/Collection #:K.L. Gray # 5232

Herbarium:UBC, WSU, OSC

Photo Attached? Yes No

Other knowledgeable individuals: Michael Mancuso and Janice Hill

APPENDIX

Element Occurrence Records

Calochortus nitidus
Broad-fruit Mariposa

Occurrence Number: 159

Survey Site: NORTHWEST OF PACKERS CREEK

County: Idaho

Quad Name: Moughmer Point

Latitude: 455736N **Longitude:** 1162700W

Town Range	Section	TRS Note
030N001W	10	

Directions:

Salmon River Canyon ca 10 mi south of Cottonwood. West side of canyon, northwest of the mouth of Packers Creek. Access is via a cross-country hike from end of road at First Creek, located 2 mi downriver from the Rice Creek Bridge. Permission from private landowner required to access this area.

First Obs. Date: 2005-07-26

Last Obs. Date: 2005-07-26

EO Rank: B

EO Rank Date: 2005-07-26

Condition of Occurrence:

Introduced weed cover is low on northerly slopes supporting this occurrence which is in sharp contrast to nearly all of the surrounding area not on northerly aspects where weeds strongly dominate. Overall condition is assessed as good.

Occurrence Landscape Context:

Most of the surrounding canyon slopes are dominated by multiple weedy species. Pockets of relatively intact canyon grassland habitat seem to be restricted to northerly aspects. Livestock grazing probably has a long history in this area. Overall landscape context assessed as fair.

Population Information:

200 + plants in ca. 3 acres. Plants occur along ridgecrest and upper to middle slope positions. Unsure if plants extend further downslope to lower slope areas. The occurrence has potential to be considerably larger than the 3 acres surveyed.

Habitat Information:

Plants occur on NW to NE aspect, 25-45 degree slope. Ridgecrest, upper slope and mid-slope positions. Dark, loamy soil. Idaho fescue-prairie junegrass h.t. w/ Balsamorhiza sagittata, Geum triflorum, Frasera albicaulis, Physocarpus malvaceus, Symphoricarpos albus. Haplopappus latifolius co-occurs. Low cover of Linaria dalmatica, Hypericum perforatum, and Rosa eglanteria in area.

Min. Elevation:	1900 feet	579 meters
Max. Elevation:	2200 feet	671 meters

Size of EO:

3 acres

Protection Comments:

Low cover of *Linaria dalmatica*, *Hypericum perforatum*, *Rosa eglanteria* with occurrence. Several additional weed species occur in nearby area, including *Centaurea solstitialis*, *Vicia* spp., *Poa compressa*, annual bromes. *Potentilla recta* less common. Cattle use gentle bench topography downslope of occurrence; but do not appear to venture much onto steep northerly slopes where occurrence is located.

Managed Area Name:

Management Comments:

Owner Comments:

Private Land

Specimens: No specimens taken.

Best Source for Information

GPS Coordinates: No GPS coordinates on file.

Additional Population and Subpopulation Information

(Sub)population Name: **ID#:** 29749

Observation Date: 2005-07-26

Observers Michael Mancuso, IDCDC

Observation Data: 200+ plants in ca. 3 acres.

Cirsium brevifolium

Palouse Thistle

Occurrence Number: 45

Survey Site: SALMON RIVER OXBOW

Conservation Site Name: LOWER SALMON RIVER

County: Idaho

Quad Name: Westlake

Latitude: 460027N **Longitude:** 1163719W

Town Range	Section	TRS Note
031N002W	19	

Directions:

Joseph Plains 5 mi NW of Boles. Drive down Billy Creek Rd ca 3 mi. Bear right at fork leading to old homestead and large hayfield. Hike jeep trail heading north from hayfield to where jeep trail splits. Occurrence is on east neck of Salmon River Oxbow between the jeep trail and the Salmon River.

First Obs. Date: 2005-07-25

Last Obs. Date: 2005-07-25

EO Rank: BC

EO Rank Date: 2006-06-09

Condition of Occurrence:

Large proportion of occurrence consists of native plant species with moderate weed infestations of Hypericum perforatum, Potentilla recta, and Centaurea solstitialis

Occurrence Landscape Context:

The occurrence is located on northerly slopes that typically have low weed cover. This is in sharp contrast to nearly all of the surrounding non-northerly aspects which are strongly dominated by weed species.

Population Information:

30 plants; 8 reproductive and 22 vegetative plants in 2 subpopulations in ca. 4 m X 5 m area total.

Habitat Information:

Subpopulation 1: w/ Artemisia ludoviciana, Achillea millefolium, Solidago missouriensis, and Pseudoroegneria spicata. Subpopulation 2A: one cluster at edge of Rosa nutkana patch with Lupinus arbustus, Festuca idahoensis, Cerastium arvense; other cluster with Symphoricarpos albus and Cerastium arvense. Subpopulation 2B: on shrubby hillside with Rhamnus purshiana and Rhus radicans.

Min. Elevation: 1640 feet

500 meters

Max. Elevation: 2020 feet

616 meters

Size of EO:

4 m x 5 m

Protection Comments:

Potentilla recta, Centaurea solstitialis, Bromus tectorum, and Hypericum perforatum

Managed Area Name:

Management Comments:

Owner Comments:

Bureau of Land Management and private

Specimens: No specimens taken.

Best Source for Information

GPS Coordinates: No GPS coordinates on file.

Additional Population and Subpopulation Information

(Sub)population Name: SUBPOPULATION 1 **ID#:** 29604

Observation Date: 2005-07-27

Observers Karen Gray, IDCDC

Observation Data: Eight vegetative plants, 5 of the crowns in a 50 x 50 cm area. With Artemisia ludoviciana, Achillea millefolium, Solidago missouriensis, and Pseudoroegneria spicata. Threats: Potentilla recta, Centaurea solstitialis, and Bromus tectorum.

(Sub)population Name: SUBPOPULATION 2A **ID#:** 29606

Observation Date: 2005-07-27

Observers Karen Gray, IDCDC

Observation Data: Two clusters: 1) 5 reproductive and 3 vegetative crowns in 1 m x 1 m area. Edge of Rosa nutkana patch, with Lupinus arbustus, Festuca idahoensis, and Cerastium arvense. Threats--Hypericum perforatum and Potentilla recta; 2) 4 vegetative crowns in 1 m x 1 m area, with Symphoricarpos albus and Cerastium arvense. Threats: Potentilla recta, Hypericum perforatum, and scattered Centaurea solstitialis.

(Sub)population Name: SUBPOPULATION 2B **ID#:** 29607

Observation Date: 2005-07-27

Observers Karen Gray, IDCDC

Observation Data: Three reproductive and seven vegetative, in 1 x 2 m area. Shrubby hillside, with Rhamnus purshiana and Rhus radicans.

Cirsium brevifolium

Palouse Thistle

Occurrence Number: 46

Survey Site: HOGBACK RIDGE

County: Idaho

Quad Name: Moughmer Point

Latitude: 455354N **Longitude:** 1162331W

Town Range	Section	TRS Note
030N001W	36	

Directions:

On west side of Salmon River at the Rice Creek Bridge, follow road along river (upriver) ca. 1 mile to Cooper Bar on private land. Occurrence is ca. 1/2 mi upriver on land owned by Idaho Department of Lands below an area referred to as "Devils Garden".

First Obs. Date: 2005-07-08

Last Obs. Date: 2005-07-25

EO Rank: B

EO Rank Date: 2006-06-09

Condition of Occurrence:

Dense Linaria dalmatica and some Hypericum perforatum

Occurrence Landscape Context:

Canyon grassland landscape where density of weed cover is much higher on southerly aspects than northerly aspects.

Population Information:

Cursory, incidental observation of 3 reproductive (fruiting) plants in 3 m x 3 m area.

Habitat Information:

Canyon Grassland, with Festuca idahoensis, Koeleria macrantha, Lupinus sericeus, Gaillardia aristata, Achillea millefolium.

Min. Elevation: 2150 feet 655 meters

Size of EO:

3 m x 3 m

Protection Comments:

Surroundings very weedy. Linaria dalmatica thick, with some Hypericum perforatum and Galium pedemontanum.

Managed Area Name:

Management Comments:

Owner Comments:

Idaho State Department of Lands

Specimens: No specimens taken.

Best Source for Information

GPS Coordinates: No GPS coordinates on file.

Additional Population and Subpopulation Information

(Sub)population Name: **ID#:** 29608

Observation Date: 2005-07-25

Observers Karen Gray/IDCDC

Observation Data: 3 reproductive plants in fruit in a 3 X 3 m area. Idaho fescue-prairie junegrass h.t.w/ *Balsamorhiza sagittata*, *Lupinus sericeus*, *Gaillardia aristata*, and *Achillea millefolium*. Dense *Linaria dalmatica* with some *Hypericum perforatum*. Very weedy in surrounding area.

Haplopappus liatiformis

Palouse Goldenweed

Occurrence Number: 71

Survey Site: NORTHWEST OF PACKERS CREEK

County: Idaho

Quad Name: Moughmer Point

Latitude: 455736N **Longitude:** 1162700W

Town Range	Section	TRS Note
030N001W	10	

Directions:

Salmon River Canyon ca 10 miles south of Cottonwood. West side of canyon, northwest of the mouth of Packer Creek. Access is via a cross-country hike from the end of road at First Creek, located ca 2 miles downriver from the Rice Creek Bridge. Permission from private landowner is required to access this area.

First Obs. Date: 2005-07-26

Last Obs. Date: 2005-07-26

EO Rank: B

EO Rank Date: 2005-07-26

Condition of Occurrence:

Introduced weed cover is low on the northerly slope supporting Haplopappus. This is in sharp contrast to nearly all of the surrounding area not having a northerly aspect. These areas are strongly dominated by weed species. Overall condition assessed as good.

Occurrence Landscape Context:

Most of the surrounding canyon slopes are dominated by multiple weed species. Pockets of relatively intact canyon grassland habitat seem to be restricted to northerly aspects, which are not common in this part of the canyon. Livestock grazing probably has a long history in the area. Overall landscape context assessed as fair.

Population Information:

2005: 250-500 estimated genets were observed in an area ca 3 acres in size. The plants were observed along ridgecrest and upper to middle slope positions; unsure if plants extend further downslope to lower slope areas. The occurrence has the potential to be considerably larger than the 3 acres surveyed.

Comments on Additional Inventory:

More potential habitat exists in the area that has not been surveyed. Plants may extend further downslope to lower slope areas.

Habitat Information:

Plants occur on NW to NE aspect, 25-45 degree slope; ridgecrest, upper slope, and mid-slope positions. Dark, loamy soil. *Festuca idahoensis*-*Koelaria cristata* c.t., associated with *Balsamorhiza sagittata*, *Geum triflorum*, *Frasera albicaulis*, *Physocarpus malvaceus*, *Symporicarpos albus*. *Calochortus nitidus* also co-occurs. Low cover of *Linaria dalmatica*, *Hypericum perforatum*, and a non-native *Rosa* sp. occur in the area.

Min. Elevation: 1900 feet 579 meters

Max. Elevation: 2200 feet 671 meters

Size of EO:

3 acres.

Protection Comments:

Low cover of *Linaria dalmatica*, *Hypericum perforatum*, and a non-native *Rosa* sp. occur within the occurrence. Several additional weed species occur in nearby areas, including *Centaurea solstitialis*, *Vicia* sp., *Poa compressa*, and annual *Bromus* spp. (including *B. tectorum*). *Potentilla recta* is less common. Cattle use the gentle bench topography downslope of occurrence, but do not appear to venture much onto the steep northerly slopes where *Haplopappus* occurs. A salt block box was observed on the bench downridge (east) of the occurrence, but did not have salt.

Managed Area Name:

Management Comments:

Owner Comments:

Private land.

Specimens:

M. Mancuso 2798 (ID).

Best Source for Information

Idaho Conservation Data Center. 1995. Ecomonitoring data project: 1995. Idaho Conservation Data Center, Idaho Department of Fish and Game, Boise. Not paged.

GPS Coordinates:

Type	Y_COORD	X_COORD	Datum	Zone	Subpop/ID#	COMMENTS
UTM	5089560	542718	NAD27	11		

Additional Population and Subpopulation Information

(Sub)population Name: ID#: 29603

Observation Date: 2005-07-26

Observers Michael Mancuso

Observation Data: 250-500 estimated genets observed over ca 3 acres during a cursory survey.

Haplopappus liatiformis

Palouse Goldenweed

Occurrence Number: 72

Survey Site: LONG CANYON RIDGE

County: Idaho

Quad Name: Westlake

Latitude: 460005N **Longitude:** 1163643W

Town Range	Section	TRS Note
031N002W	29	

Directions:

Drive to the Jospeh Plains ca 5 miles northwest of Boles. From the top, drive down the Billy Creek road ca 3 miles. A low gear vehicle is required. Bear right at the fork that leads to some old, decrepit out buildings and associated hay fields. Hike the jeep trail that heads north from the north edge of the hayfield. Continue on the jeep trail to the north-trending ridge located roughly 0.2 mile west of Long Canyon. Descend the ridgecrest <0.2 mile.

First Obs. Date: 2005-07-27

Last Obs. Date: 2005-07-27

EO Rank: E

EO Rank Date: 2005-07-27

Condition of Occurrence:

Canyon grassland vegetation dominated by native species. Light cattle wildlife use are the only ground disturbance. Overall condition assessed as good.

Occurrence Landscape Context:

Majority of surrounding landscape appears to support native plant communities in good ecological condition. Habitat in the general area is not fragmented. Livestock grazing is the main landuse in the geneal area. Overall landscape context assessed as good.

Population Information:

2005: 25 estimated genets observed in a 10m x 10m area during a cursory survey by Michael Mancuso, IDCDC. No additional Haplopappus observed further downridge, all the way to the Salmon River. Nearby, steep easterly and westerly slopes not searched, but likely have potential habitat.

Comments on Additional Inventory:

Nearby, steep and westerly slopes were not surveyed, but likely have potential habitat.

Habitat Information:

Steep (40 degree) north-facing, narrow ridgecrest. Skeletal-loam soil. Idaho fescue-prairie junegrass h.t. with Pseudoroegneria spicata, Achillea millefolium, Hieracium albertinum, Balsamorhiza sagittata. Some Potentilla recta and annual Bromus spp. present.

Min. Elevation: 2400 feet **732 meters**

Size of EO:

100 sq.m.

Protection Comments:

Some *Potentilla recta* and annual *Bromus* spp. occur with *Haplopappus*. Further downridge the vegetation gets much more weedy, with only pockets of native grassland habitat. *Potentilla recta* and *Centaurea solstitialis* are widespread and locally common. Annual *Bromus* spp. form carpets of 100% ground cover in places, especially in flat to gentle slope areas. Old cowpies scattered along the ridge, move downridge from occurrence when get into sections of more gentle terrain.

Managed Area Name:**Management Comments:****Owner Comments:**

Probably private land.

Specimens: No specimens taken.

Best Source for Information

Idaho Conservation Data Center. 1995. Ecomonitoring data project: 1995. Idaho Conservation Data Center, Idaho Department of Fish and Game, Boise. Not paged.

GPS Coordinates:

Type	Y_COORD	X_COORD	Datum	Zone	Subpop/ID#	COMMENTS
UTM	5094061	530117	NAD27	11		

Additional Population and Subpopulation Information

(Sub)population Name: ID#: 29595

Observation Date: 2005-07-27

Observers Michael Mancuso, IDCDC

Observation Data: 25 estimated genets observed in a 10m x 10m area during a cursory survey.

Silene spaldingii
Spalding's Silene

Occurrence Number: 14

Survey Site: SALMON RIVER OXBOW

Conservation Site Name: LOWER SALMON RIVER

County: Idaho

Quad Name: Westlake

Latitude: 460027N **Longitude:** 1163744W

Town Range	Section	TRS Note
031N002W	19	E2SE4SW4, W2SW4SE4

Directions:

At the neck of Salmon River Oxbow, ca 0.75 mile E of Idaho/Lewis Co. line, just below where road splits into two jeep trails (Subpop. 1). 2005: Subpopulations 2, 3, 4, and 5 on slope below subpop. 1 down to ca. 1600-1700 ft.

First Obs. Date: 2001-06-27 **Last Obs. Date:** 2005-07-27

EO Rank: BC **EO Rank Date:** 2006-02-09

EO Rank Comments:

2006: Baseline C-rank based on small-sized EO occurring in native community, but overgrown with introduced weeds. June 2006: Based on good ecological condition/low weed cover of subpopulations 2-5 and overall better condition of potential habitat on northerly aspects vs southerly aspects, a BC-Rank may be more appropriate for this occurrence.

Condition of Occurrence:

C: Habitat type is *Festuca idahoensis*-*Koeleria cristata* with native associates. Land was overgrown with *Centauria solstitialis* and *Potentilla recta*. 2005: Subpopulations 2-5 occur on northerly aspects within mesic Idaho fescue plant communities that are in relatively good ecological condition; few, scattered *Potentilla recta*.

Occurrence Landscape Context:

C: Land was overgrown with *Centauria solstitialis* and *Potentilla recta*. 2005: Northerly aspects that support *Silene* have a much higher percentage of native plant communities and lower introduced weed cover than southerly aspects. Cover of *Centaurea solstitialis* and *Bromus tectorum* is much higher on southerly aspects, but fairly low in mesic Idaho fescue grasslands on northerly aspects.

Population Information:

2001: 50 estimated genets; 100% vegetative; population area 250' x 250'; population vigor assessed as good. Cursory visit by Nicole Molinari and LeAnn Eno, Cottonwood BLM. 2005: 4 additional subpopulations discovered with a total of 13 plants (12 stemmed plants and 1 rosette plant); 5 reproductive, 6 vegetative, 2 broken; in 5 m x 10 m. Karen Gray, IDCDC.

Habitat Information:

2001: Aspect NE; thin soil, with surface rock exposed in some areas; no canopy cover. 2005: N to NE aspects; 50-70% slope. Habitat types are *Festuca idahoensis*-*Koeleria cristata* and

Festuca idahoensis/Symphoricarpos albus. Associated species include *Pseudoroegneria spicata*, *Lithospermum ruderale*, *Frasera albicaulis*, *Gaillardia aristata*, *Balsamorhiza sagittata*, *Cerastium arvense*, *Geum triflorum*, *Hieracium albertinum*, *Solidago missouriensis*, *Besseyea rubra*, *Achillea millefolium*, *Eriogonum heracleoides*, *Lupinus arbustus*, *L. sericeus*, *Heuchera* sp., *Rosa nutkana*, *Holodiscus discolor*, *Prunus virginiana*, *Amelanchier alnifolia*.

Min. Elevation: 1660 feet 506 meters
Max. Elevation: 2500 feet 762 meters

Size of EO:

D: 50 genets; 5800 SQ M. 2005: Subpopulations 2-5: 13 plants; 50 SQ M.

Protection Comments:

2001: Drift from spraying in other areas east of this site. Land was overgrown with *Centauria solstitialis* and *Potentilla recta*. 2005: Subpopulations 2-5. Few, scattered *Potentilla recta* within subpopulations; dense infestations of yellow starthistle and annual bromes on adjacent southerly aspects; *Ventenata dubia* near Subpopulation # 5.

Managed Area Name:

Management Comments:

Owner Comments:

Upper Columbia - Salmon Clearwater District BLM, Cottonwood FO / private

General Comments:

Overall site quality assessed as good.

Specimens: No specimens taken.

Best Source for Information

Upper Columbia - Salmon Clearwater District BLM.

GPS Coordinates: No GPS coordinates on file.

Additional Population and Subpopulation Information

(Sub)population Name: **SUBPOPULATION 1** **ID#:** 19566

Observation Date: 2001-06-27

Observers Nicole Molinari and LeAnn Eno

Observation Data: 50 estimated genets; 100% vegetative; good vigor.

(Sub)population Name: **SUBPOPULATION 2** **ID#:** 29552

Observation Date: 2005-07-27

Observers Karen Gray, IDCDC

Observation Data: 3 plants; 100% vegetative; population area 1m X 1m.

(Sub)population Name: **SUBPOPULATION 3** **ID#:** 29553

Observation Date: 2005-07-27
Observers Karen Gray, IDCDC
Observation Data: 4 stemmed plants; 100% reproductive (budding); 1 rosette plant. Population area 3 m X 9 m. 50% slope; 30 degree aspect. Mostly *Festuca idahoensis* with sparse *Pseudoroegneria spicata*; also *Koeleria macrantha*, *Symporicarpos albus*, *Rosa nutkana*, *Prunus virginiana*, occasional *Amelanchier alnifolia*, *Cerastium arvense*, *Frasera albicaulis*, *Achillea millefolium*, *Eriogonum heracleoides*, *Heuchera* sp., *Lithospermum ruderale*, *Hieracium albertinum*, *Solidago missouriensis*, *Besseyea rubra*, and scattered *Potentilla recta*.

(Sub)population Name: SUBPOPULATION 5 **ID#:** 29555

Observation Date: 2005-07-27
Observers Karen Gray, IDCDC
Observation Data: 2 plants, 1 vegetative, 1 broken with end of stem in rodent hole. Populations size 1 m X 1/4 m. Slope 70%; aspect 10 degrees. With *Festuca idahoensis*, *Koeleria macrantha*, scattered *Symporicarpos albus*, *Hieracium albertinum*, *Geum triflorum*, *Achillea millefolium*, *Solidago missouriensis*, *Gaillardia aristata*, *Cerastium arvense*, and *Bromus japonicus*. Scattered *Holodiscus discolor*. Dense *Ventenata dubia* nearby.

(Sub)population Name: SUPBPOPULATION 4 **ID#:** 29554

Observation Date: 2005-07-27
Observers Karen Gray, IDCDC
Observation Data: 3 plants; 1 reproductive, 1 vegetative, 1 broken with resprouting. Slope 55%; aspect 10 degrees. Scattered *Holodiscus discolor*; also *Lupinus arbustus*, *Frasera albicaulis*, *Cerastium arvense*, *Achillea millefolium*, *Eriogonum heracleoides*, scattered *Potentilla recta*.

Silene spaldingii
Spalding's Silene

Occurrence Number: 22

Survey Site: HOGBACK RIDGE

Conservation Site Name: LOWER SALMON RIVER

County: Idaho

Quad Name: Fenn

Latitude: 455356N **Longitude:** 1162335W

Town Range	Section	TRS Note
030N001W	36	
030N001E	31	

Directions:

On the west side of the Salmon River at Rice Creek Bridge, follow road along the river (upriver) ca. one mile to Cooper Bar on private land. Hike ca. 1/2 to 1 mi upriver to below "Devils Garden" and either side of "The Basin".

First Obs. Date: 2005-07-25

Last Obs. Date: 2005-07-25

EO Rank: B

EO Rank Date: 2006-06-09

Condition of Occurrence:

The majority of subpopulations are located in areas with relatively low weed cover and are in fairly good ecological condition with a high proportion of native plant species and low proportion of invasive weeds.

Occurrence Landscape Context:

The degree of weed infestation in the area is dependent on aspect; southerly aspects have dense infestations, whereas, northerly aspects that support Silene have low weed cover and are in relatively good ecological condition.

Population Information:

2005: 29 plants in 3 subpopulations occupying ca. 1/2 acre total area. One subpopulation was located on a grassy ridge east of The Basin; the other two were located west of The Basin, one in a shrub-forest-grass mosaic and grassland bowl and the other on a grassy slope below Devils Garden.

Habitat Information:

Idaho fescue-prairie junegrass h.t.; Idaho fescue/snowberry h.t.; Douglas-fir/ninebark h.t. NW to NE aspects; 15-45% slope. Dark, loamy soil. Associated species include: Pseudoroegneria spicata, Geum triflorum, Frasera albicaulis, Hieracium albertinum, Silene scouleri, Cerastium arvense, Lupinus sericeus, L. arbustus, Perideridia gairdneri, Balsamorhiza sagittata, Castilleja hispida, Gaillardia aristata, Penstemon glaucescens, Lithospermum ruderale, Achillea millefolium, Rosa sp., and Herchiera sp., Acer glabrum, Rhamnus purshiana, Prunus virginiana, Amelanchier alnifolia, occ. Pinus ponderosa.

Min. Elevation: 1660 feet

506 meters

Max. Elevation: 2150 feet 655 meters

Size of EO:
ca. 1/2 acre

Protection Comments:

Invasive weed species within the occurrence include *Hypericum perforatum*, *Linaria dalmatica*, *Potentilla recta*, *Rosa eglanteria*, *Centaurea solstitialis*, *Dipsacus sylvestris*, *Poa pratensis*.

Invasive weeds in surrounding area that have high potential to invade mesic fescue grasslands include *Crupina vulgaris*, *Euphorbia esula*, and *Bromus japonicus*

Managed Area Name:

Management Comments:

Owner Comments:

Upper Columbia-Salmon Clearwater District BLM, Cottonwood FO (subpopulations 1 and 2)
Idaho State Department of Lands (subpopulation 3)

Specimens: No specimens taken.

Best Source for Information

GPS Coordinates: No GPS coordinates on file.

Additional Population and Subpopulation Information

(Sub)population Name: SUBPOPULATION 1A **ID#:** 29548

Observation Date: 2005-07-25

Observers Janice Hill, IDCDC

Observation Data: 9 plants (budding). North-facing hillside/350 degree aspect.
Idaho fescue/snowberry h.t. w/ *Pseudoroegneria spicata*,
Koeleria cristata, *Hieracium albertinum*, *Geum triflorum*, *Achillea millefolium*, *Cerastium arvense*, *Lupinus* sp., *Heuchera* sp.,
Penstemon glandulosus, occasional *Amelanchier alnifolia*.
Weeds present: several *Hypericum perforatum*, scattered *Rosa eglanteria*, *Linaria dalmatica*.

(Sub)population Name: SUBPOPULATION 1B **ID#:** 29549

Observation Date: 2005-07-25

Observers Janice Hill, IDCDC

Observation Data: 3 plants (flowering) in 3 X 4 m area. Due-north hillside/ 360 degrees. Idaho fescue/snowberry h.t. (snowberry small, scattered, individual stems) w/ *Pseudoroegneria spicata*, *Koeleria cristata*, *Cerastium arvense*, *Frasera albicaulis*, *Hieracium albertinum*, *Geum triflorum*, *Lupinus arbustus*. Weeds present: many *Hypericum perforatum* and *Linaria dalmatica*; occasional *Centaurea solstitialis* and *Rosa eglanteria*.

(Sub)population Name: SUBPOPULATION 1C **ID#:** 29550

Observation Date: 2005-07-25

Observers Janice Hill, IDCDC

Observation Data: One plant. North-facing hillside (10 degrees). Idaho fescue-prairie junegrass h.t. w/ *Pseudoroegneria spicata*, *Cerastium arvense*, *Frasera albicaulis*, *Achillea millefolium*, *Geum triflorum*, *Lupinus arbustus*, *Hieracium albertinum*, *Heuchera* sp. Weeds present: *Hypericum perforatum* and many *Linaria dalmatica*.

(Sub)population Name: SUBPOPULATION 1D **ID#:** 30856

Observation Date: 2005-07-25

Observers Michael Mancuso

Observation Data: 4 plants in a 2 X 2 m area. Due north-facing steep slope (ca. 45 degrees). Idaho fescue-prairie junegrass h.t. w/ *Geum triflorum*, *Cerastium arvense*, *Achillea millefolium*, *Lupinus* sp., *Heuchera* sp., *Gaillardia aristata*, scattered *Amelanchier alnifolia*. Weeds present included *Hypericum perforatum*, *Linaria dalmatica*, *Rosa eglanteria*, *Dipsacus sylvatica*. *Crupina vulgaris* ca 100 m upslope and east where it is locally common along with other weed species.

(Sub)population Name: SUBPOPULATION 2A **ID#:** 29558

Observation Date: 2005-07-25

Observers Karen Gray, IDCDC

Observation Data: One broken stem on edge of talus. Growing with *Festuca idahoensis*, *Pseudoroegneria spicata*, *Koeleria cristata*, *Cerastium arvense*, *Perideridia gairdneri*, *Hieracium albertinum*, *Balsamorhiza sagittata*, *Geum triflorum*, *Castilleja hispida*, *Achillea millefolium*, and *Heuchera* sp. Shrubs: *Amelanchier alnifolia*, *Rhamnus purshiana*, and *Physocarpus malvaceus*. *Pinus ponderosa* within 10 feet. Threats: *Poa pratensis*, *Linaria dalmatica*, and *Potentilla recta*.

(Sub)population Name: SUBPOPULATION 2B **ID#:** 29557

Observation Date: 2005-07-25

Observers Karen Gray, IDCDC

Observation Data: Two reproductive plants within 3m x 0.25 m area near edge of basalt scree. Under *Acer glabrum*, growing with *Hieracium albertinum*, *Balsamorhiza sagittata*, *Cerastium arvense*, *Geum triflorum*, and *Prunus virginiana*. *Potentilla recta* is thick, *Linaria dalmatica* is abundant, and *Hypericum perforatum* is present.

(Sub)population Name: SUBPOPULATION 2C **ID#:** 30855

Observation Date: 2005-07-25
Observers Michael Mancuso, IDCDC
Observation Data: One plant (2 stems) in a relatively weed-free grassland that covers ca 0.25 acres. NE-facing slope with bowl-like microtopography; gentle slope (ca 15 degrees). Idaho fescue-prairie junegrass h.t. w/ *Achillea millefolium*, *Geum triflorum*, *Frasera albicaulis*, *Hieracium albertinum*, *Lithospermum ruderale*, *Heuchera* sp., *Silene scouleri* (seeding). Weed species at occurrence: *Potentilla recta*, *Linaria dalmatica*, *Hypericum perforatum*. Much lower weed cover compared to surrounding vegetation which is strongly dominated by a mix of introduced weed species, *Linaria dalmatica*, *Hypericum perforatum*, *Centaurea solstitialis*, *berbascum blatteria*, *Potentilla recta*, *Euphorbia esula*, and annual bromes. Scattered conifers and dense deciduous shrubfield occur upslope of subpopulation.

(Sub)population Name: SUBPOPULATION 3 **ID#:** 29560

Observation Date: 2005-07-25
Observers Karen Gray, IDCDC
Observation Data: Two clusters: 1) 5 plants, 4 reproductive, in 2 m x 2 m area; 2) 2 reproductive plants in 1 m x 4 m area. On grassy ridge, with *Festuca idahoensis*, *Pseudoroegneria spicata*, *Koeleria micrantha*, *Balsamorhiza sagittata*, *Geum triflorum*, *Achillea millefolium*, *Cerastium arvense*, and *Lupinus sericeus*. Threats: *Hypericum perforatum*, *Linaria dalmatica* (20 feet away), and non-native *Rosa*.

Silene spaldingii
Spalding's Silene

Occurrence Number: 23

Survey Site: COTTONWOOD CREEK

Conservation Site Name: LOWER SALMON RIVER

County: Idaho

Quad Name: Rattlesnake Ridge

Latitude: 455930N **Longitude:** 1164207W

Town Range	Section	TRS Note
031N003W	28	
031N003W	27	

Directions:

From Joseph Plains, proceed down road following Cottonwood Creek to ca 1/2 mile from the confluence of Cottonwood Creek with the Salmon River. Turn west on dirt road for ca. 1/2 - 3/4 miles.

First Obs. Date: 2005-07-28

Last Obs. Date: 2005-07-28

EO Rank: B

EO Rank Date: 2005-06-09

Condition of Occurrence:

High proportion of native species and low levels of invasive weeds in the occurrence.

Occurrence Landscape Context:

Weed cover on northerly slopes that support Silene is considerably lower than surrounding southerly aspects which are strongly dominated by weed species.

Population Information:

2005: Total of 37 plants in 4 subpopulations scattered in ca. 1/4 acre. WNW to N to NE aspects; 15-40 degree slopes between 1,800 ft and 2,500 ft elevation. Idaho fescue-prairie junegrass h.t.; Idaho fescue/snowberry h.t.; Idaho fescue/rose h.t. Low cover of weedy species directly associated with subpopulations; denser patches of yellow starthistle, sulfur cinquefoil, and St. Johnswort in intervening and surrounding area.

Habitat Information:

Aspect: WNW to N to NE; Slope: 15 - 40 degrees. Idaho fescue-prairie junegrass h.t. ; Idaho fescue/snowberry h.t., Idaho fescue/Rose sp. h.t. w/ Pseudoroegneria spicata, Achillea millefolium, Balsamorhiza sagittata, Geum triflorum, Cerastium arvense, Heuchera sp., Frasera albicaulis, Lithospermum ruderale, and Silene scouleri.

Min. Elevation: 1800 feet **549 meters**

Max. Elevation: 2500 feet **762 meters**

Size of EO:

ca. 1/4 acre

Protection Comments:

Large shrubfields with *Symphoricarpos albus* and St. Johnswort in area. Dense patches of sulfur cinquefoil, yellow starthistle, and annual bromes in surrounding/intervening area.

Managed Area Name:**Management Comments:****Owner Comments:**

Upper Columbia-Salmon Clearwater District BLM, Cottonwood FO

Specimens: No specimens taken.

Best Source for Information

GPS Coordinates: No GPS coordinates on file.

Additional Population and Subpopulation Information

(Sub)population Name: SUBPOPULATION 1A **ID#:** 30857

Observation Date: 2005-07-28

Observers Michael Mancuso/IDCDC

Observation Data: 1 plant (2 stems). Aspect: north; Slope: 25 degrees. Idaho fescue-prairie junegrass h.t. w/ *Pseudoroegneria spicata*, *Cerastium arvense*. Some *Centaurea solstitialis*, and *Potentilla recta* and *Hypericum perforatum* common nearby. Located ca 1.5 m upslope of dirt roadbed cut.

(Sub)population Name: SUBPOPULATION 1B **ID#:** 30858

Observation Date: 2005-07-28

Observers Michael Mancuso/IDCDC

Observation Data: 5 plants in a 5 X 10 m area. Aspect: 330 degrees; Slope: 25 degrees. Idaho fescue/snowberry h.t. w/ *Pseudoroegneria spicata*, *Cerastium arvense*, *Balsamorhiza sagittata*, *Geum triflorum*, *Achillea millefolium*. Trace cover of *Potentilla recta*, *Centaurea solstitialis*, and *Bromus* sp. Located ca 10 m upslope of a bladed roadbed that traverses the slope at ca. the 1800 ft contour. Roadbed is very weedy.

(Sub)population Name: SUBPOPULATION 1C **ID#:** 30859

Observation Date: 2005-07-28

Observers Michael Mancuso/IDCDC

Observation Data: 8 plants (11 stems) in a 5 X 5 m area. Aspect: 340 degrees; Slope: 40 degrees. Idaho fescue/snowberry h.t. w/ *Pseudoroegneria spicata*, *Cerastium arvense*, *Heuchera* sp., *Balsamorhiza sagittata*, *Geum triflorum*, *Achillea millefolium*.

Potentilla recta and Bromus sp. occur nearby at trace cover.

(Sub)population Name: SUBPOPULATION 2 **ID#:** 30860

Observation Date: 2005-07-28

Observers Michael Mancuso/IDCDC

Observation Data: 9 plants in 5 X 10 m area. Idaho fescue-prairie junegrass h.t. w/
Balsamorhiza sagittata, Achillea millefolium, Cerastium arvense,
Fraseria albicaulis, Lithospermum ruderale. On moderately
sloping area of a generally very steep slope. Some rock outcrops
within subpopulation. No weeds in subpopulation area.

(Sub)population Name: SUBPOPULATION 3 **ID#:** 30861

Observation Date: 2005-07-28

Observers Michael Mancuso/IDCDC

Observation Data: 4 plants; one plant a few inches above cut slope of dirt roadbed,
three plants located ca 20 m upslope in a few square meters.
Aspect: north; Slope: 30 degrees. Idaho fescue/snowberry h.t. w/
Pseudoroegneria spicata, Cerastium arvense, Geum triflorum,
Achillea millefolium, Lithospermum ruderale. Centaurea
solstitialis, Hypericum perforatum, Sisymbrium altissimum,
Bromus sp. in adjacent roadbed.

(Sub)population Name: SUBPOPULATION 4 **ID#:** 30862

Observation Date: 2005-07-28

Observers Michael Mancuso/IDCDC

Observation Data: 2005: 10 plants (14 stems) in 0.1 acre. Aspect: 40 degrees;
Slope: 20 degrees. Idaho fescue-prairie junegrass h.t. w/
Balsamorhiza sagittata, Achillea millefolium, Geum triflorum,
Rosa sp., Silene scouleri. Potentilla recta w/ low cover; denser
patches nearby. Located ca. 120 m at 230 degrees azimuth from
prominent rock outcrop, ca 0.3 mi east of topo point 3197.

Tripterocladium leucocladulum

Occurrence Number: 8

Survey Site: FIRST CREEK

County: Idaho

Quad Name: Moughmer Point

Latitude: 455511N **Longitude:** 1162613W

Town Range	Section	TRS Note
030N001W	22	

Directions:

First Creek, about 0.2 miles from confluence with Salmon River, on basalt rubble on edge of old road south of creek.

First Obs. Date: 2005-07-26

Last Obs. Date: 2005-07-26

EO Rank: AC

EO Rank Date:

Condition of Occurrence:

Tripterocladium leucocladulum usually occurs in small patches, and this one covers a few basalt rocks.

Occurrence Landscape Context:

The rocks are shaded and mossy. *Tripterocladium leucocladulum* is probably only competing with other mosses at the rock level. If the shrubs shading the rocks were cut down, or if there were roadwork, the mosses could be threatened.

Population Information:

Less than 1 square meter.

Habitat Information:

Growing on moss-covered basalt rubble and bases of shrubs, in shade of *Rhamnus purshiana* and *Holodiscus discolor*. Just south of creek, on road edge. Area surrounding riparian zone is Canyon Grasslands. Aspect north.

Min. Elevation: feet meters

Size of EO:

Less than 1 square meter

Protection Comments:

If shrubs shading the rocks are cut down or if there were roadwork, the mosses could be threatened.

Managed Area Name:

Management Comments:

Owner Comments:

Private

Specimens:

K. L. Gray # 5232 (UBC, WS, OSC)

Best Source for Information

GPS Coordinates: No GPS coordinates on file.

Additional Population and Subpopulation Information

(Sub)population Name: ID#: 29613

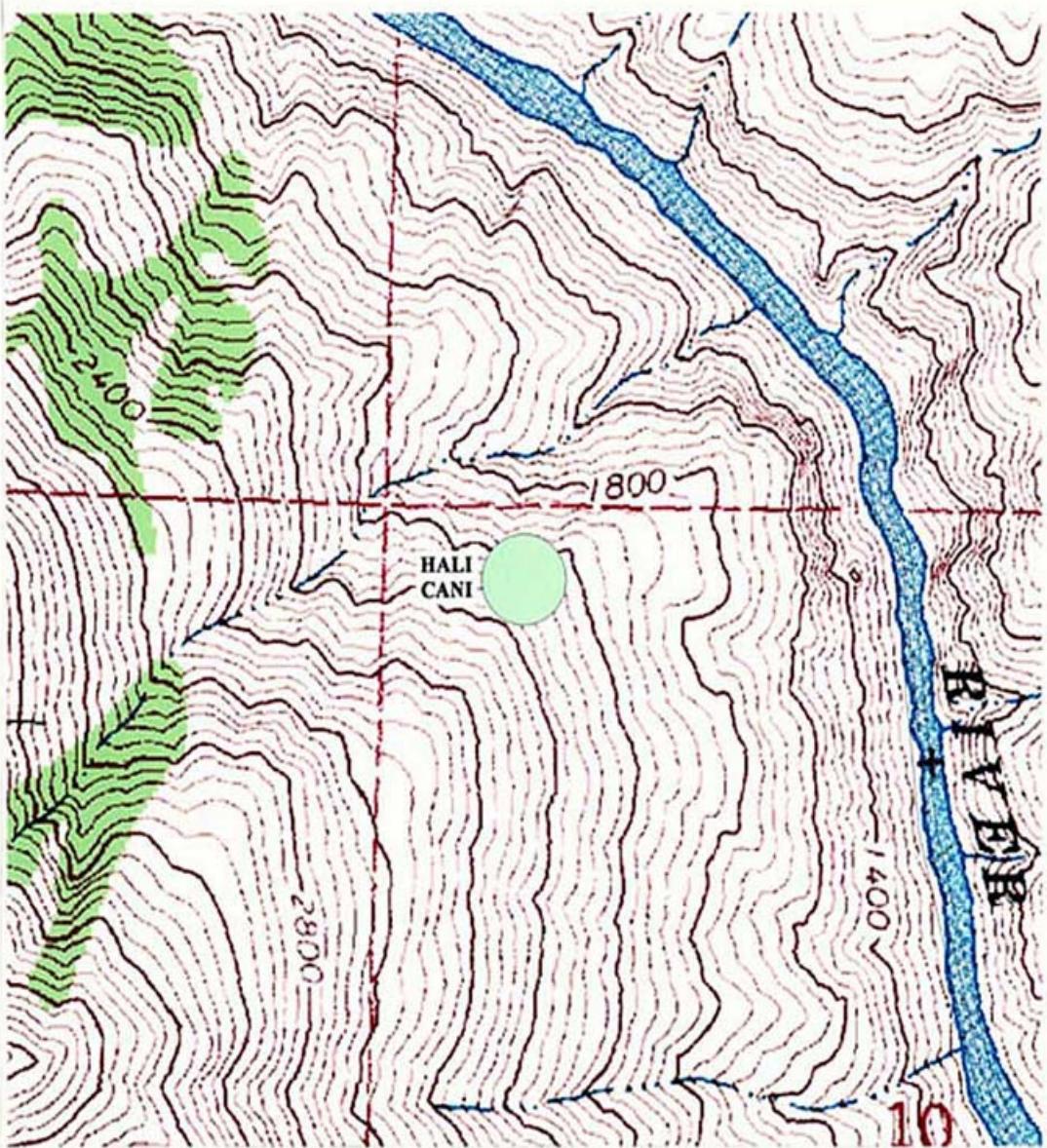
Observation Date: 2005-07-26

Observers Karen Gray, IDCDC

Observation Data: On basalt rocks <1 meter square.

APPENDIX

Map Locations



Haplopappus liatiformis EO 071
Calochortus nitidus EO 159

Northwest of Packers Creek

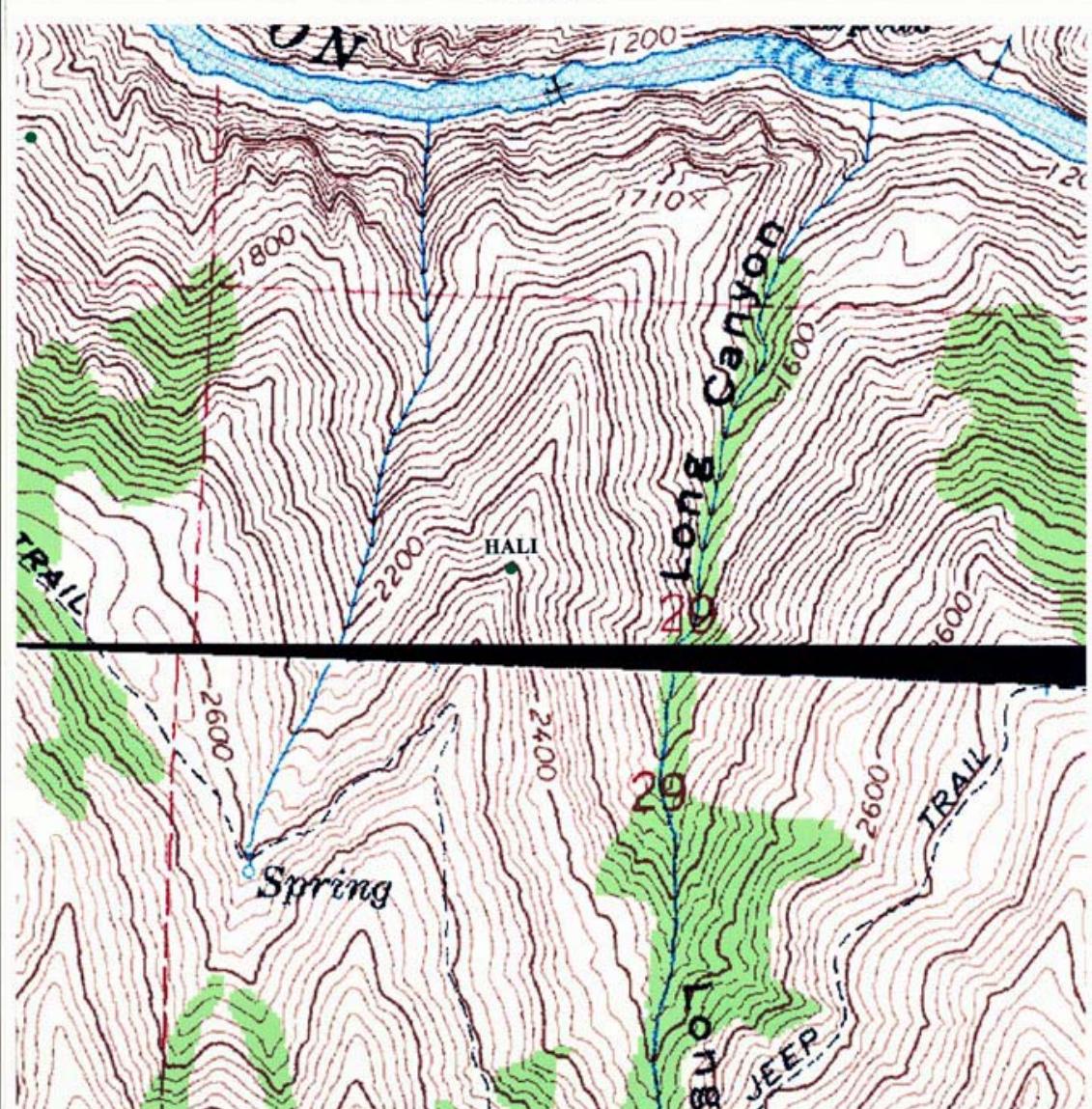
(Portion of the Moughmer Point USGS 7.5' Quad)



Idaho Conservation Data Center

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1-26-2006



Haplopappus liatiformis EO 072
Long Canyon Ridge

(Portions of the Boles and Westlake USGS 7.5' Quads)



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Silene spaldingii EO 014
Cirsium brevifolium EO 045

Salmon River Oxbow

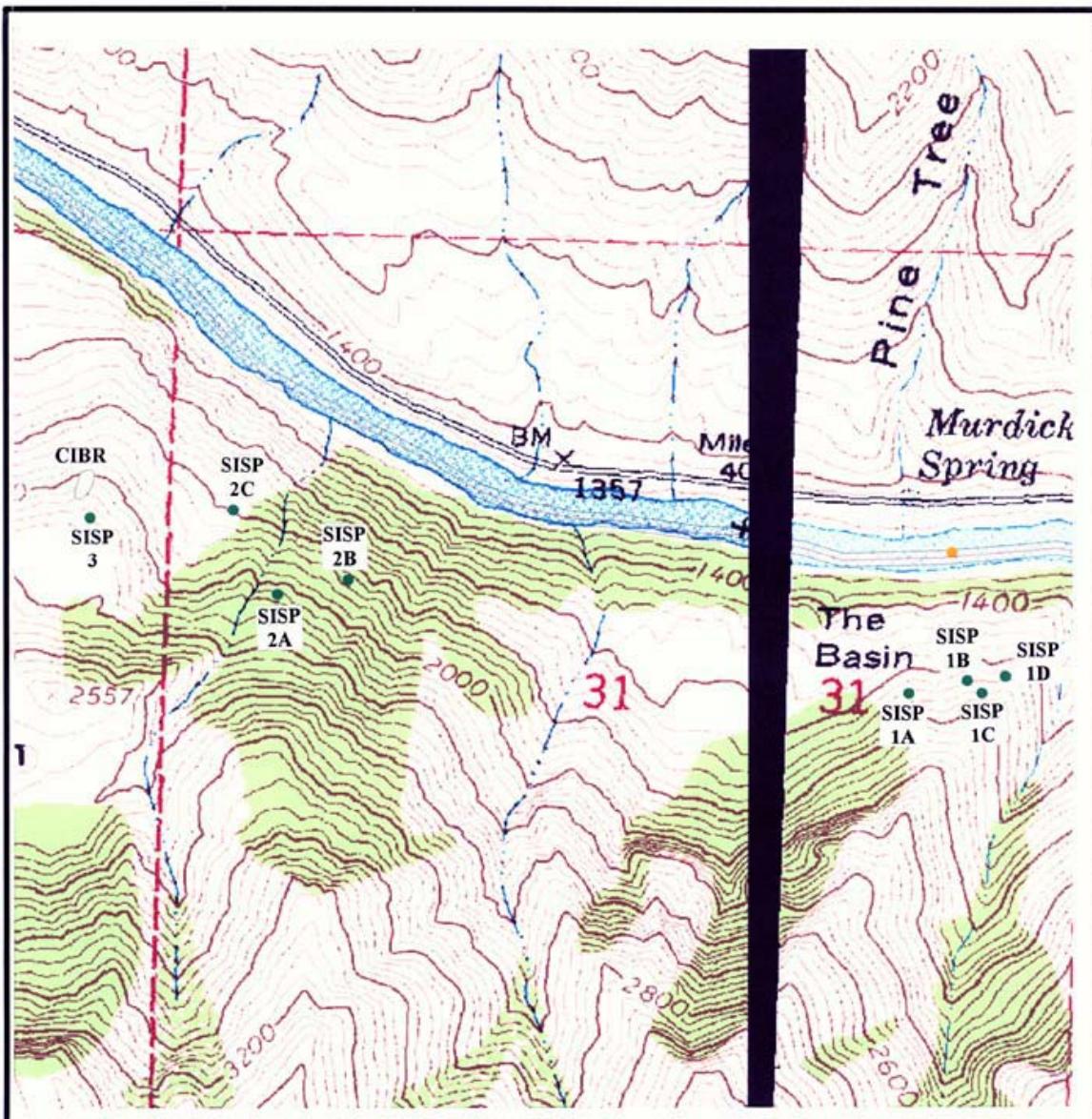
(Portions of the Hoover Point and Westlake USGS 7.5' Quads)



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Silene spaldingii EO 022
Cirsium brevifolium EO 046

Hogback Ridge

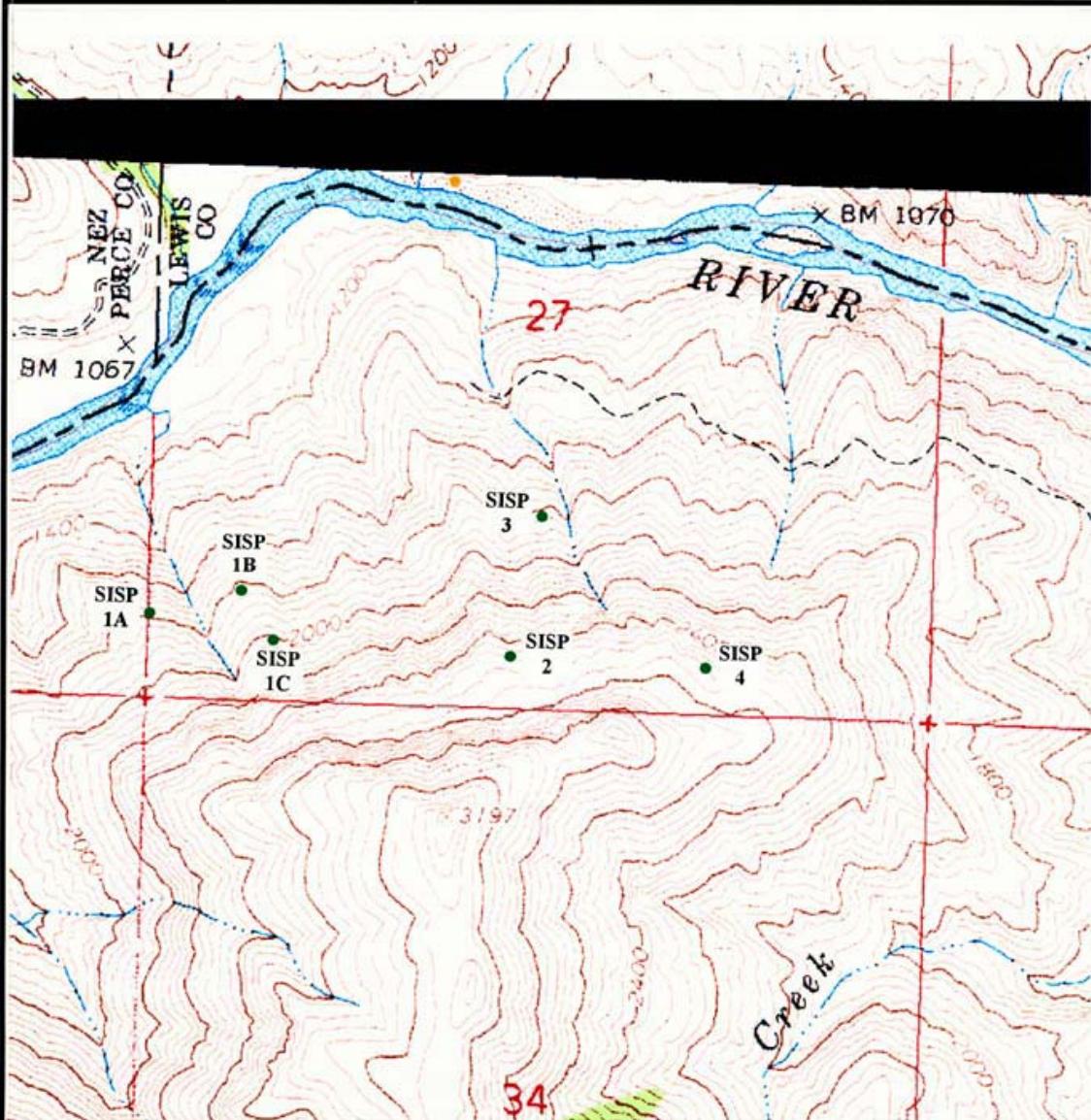
(Portions of the Moughmer Point and Fenn USGS 7.5' Quads)



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1-26-2006



Silene spaldingii
EO 023
Cottonwood Creek

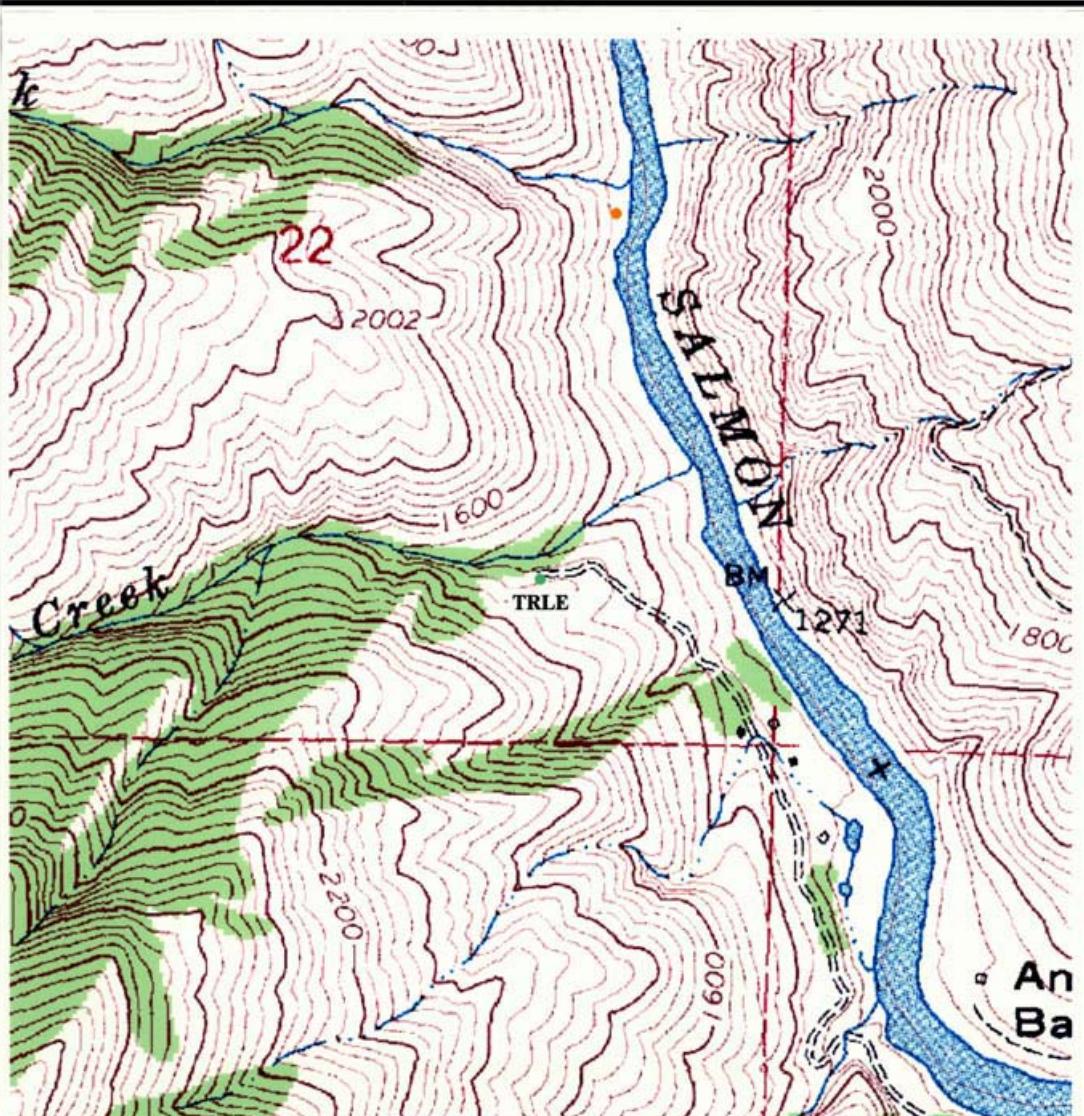
(Portion of the Rattlesnake Ridge USGS 7.5' Quad)



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1-26-2006



Tripterocladium leucocladulum EO 008
First Creek

(Portion of the Moughmer Point USGS 7.5' Quad)



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1-26-2006