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**RARE PLANT FIELD SURVEY ON THE
DUBOIS RANGER DISTRICT,
AND STEWARDSHIP EVALUATION FOR
COPPER MOUNTAIN RESEARCH NATURAL AREA,
CARIBOU-TARGHEE NATIONAL FOREST**

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2004



Caribou-Targhee National Forest
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ABSTRACT

A field investigation for Lost River milkvetch (*Astragalus amnis-amiss*), Lemhi milkvetch (*Astragalus aquilonius*), and Idaho sedge (*Carex idaho*) was conducted on the Dubois Ranger District, by the Idaho Conservation Data Center in 2003, in collaboration with the Caribou-Targhee National Forest (NF). A stewardship evaluation site visit to the Copper Mountain Research Natural Area (RNA) was also conducted. Surveys for Lost River and Lemhi milkvetch in ten drainages in the southern Lemhi and southern Beaverhead mountain ranges found no populations of either species on Caribou-Targhee NF land. The best potential habitat for both species was observed in the upper South Fork Kyle Canyon, but none of the canyons surveyed had extensive exposures of potential habitat. Surveys for Idaho sedge were conducted in 23 drainages in the southern Beaverhead and western Centennial mountains. No new Idaho sedge populations were found during the field investigation. In nearly all survey areas, potential Idaho sedge habitat was spotty, being limited to one or a few, small, scattered patches within a larger wetland zone. A notable exception was at Modoc Creek, which contained a relatively large amount of potential Idaho sedge habitat. The site visit to Copper Mountain found evidence of motorized vehicle use limited to the northern half of the RNA. Evidence of livestock use, timber harvest, mining disturbance, or exotic/invasive plant species was not observed within the RNA. Overall, the Copper Mountain RNA continues to support an alpine ecosystem of high ecological integrity.

ACKNOWLEDGMENTS

Caribou-Targhee National Forest botanist Rose Lehman secured the funding, helped with the planning, and assisted with field work for this project. Her support and good cheer are gratefully acknowledged. Idaho Conservation Data Center botanist Jenae Dixon is gratefully acknowledged for her assistance with the Idaho sedge field survey.

TABLE OF CONTENTS

ABSTRACT i

ACKNOWLEDGMENTS i

TABLE OF CONTENTS ii

LIST OF FIGURES ii

LIST OF TABLES ii

LIST OF APPENDICES iii

INTRODUCTION 1

RARE PLANT SPECIES INFORMATION 2

METHODS 4

RESULTS 5

DISCUSSION AND RECOMMENDATIONS 22

REFERENCES 24

LIST OF FIGURES

Figure 1 Location of the Dubois Ranger District, Caribou-Targhee National Forest in east-central Idaho 2

LIST OF TABLES

Table 1. Lost River milkvetch and Lemhi milkvetch survey areas, 2003 5

Table 2. Idaho sedge survey areas, 2003 10

LIST OF APPENDICES

- Appendix 1. Lost River milkvetch and Lemhi milkvetch survey area maps.
- Appendix 2. Idaho sedge Element Occurrence Records for the Dubois Ranger District.
- Appendix 3. Map locations of Idaho sedge on the Dubois Ranger District.
- Appendix 4. Idaho sedge survey area maps.
- Appendix 5. Drummond's milkvetch Element Occurrence Records for the Dubois Ranger District.
- Appendix 6. Map locations of Drummond's milkvetch on the Dubois Ranger District.
- Appendix 7. Copper Mountain Research Natural Area stewardship evaluation form.
- Appendix 8. Site survey and photo point location maps for the 2003 visit to Copper Mountain Research Natural Area.
- Appendix 9. Copper Mountain Research Natural Area 2003 photo record.

INTRODUCTION

The Caribou-Targhee National Forest's (NF) Dubois Ranger District (RD) is located in Butte, Clark, and Lemhi counties in east-central Idaho (Figure 1). It covers approximately 449,415 ac (150,307 ha) and encompasses portions of the Lemhi, Beaverhead, and Centennial mountain ranges. It is an area with high biodiversity and ecological resource values. Two management tools used by the Forest Service to highlight and protect these values are the Sensitive Species and Research Natural Area programs.

Nearly ten existing and proposed U.S. Forest Service Region 4 sensitive plant species are known or suspected to occur on the Dubois RD (U.S. Forest Service 2003). Three of these species, Lost River milkvetch (*Astragalus amnis-amissi*), Lemhi milkvetch (*Astragalus aquilonius*), and Idaho sedge (*Carex idaho*) were the primary targets of a field investigation conducted by the Idaho Department of Fish and Game's Idaho Conservation Data Center (IDCDC) in 2003. The IDCDC also conducted a site visit to the Copper Mountain Research Natural Area (RNA). Both the sensitive plant survey and RNA field visit projects were done in collaboration with the Caribou-Targhee NF to provide information beneficial to several current projects on the Dubois RD, including Allotment Management Plan Revisions and the Divide Creek Watershed Analysis (Rose Lehman, Caribou-Targhee NF, botanist, pers. comm.).

Lost River milkvetch and Lemhi milkvetch are both endemic to rocky upland habitats in east-central Idaho, and occur along the western base of the southern Lemhi Range on the Salmon-Challis NF, within a few air miles of the adjoining Dubois RD. However, neither Lost River milkvetch nor Lemhi milkvetch has ever been documented to occur on the Caribou-Targhee NF. Idaho sedge is a wetland species on the U.S. Forest Service, Region 1 sensitive plant list for Montana (Steve Shelley, U.S. Forest Service, Region 1 botanist, pers. com.). It has been proposed for addition to the Region 4 list for the Caribou-Targhee NF (Rose Lehman, Caribou-Targhee NF, botanist, pers. comm.). Nearly all known Idaho sedge occurrences in Idaho are located on the Caribou-Targhee NF, on both the Dubois and Soda Springs ranger districts. Additional potential habitat for Idaho sedge is known to occur on the Dubois RD, but has never been inventoried.

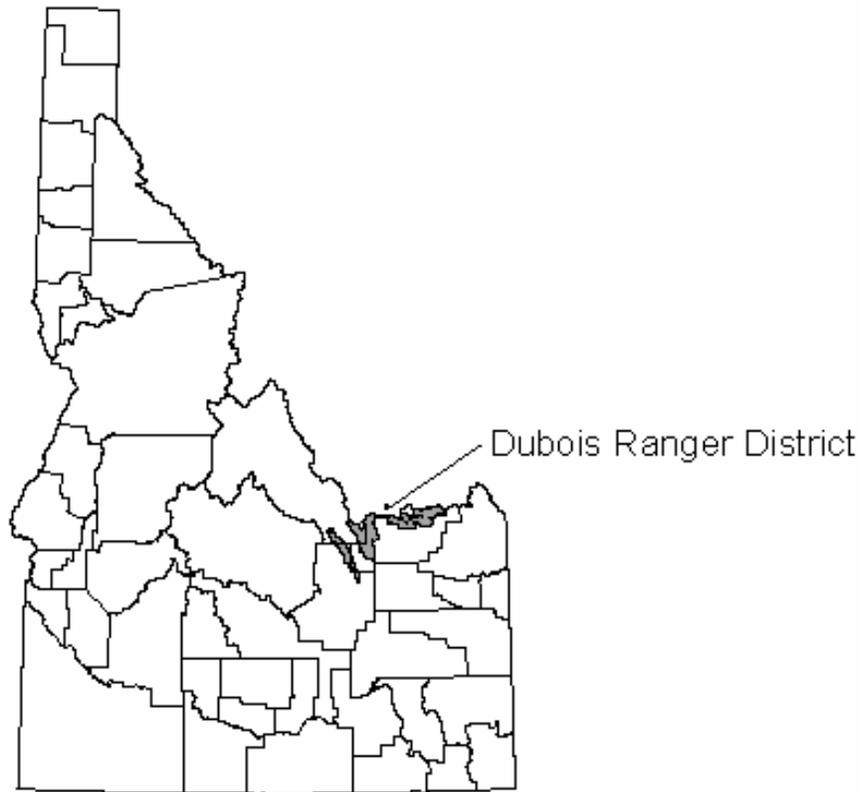
Copper Mountain is one of three RNAs established on the Dubois RD. RNAs are part of a national network of ecological areas designated for research, education, and the maintenance of biological diversity on National Forest System lands (U.S. Department of Agriculture 1994). Periodic field visits to RNAs are important for management purposes to ensure stewardship objectives are being met and incompatible uses not occurring and adversely affecting the values for which the RNA was established.

To provide conservation information needed by resource managers on the Caribou-Targhee NF, Dubois RD, our field investigation had three main objectives:

1. To determine the occurrence and conservation status of Lost River milkvetch and Lemhi milkvetch on lands administered by the Caribou-Targhee NF in the southern Lemhi and southern Beaverhead ranges.
2. To provide a more comprehensive understanding of the distribution, abundance, and conservation status of Idaho sedge on Caribou-Targhee NF lands in the Centennial and southern Beaverhead ranges.

3. To complete a stewardship evaluation for Copper Mountain RNA, including an assessment of current conditions and uses within the RNA; the documentation of existing, potential, or anticipated threats to the integrity of the RNA, and the presence of any unauthorized uses; and the identification of management needs or actions.

Figure 1. Location of the Dubois Ranger District, Caribou-Targhee NF, in east-central Idaho.



RARE PLANT SPECIES INFORMATION

Lost River milkvetch (*Astragalus amnis-amissi*)

Lost River milkvetch is a slender, weakly ascending perennial forb in the legume family. It has relatively dark green, apically notched leaflets; small, white, pea-like flowers; and moderately inflated, greenish or purplish fruit pods. Lost River milkvetch is endemic to east-central Idaho, where it is known from canyons along the east and west slopes of the southern half of the Lost River Range, the lower slopes of Hawley Mountain, and a few canyons at the southern end of the Lemhi Range, in Custer and Butte counties. It is restricted to ledges, crevices, and outcrops on steep limestone cliffs, and talus along cliff bases, often in partial shade. Occurrences range from approximately 5,500 – 8,000 ft (1676 - 2438 m) elevation, although most are between

6,400 – 7,200 ft (1950 - 2195 m). Rangewide, it is known from only 13 occurrences (Idaho Conservation Data Center, 2004). Information about most occurrences is 20 or more years old.

Lost River milkvetch is known from BLM and Salmon-Challis NF land. It has never been documented to occur on the Caribou-Targhee NF. The nearest known occurrences are located in the very southwestern edge of the Lemhi Range, in East Canyon, approximately 1 mile (1.6 km) west, and in an unnamed canyon east-southeast of East Canyon, approximately 1 mile (1.6 km) south of the Caribou-Targhee NF boundary. These two occurrences represent the known eastern distribution range for Lost River milkvetch. Lost River milkvetch is on the U.S. Forest Service Region 4 Sensitive plant species. It is also on the Idaho Bureau of Land Management (BLM) special status plant list.

Lemhi milkvetch (*Astragalus aquilonius*)

Lemhi milkvetch is a perennial forb in the legume family with numerous, decumbent or trailing, often reddish- or purplish-colored stems. It has pea-like, greenish-white flowers and a showy, inflated, membranous, unilocular fruit pod. Lemhi milkvetch is endemic to Lemhi, Custer, and Butte counties in east-central Idaho. Its main distribution centers along the lower slopes of the Salmon River canyon and its tributaries from Clayton, downriver to near Ellis. Populations are also known from scattered locations in the Pahsimeroi, Lost River, and Lemhi river valleys, and the southern end of the Lemhi Range. Lemhi milkvetch is found in dry washes and flats, to more often, steep and unstable slopes in the shrub-steppe zone. Occurrences range from approximately 5,000 – 8,300 ft (1524 m - 8,300 m) elevation, with all but a few below the 7,000 ft (2134 m) contour. Rangewide, it is known from 43 occurrences (Idaho Conservation Data Center, 2004). Information concerning the majority of occurrences is 10 or more years old.

The majority of Lemhi milkvetch occurrences are located on BLM property. A few are known from Salmon-Challis NF, State of Idaho, or private land. The species has never been documented to occur on the Caribou-Targhee NF. The nearest known occurrences are located in the very southwestern edge of the Lemhi Range, in Middle Canyon, approximately 2 miles (3.2 km) west, and in an unnamed canyon east-southeast of East Canyon, approximately 1 mile (1.6 km) south of the Caribou-Targhee NF boundary. Lost River milkvetch is on the U.S. Forest Service Region 4 Sensitive plant species list. It is also on the Idaho BLM special status plant list.

Idaho sedge (*Carex idaho*)

Idaho sedge is a rhizomatous, grass-like perennial producing small clumps of stems up to about 16 inches (40 cm) tall, with flat, narrow leaves clustered near the base. Flowers are arranged in oblong-cylindrical heads, with the uppermost spike larger than the others. Male flowers are absent or scattered among the female flowers on the largest spike. For many years Idaho sedge was thought to be restricted to the high valleys of southwestern Montana and adjacent eastern Idaho. According to a recent treatment (Ball and Reznicek 2002), the range of this species also encompasses disjunct populations in portions of California, Oregon, and Utah. It is apparently uncommon or rare in these other states. Idaho sedge occurs in moist alkaline habitats, commonly in an ecotonal area at the border of wet meadow and sagebrush-steppe vegetation. It is usually found on subirrigated, level, to gently sloping terraces associated with low gradient headwater streams, seeps, and spring systems at elevations between 6,000 – 8,000 f (1829 – 2438 m). Sites are wet early in the growing season, but tend to be only moist later in the summer (Lesica 1998). These meadow habitats usually support a dense turf dominated by graminoid species and have varying forb abundance. Shrubby cinquefoil (*Potentilla fruticosa*) is a commonly associated shrub at Idaho sedge occurrences in eastern Idaho.

Idaho sedge is known from 15 occurrences in Idaho (Idaho Conservation Data Center 2004). The majority are located at least partly on Caribou-Targhee NF land, with six occurrences on the Dubois RD and five occurrences on the Soda Springs RD. Occurrences are also known from State, private, and possibly BLM land. Most occurrences in Idaho are small in size and contain low numbers of plants. Idaho sedge is under consideration for addition to the U.S. Forest Service Region 4 sensitive species list (Rose Lehman, Caribou-Targhee NF, botanist, pers. comm.). It already is on the Idaho BLM special status plant list and the U.S. Forest Service Region 1 sensitive species list for Montana.

METHODS

Sensitive plant survey

Rose Lehman, botanist for the Caribou-Targhee NF, identified Lost River milkvetch, Lemhi milkvetch, and Idaho sedge as the primary target species for our field investigation of rare plants on the Dubois RD. Survey areas for Lost River and Lemhi milkvetch on the Dubois RD were chosen based on: (a) proximity to known occurrences located on nearby Salmon-Challis NF or BLM lands; (b) the distribution of suitable geology and other edaphic features; and (c) elevations within the range of the species' distribution. Our survey area for Idaho sedge on the Dubois RD targeted two main areas: (a) drainages within a few miles east and west of the U.S. Interstate 15 corridor, north of Spencer, Idaho; and (b) northwestern Clark County, mostly in the upper Medicine Lodge drainage.

Before initiating surveys on the Dubois RD, known occurrences of Lost River milkvetch and Lemhi milkvetch on nearby Salmon-Challis NF and BLM land were visited to establish a good search image for the target species and their habitat conditions. We also attempted to visit several known Idaho sedge occurrences on the Dubois RD prior to beginning surveys, again, to help us establish a good search image for this species and its habitat.

Two-track roads provided access into most of the lower canyons surveyed for Lost River and Lemhi milkvetch. We parked near the lower Forest boundary and hiked up canyon to approximately the 7,000 ft (2134 m) contour. Rock outcrops, talus slopes, and other areas of potential rare plant habitat accessible from the canyon bottom were searched. For Idaho sedge, surveys were conducted by walking a meandering transect through each targeted wetland and focusing on areas with hydrologic conditions and plant communities indicative of habitat potentially suitable for this species. Location, abundance, size, habitat, threat, management implication, and other conservation information was collected at all new occurrences discovered during the field investigation. New occurrences were mapped and received GPS coordinates. Updated location, population, habitat, threat, and other conservation information was also collected at previously documented occurrences revisited during our investigation.

In addition to the three primary rare plant target species, we compiled a secondary target list of plant species considered to be of conservation concern by the Caribou-Targhee NF or other regional land management agencies. This secondary list included six taxa: meadow milkvetch (*Astragalus diversifolius*), Drummond's milkvetch (*Astragalus drummondii*), plains milkvetch (*Astragalus gilviflorus*), park milkvetch (*Astragalus leptaleus*), scapose silene (*Silene scaposa* var. *lobata*), and sepal-tooth dodder (*Cuscuta denticulata*). These species were known to occur in or near at least one of our general survey areas, and in the type of habitats we would be searching. We did not conduct directed, systematic surveys for species on the secondary list. Instead, we searched for them opportunistically while surveying for our primary target species.

Copper Mountain RNA

Information to complete a USDA Forest Service – R1/R4 RNA Stewardship Monitoring Data form was collected during a site visit to Copper Mountain RNA. This form documents who, when, and how the RNA was surveyed, as well as information related to conditions, uses, weed invasion, monitoring recommendations, and other management and conservation issues. The site visit was further documented by taking photographs from a series of prominent vantage points scattered throughout and adjacent to the RNA. The location of each photo point was marked on the USGS 7.5' topographic map covering the RNA. The photographs show general landscape conditions and plant community extent and boundaries. Photographs were taken using a SLR camera and 35 mm slide film. Slide images were subsequently digitized and put on a CD for use in this report. The entire north-south extent of the RNA was hiked to obtain the photo point series. The very steep, craggy slopes of upper Skull Canyon were the only portion of the RNA not directly visited. This area supports a mix of forested and non-forested habitats and instead was viewed at a distance from several good vantage points.

RESULTS

LOST RIVER MILKVETCH AND LEMHI MILKVETCH

Surveys for Lost River milkvetch and Lemhi milkvetch were conducted in ten drainages (Table 1), five each in the southern Lemhi and southern Beaverhead mountain ranges, between June 22 and June 27, 2003. Populations were not found on Caribou-Targhee NF land for either species. The best potential habitat for both species was observed in the upper South Fork Kyle Canyon survey area. However, even in this area, habitat is limited in extent. None of the canyons surveyed have extensive exposures of habitat potentially suitable for Lost River or Lemhi milkvetch. Potential habitat in most drainages is limited to a few small, scattered patches, usually <100 feet (30 m) in length in any one dimension. In nearly all cases, these habitat patches contain a combination of substrate, topographic, or other environmental features assessed to be only marginally suitable for Lost River or Lemhi milkvetch. A few drainages had no potential habitat for either species. Maps showing the areas surveyed are in Appendix 1. A total of approximately 17.4 miles (28 km) were surveyed for Lost River and Lemhi milkvetch.

Table 1. Lost River milkvetch and Lemhi milkvetch survey areas, 2003

Name of drainage	USGS topo. map	Legal description	Survey length (miles)
Southern Lemhi Range			
South Fork Kyle Canyon	Tyler Peak	T7N R30E S 29, 30, 32	6
Cedar Canyon	Tyler Peak	T7N R30E S 16, 17	1.6
Deer Canyon	Tyler Peak	T7N R30E S 7, 8	1.6
Bartel Canyon	Tyler Peak	T7N R30E S 5, 6	1.8
Tyler Canyon	Tyler Peak	T8N R30E S 29, 30	1.3
Southern Beaverhead Range			
Deadman Canyon	Scott Butte	T9N R31E S 14	1.0
Bloom Canyon	Scott Butte	T9N R31E S 11, 15	1.7
Spring Canyon	Scott Butte	T9N R31E S10, 15	1.0
Bare Canyon	Copper Mtn.	T9N R30E S 1, 12	0.6
East Fork Long Canyon	Copper Mtn.	T10N R30E S 35, 36	0.8

The following section provides a general description of the vegetation for each of the areas surveyed. It also contains an assessment of potential Lost River and Lemhi milkvetch habitat, and an assessment of risks to the habitat and any associated management implications.

Southern Lemhi Range

Upper South Fork Kyle Canyon - Vegetation within the survey area is characterized by open slopes and ridges of shrub-steppe dominated by mountain big sagebrush (*Artemisia tridentata* ssp. *vaseyana*) or low sagebrush (*Artemisia arbuscula*). A few stands and stringers of Utah juniper (*Juniperus osteosperma*) occur on southern aspects, while Douglas-fir (*Pseudotsuga menziesii*) forests occur at elevations above approximately 7,400 ft (2260 m).

Rare plant habitat: Marginal Lost River milkvetch habitat is limited to a few small, sheltered, calcareous cliff walls and associated talus piles near the 6,800 ft (2073 m) contour in T7N R30E Sec 32 SW4. More extensive areas of potential habitat occur south of the Caribou-Targhee NF boundary, on BLM property in T6N R30E Sec 5 and 6. Habitat marginally suitable for Lemhi milkvetch is limited to a few small, exposed talus slopes also located in Sec 32 SW4, and dry, rocky openings on south-facing slopes above the South Fork Kyle Canyon drainage bottom. No rare plant habitat was observed on the open, sagebrush covered, east-facing flank of the Lemhi Range between the South and Middle forks of Kyle Canyon. I assess the probability to be very low that either rare milkvetch species occurs on Caribou-Targhee NF land in the Kyle Canyon area.

Habitat risks: The survey area is dominated by intact, unfragmented native plant communities. I observed evidence of light livestock use, as well as some ORV travel in the steep, gravelly, dry wash bottoms in Sec 32 SW4. Livestock grazing impacts are more noticeable on BLM land in Kyle Canyon. The few small areas with potential rare milkvetch habitat are largely undisturbed and do not appear to be at direct risk from current levels and patterns of human-related activities. Kyle Canyon has the potential to be a conduit for weed invasion into the general area and periodic surveys to detect and control weeds are possible management issues.

Cedar Canyon - Vegetation in the survey area is dominated by mountain sagebrush on northerly aspects, and Utah juniper-mountain mahogany (*Cercocarpus ledifolius*) communities on southeasterly slopes.

Rare plant habitat: A few small, scattered calcareous rock outcrops and talus aprons occur in the area. At best, they provide marginal habitat for Lost River or Lemhi milkvetch. I assess a near zero probability that either Lost River or Lemhi milkvetch occurs on Caribou-Targhee NF land in Cedar Canyon.

Habitat risks: The Cedar Canyon area is largely undisturbed except for a two-track access road. Current levels and patterns of human-related activities do not pose a risk to any potential rare plant habitat in the area.

Deer Canyon - Mountain sagebrush and grassland vegetation dominate the lower canyon reach. Further up canyon, mountain mahogany woodlands occur on southerly aspects and Douglas-fir stands on northerly aspects.

Rare plant habitat: No potential habitat for Lost River or Lemhi milkvetch was observed in lower Deer Canyon. I assess a zero probability that either species occurs on Caribou-Targhee NF land in Deer Canyon.

Habitat risks: The Deer Canyon area is largely undisturbed except for a two-track access road. Current levels and patterns of human-related activities do not pose a risk to any potential rare plant habitat in the area.

Bartel Canyon – Mountain sagebrush communities cover the open slopes in the lower canyon. Further up canyon, mountain mahogany dominates the southerly and Douglas-fir the northerly-facing slopes.

Rare plant habitat: One localized, sheltered calcareous rock outcrop and a few small talus openings provide very limited and marginal habitat for Lost River or Lemhi milkvetch. I assess a near zero probability that either Lost River or Lemhi milkvetch occur on Caribou-Targhee NF land in Bartel Canyon.

Habitat risks: The Bartel Canyon area is largely undisturbed except for a two-track access road. Current levels and patterns of human-related activities do not pose a risk to any potential rare plant habitat in the area.

Tyler Canyon - Mountain big sagebrush and basin big sagebrush (*Artemisia tridentata* ssp. *tridentata*) communities dominate the lower slopes and bottoms of the lower canyon area. Impressive stands of mountain mahogany occur on southerly slopes, while Douglas-fir forests cover northerly aspects and higher elevation canyon slopes.

Rare plant habitat: No potential habitat for Lost River or Lemhi milkvetch was observed along the survey route. Good views revealed potential habitat did not exist further up the canyon either, an area not directly searched. I assess a zero probability that either Lost River or Lemhi milkvetch occur on Caribou-Targhee NF land in Tyler Canyon.

Habitat risks: The Tyler Canyon area is largely undisturbed except for a two-track access road. Current levels and patterns of human-related activities do not pose a risk to any potential rare plant habitat in the area.

Southern Beaverhead Range area

East Fork Long Canyon - The survey area is dominated by Douglas-fir woodland or forest vegetation except for some sagebrush-steppe on southerly aspects near the lower Forest boundary.

Rare plant habitat: Massive calcareous cliffs and smaller pointed rock fins and other outcrops dominate much of the canyon. Associated talus fields are widespread. Some talus areas provide patches of marginal potential habitat for Lemhi milkvetch. Sheltered, north- and east-facing rock walls and their associated talus bases provide habitat possibly suitable for Lost River milkvetch in several places. I assess the probability to be near zero for Lemhi milkvetch and very low for Lost River milkvetch to occur on Caribou-Targhee NF land in the East Fork Long Canyon.

Habitat risks: Long Canyon has a history of mining activity, although no mining disturbances were evident along the survey route. Cattle grazing is concentrated in canyon bottom and lower slopes positions. A jeep trail also occurs along the drainage bottom. Current levels and patterns of human-related activities do not pose a risk to potential rare plant habitat in the area.

Bare Canyon - A high quality black sagebrush (*Artemisia nova*)/bluebunch wheatgrass (*Pseudoroegneria spicata*) community occupies the southerly-facing slopes near the lower Caribou-Targhee NF boundary. Douglas-fir forest and woodlands occupy northerly aspects at lower canyon elevations and all aspects further up canyon. Stands of mountain mahogany also occur in the area.

Rare plant habitat: A few of the talus slopes and rocky openings provide small patches of marginal Lemhi milkvetch habitat. Extensive, imposing cliff walls dominated by southerly exposures begin near the 7,000 ft (2134 m) contour, but the mostly barren, sheer faces appear unsuitable for Lost River milkvetch. I assess a very low probability that either Lost River or Lemhi milkvetch occur on Caribou-Targhee NF land in Bare Canyon.

Habitat risks: A few mining claim markers are posted in the lower canyon. Cattle grazing occurs in the area but is largely confined to canyon bottoms and lower slope positions. A recent wildfire burned large portions of the young Douglas-fir forest and mountain mahogany woodland in T9N R31E Sec 12 NW4. Prickly lettuce (*Lactuca serriola*), a weedy forb, was distinctly more abundant in the burned Douglas-fir zone compared to the burned mountain mahogany zone. In addition, native bunchgrass cover was substantially higher in the burned mountain mahogany understory relative to the burned Douglas-fir slope. Current levels and patterns of human-related activities do not pose a risk to potential rare plant habitat in the area.

Spring Canyon - Vegetation in the survey area is a mix of grassland, sagebrush-steppe, and small to large patches of mountain mahogany.

Rare plant habitat: Large to small talus slopes are scattered throughout the survey area. A few provide marginal potential habitat for Lemhi milkvetch. One relatively large, northerly-facing cliff face and associated talus upper slope occurring below Point 7413 (on USGS quadrangle) provides pockets of habitat potentially suitable for Lost River milkvetch. None of the many other rock outcrops above the canyon floor appeared to be suitable rare plant habitat. I assess a very low probability that either Lost River or Lemhi milkvetch occur on Caribou-Targhee NF land in Spring Canyon.

Habitat risks: The Spring Canyon area is largely undisturbed except for a jeep trail and livestock grazing. Current levels and patterns of human-related activities do not pose a risk to potential rare plant habitat in the area.

Bloom Canyon - Vegetation in the survey area is a mix of grassland and sagebrush-steppe plant communities.

Rare plant habitat: A few small, scattered north-facing calcareous rock outcrops and southerly-facing talus patches occur in the survey area. At best, they provide a limited amount of marginal rare plant habitat. I assess a near zero probability that either Lost River or Lemhi milkvetch occurs on Caribou-Targhee NF land in Bloom Canyon.

Habitat risks: The Bloom Canyon area is largely undisturbed except for a jeep trail and livestock grazing. Current levels and patterns of human-related activities do not pose a risk to potential rare plant habitat in the area.

Deadman Canyon - Vegetation in the survey area is a mix of grassland, sagebrush-steppe, and mountain mahogany plant communities.

Rare plant habitat: A few small rock outcrops and cliff bands occur in the survey area. None of them appeared suitable for Lost River milkvetch. I assess a near zero probability that either Lost River or Lemhi milkvetch occurs on Caribou-Targhee NF land in Bloom Canyon.

Habitat risks: The majority of Deadman Canyon is largely undisturbed except for a jeep trail. Past mining activity and exploration has occurred in portions of the canyon. Current levels and patterns of human-related activities do not pose a risk to potential rare plant habitat in the area. Impacts to the vegetation and potential rare plant habitat could occur if mining activity resumes and expands in the area.

IDAHO SEDGE

Surveys for Idaho sedge were conducted in 23 drainages (Table 2) in the southern Beaverhead and western Centennial mountains between August 1 - 6, 2003. Roughly half of the areas we surveyed were located in the eastern portion of the Dubois RD, within a few miles east and west of the U.S. Interstate 15 corridor. The other survey areas were located in the western section of the Dubois RD, in northwestern Clark County. No new populations of Idaho sedge were found during our field investigation. In addition, no Idaho sedge was observed during revisits to four previously documented occurrences on the Dubois RD, nor at one known occurrence near Monida Pass in adjacent Montana. IDCDC database records for all Idaho sedge occurrences located on the Dubois RD, are in Appendix 2. Mapped locations for these occurrences are in Appendix 3.

Cattle grazing had already taken place at all of the previously documented occurrences we visited in the eastern portion of the Dubois RD. The herbaceous vegetation was grazed to near ground level at each of the three occurrences and made searching for Idaho sedge problematic. The Monida Pass population in Montana was not grazed, but we were still unable to find any Idaho sedge. This raises the question of whether or not 2003 was a favorable year to conduct surveys for Idaho sedge. It is impossible to find and distinguish Idaho sedge without flowering heads. In 2003, reproductive Idaho sedge ramets were prevalent at several Montana occurrences visited by Peter Lesica (pers. comm.), a person with extensive experience with this species. It is not known if moisture conditions or other environmental factors were sufficiently different to result in little or no Idaho sedge reproduction further south on the Dubois RD. Conditions appeared drier during the time of our survey compared to the late 1990s when many of the occurrences were first documented (Rose Lehman, Caribou-Targhee NF, botanist, pers. comm.).

Most of the areas we surveyed on the Dubois RD contained at least some suitable-looking Idaho sedge habitat. However, in nearly all of our survey areas, potential Idaho sedge habitat was spotty, being limited to one or a few, small, scattered strips or patches within a larger wetland zone. A notable exception was the Modoc Creek drainage, which contained a relatively large amount of potential Idaho sedge habitat. Maps showing the areas surveyed for Idaho sedge are in Appendix 4. A total of approximately 18.4 miles (30 km) were surveyed.

Table 2. Idaho sedge survey areas, 2003

Name of drainage	USGS topo map	Legal description	Survey length (miles)
Dubois Ranger District – eastern section			
Pete Creek	Lookout Point	T14N R37E S35	0.2
Pass Creek Spring	Lookout Point	T13N R37E S4	0.3
Meadow Creek	Spencer North	T13N R36E S12	0.5
Owens Creek	Spencer North	T13N R36E S14, 23	0.6
Left Fork Creek	Spencer North	T13N R36E S25	0.5
Calf Creek	Spencer North	T13N R37E S30	0.3
Dairy Creek	Spencer North	T13N R36E S14, 31	0.1
Stoddard Creek	Spencer North	T13N R36E S27, 28	0.7
Pleasant Valley Creek	Paul Reservoir	T13N R35E S25	0.2
School Section Creek	Spencer North	T13N R36E S8	0.5
Modoc Creek	Paul Reservoir	T13N R35E S4, 9	0.9
Modoc Creek Spring #1	Paul Reservoir	T13N R35E S4	>0.1
Modoc Creek Spring #2	Paul Reservoir	T13N R35E S4	>0.1
Modoc Creek Spring #3	Paul Reservoir	T13N R35E S4	>0.1
Horse Creek	Paul Reservoir	T13N R35E S4	0.6
Dubois Ranger District – western section			
Divide Creek	Deadman Lake Fritz Peak	T13N R31 E S11, 12, 14, 15 and R32E S16, 17	3.2
Horse Creek	Deadman Lake Fritz Peak	T13N R32E S18	0.4
Horse Creek Spring	Deadman Lake	T13N R31E S13	0.6
N.F. Fritz Creek Spring	Fritz Peak	T13N R32E S30	0.2
Fritz Peak Spring	Fritz Peak	T13N R32E S31	0.1
N.F. Fritz Creek	Deadman Lake	T13N R31E S36 T13N R32E S31	0.5
S.F. Fritz Creek	Fritz Peak	T13N R32E S31, 32	0.8
Buckboard Gulch	Fritz Peak	T12N R32E S5	<0.1
Webber Creek	Heart Mountain Scott Peak	T12N R32E S15 - 19	3.5
Deep Creek Spring #1	Heart Mountain	T12N R32E S35	<0.1
Deep Creek Spring #2	Heart Mountain	T12N R32E S35	<0.1
Deep Creek Spring #3	Heart Mountain	T11N R32E S1	<0.1
S.F. Deep Creek Spring	Heart Mountain	T11N R32E S12	<0.1
Antelope Lakes	Heart Mountain	T11N R32E S13	0.9
Myers Creek	Heart Mountain	T11N R32E S16, 28, 29	1.5
Crooked Creek	Heart Mountain Scott Peak	T11N R32E S20 T11N R31E S12	1.1

The following section provides a general description of the vegetation for each of the areas surveyed. It also contains an assessment of potential Lost River and Lemhi milkvetch habitat, and an assessment of risks to the habitat and any associated management implications.

Dubois Ranger District – eastern section

Pete Creek - This survey area is located within an enclosure that has been breached by cattle. A willow (*Salix* spp.)/mesic graminoid community dominates the wetland. Throughout the study area, the mesic graminoid community type refers to a variable mix of two or more of the following species - Baltic rush (*Juncus balticus*), other rush species (*Juncus* spp.), Nebraska sedge (*Carex nebrascensis*), clustered field sedge (*Carex praegracilis*), beaked sedge (*Carex utriculata*), other sedge species (*Carex* spp.), reedtop (*Agrostis stolonifera*), Kentucky bluegrass (*Poa pratensis*), tufted hairgrass (*Deschampsia cespitosa*), and other less prevalent graminoid species.

Rare plant habitat: A few patches of ecotonal wetland habitat provide a small amount of potential Idaho sedge habitat. Looking for Idaho sedge was problematic because portions of the enclosure were already grazed to near ground level by cattle. I assess a near zero probability that Idaho sedge occurs on Caribou-Targhee NF land in Pete Creek.

Habitat risks: Livestock use is the main disturbance and risk to the ecological integrity of potential Idaho sedge habitat in the area. Fixing and maintaining the wetland enclosure fence would reduce livestock impacts to the riparian habitat.

Pass Creek Spring - The survey area contains a mesic graminoid community dominated by Nebraska sedge with intermixed willow patches.

Rare plant habitat: A small amount of potential Idaho sedge habitat occurs in ecotonal areas between wet Nebraska sedge and drier upland vegetation. Additional patches of potential Idaho sedge habitat may occur downstream of the survey area, but the presence of cattle prevented us from surveying the area. I assess a very low probability that Idaho sedge occurs at Pass Creek Spring due to the limited amount of potential habitat and intensive livestock use.

Habitat risks: Livestock grazing is the main disturbance factor in the Pass Creek Spring area. Cattle had already grazed the herbaceous vegetation down to near ground level by the time of our survey. This made looking for Idaho sedge problematic.

Meadow Creek - The survey area overlaps a portion of the known Idaho sedge occurrence at Meadow Creek (EO 3). The gently sloping, subirrigated bottomland on either side of the creek contains a shrubby cinquefoil and willow mix wetland swath having a mesic graminoid-dominated herbaceous layer.

Rare plant habitat: Patches and strips of mesic ecotone habitat suitable for Idaho sedge occur in this known occurrence area.

Habitat risks: Periodic, intensive cattle grazing takes place in the Meadow Creek area. The long-term effects of this disturbance on Idaho sedge are not known. Most of the herbaceous vegetation was already grazed to nubs at the time of our survey. No Idaho sedge was found at the site in 2003. Water was not present in the creek channel and overall the site seemed drier compared to the late 1990s when Idaho sedge was first discovered in the Meadow Creek area (Rose Lehman, Caribou-Targhee NF, botanist, pers. comm.).

Owens Creek - The survey area overlaps a portion of the known Idaho sedge occurrence at Owens Creek-Cobble Creek (EO 4). The linear, gently sloping riparian strip associated with

Owens Creek supports a shrubby cinquefoil/Baltic rush and willow/mesic graminoid mix. The riparian habitat transitions to sagebrush-steppe vegetation a short distance from the channel.

Rare plant habitat: Scattered patches or strips of mesic ecotone habitat suitable for Idaho sedge occur in this known occurrence area.

Habitat risks: Periodic, intensive cattle grazing takes place in the Owens Creek area. The long-term effects of this disturbance on Idaho sedge are not known. By the time we conducted our survey, the herbaceous vegetation was already grazed to nubs. No Idaho sedge was found at the site in 2003. Water was not present in the creek channel and overall the site seemed drier compared to the late 1990s when Idaho sedge was first discovered in the Owens Creek area (Rose Lehman, Caribou-Targhee NF, botanist, pers. comm.).

Left Fork Creek - This survey area is characterized by two small spring-fed areas with a Nebraska sedge community and a narrow transition zones to drier threetip sagebrush (*Artemisia tripartita*), mountain big sagebrush, or aspen (*Populus tremuloides*) vegetation. An Idaho sedge occurrence at Telephone Draw (010) is located <0.5 mile (<0.8 km) north of the survey area.

Rare plant habitat: A limited amount of potential Idaho sedge habitat occurs at the western end survey of the area, but not in the eastern portion. I assess a very low probability that Idaho sedge occurs on Caribou-Targhee NF land in Left Fork Creek.

Habitat risks: Livestock grazing is the main disturbance factor along Left Fork Creek. Cattle had already grazed the herbaceous vegetation at this wetland to near ground level by the time of our survey. This made looking for Idaho sedge problematic. A corral is present at the eastern survey site and the nearby ground surface heavily disturbed.

Calf Creek - Vegetation in the survey area is comprised of a willow/mesic graminoid community. The graminoid understory is dominated by Nebraska sedge in wet and Kentucky bluegrass in dry segments. Scattered aspen trees and dry upland vegetation inclusions also occur. A mosaic of sagebrush-steppe, conifer forest, and aspen dominate the surrounding landscape.

Rare plant habitat: The majority of the ground is either too wet or too dry to be considered good potential habitat for Idaho sedge. Possible Idaho sedge habitat is confined to a few small strands and I assess a near zero probability that Idaho sedge occurs on Caribou-Targhee NF land in Calf Creek.

Habitat risks: Livestock grazing is the main disturbance factor along Calf Creek. Cattle were in the general area at the time of our survey and had already grazed much of the riparian herbaceous vegetation to near ground level.

Dairy Creek - The wetland vegetation at this site is dominated by a willow/mesic graminoid thicket, with a small shrubby cinquefoil/mesic graminoid opening located just east of an old structure. Sagebrush-steppe, conifer forest, and aspen patches dominate the surrounding landscape.

Rare plant habitat: The shrubby cinquefoil/mesic graminoid opening provides approximately 0.2 ac (0.08 ha) of potential Idaho sedge habitat. The adjacent willow thicket does not appear to be suitable Idaho sedge habitat. I assess a very low probability that Idaho sedge occurs on Caribou-Targhee NF land in Dairy Creek.

Habitat risks: Livestock grazing is the main disturbance factor along Dairy Creek. Cattle were present in the area at the time of our survey and much of the small meadow opening was already grazed to near ground level. This made looking for Idaho sedge problematic.

Stoddard Creek - In the survey area, Stoddard Creek supports a narrow riparian strip bound by either sagebrush-steppe or conifer forest vegetation. The riparian band contains willows with a Kentucky bluegrass-dominated mesic graminoid understory. Aspen and conifers become intermixed further upstream.

Rare plant habitat: Habitat suitable for Idaho sedge is absent from the survey area.

Habitat risks: Canada thistle (*Cirsium arvense*) is abundant along the riparian strip. Cattle use of the riparian habitat is also evident.

Pleasant Valley Creek - Pleasant Valley Creek supports an extensive valley bottom wetland complex, with sagebrush and conifer vegetation dominating the surrounding uplands. The section we surveyed contained a willow/mesic graminoid community. Areas further downstream on Caribou-Targhee NF land were not surveyed due to the presence of cattle.

Rare plant habitat: Only a small portion of the extensive Pleasant Valley Creek bottomland was surveyed. The area we searched contained only minor amounts of ecotonal habitat that may be suitable for Idaho sedge. It is unclear if unsurveyed segments of the creek bottom contain additional potential Idaho sedge habitat. I assess a low probability that Idaho sedge occurs on Caribou-Targhee NF land in Pleasant Valley Creek.

Habitat risks: Cattle grazing occurs within the wetland complex on Forest Service land and appears to be intensive in places.

School Section Creek - The survey area overlaps the known Idaho sedge occurrence at School Section Creek (EO 6). Vegetation in the occurrence area is mosaic of shrubby cinquefoil/Kentucky bluegrass, Booth's willow (*Salix boothii*)/mesic graminoid, Baltic rush, and Nebraska sedge community types along a small, low gradient stream. The riparian habitat transitions to sagebrush-steppe vegetation over a short distance.

Rare plant habitat: Scattered strips of Idaho sedge habitat occur in this known occurrence area.

Habitat risks: Livestock grazing is the main disturbance factor along School Section Creek. Cattle were present in the area at the time of our survey and much of the herbaceous riparian vegetation was already grazed to near ground level. This made searching for Idaho sedge problematic. We were unable to find Idaho sedge during our revisit to this known occurrence site in 2003.

Modoc Creek - The survey area is a wetland complex dominated by a willow/mesic graminoid community type. Shrubby cinquefoil is scattered throughout the bottoms. Beaked sedge inclusions also occur. Sagebrush-steppe vegetation occurs along the margins in adjacent upland positions.

Rare plant habitat: Suitable-looking Idaho sedge habitat is scattered throughout this survey area. Openings of shrubby cinquefoil intermixed with mesic graminoids appear to represent the best potential Idaho sedge habitat within the wetland mosaic. The Modoc Creek drainage has

the best and largest amount of potential Idaho sedge habitat encountered during our field investigation. Although no Idaho sedge was found in 2003, Modoc Creek it is worthy of a revisit and further scrutiny in the future.

Habitat risks: Livestock grazing is the main disturbance factor along Modoc Creek, although our 2003 survey took place prior to the release of cattle into the area. A road runs alongside the creek in places and may have localized impacts on the hydrology.

Modoc Creek Spring #1 - The survey area is a small, hummocky, spring wetland approximately 0.25 ac (0.1 ha) in size. It supports a shrubby cinquefoil/mesic graminoid community type. Mountain big sagebrush/Idaho fescue (*Festuca idahoensis*) vegetation surrounds the wetland.

Rare plant habitat: The wetland contains suitable-looking habitat, although no Idaho sedge was found in 2003. The site is worthy of a future visit to confirm the absence of Idaho sedge.

Habitat risks: Cattle grazing is the main disturbance at this small wetland. Deepening the hummocky microtopography may be one impact related to cattle trampling.

Modoc Creek Spring #2 - The survey area is a small spring wetland <0.2 ac (<0.08 ha) in size. The majority of it is dominated by Baltic rush along with other mesic graminoid species and a relatively diverse forb component. A small portion contains a shrubby cinquefoil/mesic graminoid community type. Mountain big sagebrush/Idaho fescue vegetation surrounds the wetland zone.

Rare plant habitat: The wetland contains suitable-looking habitat, although no Idaho sedge was found in 2003. The site is worthy of a future visit to confirm the absence of Idaho sedge.

Habitat risks: Cattle grazing is the main disturbance at this small wetland. The presence of a few exotic species such as timothy (*Phleum pratense*) and Canada thistle indicate plant composition has been altered to some degree at the spring.

Modoc Creek Spring #3 - The survey area is a small, hummocky, spring wetland <0.2 ac (<0.08 ha) in size. It supports a Booth's willow - shrubby cinquefoil/mesic graminoid community type. Mountain big sagebrush/Idaho fescue vegetation surrounds the wetland zone.

Rare plant habitat: The wetland contains suitable-looking habitat, although no Idaho sedge was found in 2003. The site is worthy of a future visit to confirm the absence of Idaho sedge.

Habitat risks: Cattle grazing is the main disturbance at this small wetland, but impacts to the hummocked microtopography appear to be less than at the Modoc Creek Spring #1 site.

Horse Creek – The survey area is a narrow riparian mesic graminoid greenline intermixed with patches or bands of Booth's willow and Geyer's willow (*Salix geyeriana*), or shrubby cinquefoil. Mountain big sagebrush vegetation dominates the surrounding uplands.

Rare plant habitat: The most downstream (and largest) of the shrubby cinquefoil/mesic graminoid patches looks like good potential habitat for Idaho sedge and is worthy of a future visit to again look for this species. Several other riparian patches further upstream provide no more than marginal potential habitat.

Habitat risks: Cattle grazing is the main disturbance at Horse Creek. The riparian strip supports high cover of several “increaser” forb species indicative of many years of livestock grazing pressure. Livestock-related impacts may pose a risk to the integrity of potential Idaho sedge habitat in the area. A minor two-track jeep trail parallels the creek, but appears to receive little use.

Dubois Ranger District – western section

Divide Creek 1 – This section of Divide Creek is a low gradient, narrow bottomland cutting between steeply rising upland slopes. The bottoms support a more or less continuous band of willow (primarily Booth’s willow) varying from one or two, to about ten shrubs wide. Nebraska sedge and beaked sedge dominate the understory in the wettest zones, while smooth brome (*Bromus inermis*), timothy, Kentucky bluegrass, foxtail barley (*Hordeum jubatum*), and Baltic rush comprise the graminoid layer in drier places. A series of “increaser” species such as Canada thistle, sticky geranium (*Geranium viscosissimum*), and western iris are the most widespread forbs. Beaver activity is evident in several places.

Rare plant habitat: No suitable Idaho sedge habitat occurs along this stretch of Divide Creek.

Habitat risks: Livestock grazing is the main disturbance along this stretch of Divide Creek. The riparian strip supports high cover of several “increaser” forb species indicative of many years of livestock grazing pressure. Pasture grasses have also become well established along the riparian corridor.

Divide Creek 2 – This survey area is comprised of a series of narrow, sloping, spring channels dissecting the surrounding upland vegetation. The wettest swaths with trickling water are dominated by Nebraska sedge. Timothy is abundant adjacent to the wet center lines, along with Baltic rush, Kentucky bluegrass, and several forb species. A few small patches or scattered individuals of Booth’s and Geyer’s willow occur along the spring routes. Smooth brome is common around the spring complex close to the Divide Creek bottoms.

Rare plant habitat: Potential habitat for Idaho sedge within the spring complex is very limited. I assess a very low probability that Idaho sedge occurs in the area.

Habitat risks: Wetland habitat in the spring complex area is vulnerable to disturbances associated with livestock grazing. Introduced pasture grasses have spread into the spring zones from the nearby Divide Creek bottoms.

Divide Creek 3 – This survey area is located approximately 0.5 mile (0.8 km) upstream from Cow Camp. It contains a swath of shrubby cinquefoil/mesic graminoid located between a wet willow/mesic graminoid community along the Divide Creek channel and a nearby dry, upland sagebrush slope. Kentucky bluegrass, redtop, Baltic rush, timothy, and lesser amounts of tufted hairgrass and a few sedge species dominate the mesic graminoid layer associated with the shrubby cinquefoil.

Rare plant habitat: The band of shrubby cinquefoil/mesic graminoid plant community contains the best potential habitat for Idaho sedge observed in the Divide Creek area. Although the amount of potential habitat is limited, this section of Divide Creek is worth a future visit to verify the absence Idaho sedge.

Habitat risks: A smooth brome hayfield occurs upstream, but this planted, introduced forage grass has not yet invaded the shrubby cinquefoil community. Disturbances or hydrologic changes promoting the establishment of smooth brome would pose a risk to potential Idaho sedge habitat in the area.

Divide Creek 4 – This survey area is located approximately 1 mile (1.2 km) upstream from the Caribou-Targhee NF boundary. Water was absent from the narrow, rocky channel. Wetland vegetation was also absent. A band of sagebrush/Great Basin wild rye (*Elymus cinereus*) prevails along the channel in most places. Limestone outcrops and cliffs rise above the bottom and Douglas-fir trees line the north-facing slope as the drainage enters a canyon towards the downstream end of the survey area.

Rare plant habitat: No suitable Idaho sedge habitat occurs along this stretch of Divide Creek.

Habitat risks: No risk assessment made.

Horse Creek - Horse Creek supports a narrow green line varying from 3 – 15 ft (1 – 4 m) wide bordered by sagebrush-steppe vegetation. The greenline is a mix of Kentucky bluegrass, Baltic rush, and sedge species, with lesser amounts of other mesic graminoids and several “increaser” forb species. No water was present in the creek at the time of our survey and it is likely dry much of the season.

Rare plant habitat: Sections of the channel area had already been grazed fairly heavily by the time of our survey. Suitable-looking Idaho sedge habitat is limited to a few small patches and I assess a near zero probability that Idaho sedge occurs in the area.

Habitat risks: Cattle and/or bison grazing is the main disturbance along Horse Creek. The altered riparian plant community reflects this disturbance history.

Horse Creek Spring - The Horse Creek Spring wetland consists of a narrow green strip and a few patches of large, decadent willows associated with the spring heads. The narrow swaths are characterized by Nebraska sedge in the wet center, and drier margins with a mix of other graminoids such as Kentucky bluegrass, Baltic rush, timothy, and tufted hairgrass. A few scattered shrubby cinquefoil also occur, and western iris is the most common forb.

Rare plant habitat: The associated wetland provides little to no potential habitat and I assess a near zero probability that Idaho sedge occurs in the area.

Habitat risks: Cattle and/or bison grazing is the main disturbance in the Horse Creek springs area. A lack of willow recruitment within the spring head willow patches is one impact related to this disturbance. Much of the mesic graminoid vegetation associated with the spring had already been grazed to near ground level by the time of our survey. This made searching for Idaho sedge problematic.

North Fork Fritz Creek Spring - This survey area consists of a gently sloping, mesic graminoid-dominated spring wetland covering approximately three acres surrounded by sagebrush-steppe vegetation.

Rare plant habitat: A small amount of habitat marginally suitable for Idaho sedge occurs within the wetland. I assess a near zero probability that Idaho sedge occurs at the spring.

Habitat risks: Livestock grazing is the only disturbance in the general area and over the years has affected plant community composition within the wetland.

Fritz Peak Spring - This survey area is located within the previously documented Fritz Peak (EO 9) Idaho sedge occurrence. The area consists of a sloping wetland with Nebraska sedge and a suite of other mesic graminoid species intermixed with scattered Booth's willow, Geyers's willow, and short-fruited willow (*Salix brachycarpa*). Sagebrush-steppe and Douglas-fir forests occur on the adjacent upland slopes.

Rare plant habitat: Habitat suitable for Idaho sedge is locally common within this known occurrence area.

Habitat risks: Idaho sedge was not relocated in 2003. Periodic cattle grazing takes place within the occurrence area. A dirt-gravel road bisects the wetland, but does not appear to adversely effect the wetland. A small amount of potential Idaho sedge habitat may have been lost when the road was constructed. Weed species associated with the roadway may pose a future risk.

North Fork Fritz Creek - The survey area is a low gradient riparian bottomland dominated by a willow/mesic graminoid community type.

Rare plant habitat: Some shrubby cinquefoil occurs along the margins of the willow community where there is a transitions from the wet bottoms to the adjacent drier uplands. These patches may represent marginal Idaho sedge habitat, but I assess a near zero probability this species occurs in the area.

Habitat risks: The herbaceous layer associated with the ecotonal strip is dominated by "increaser" species indicating a long history of intensive livestock use.

South Fork Fritz Creek - Part of the survey area is a sloping spring-fed wetland containing an elongated, hummocked patch of shrubby cinquefoil/mesic graminoid descending to the South Fork Fritz Creek. The creek bottom consists of a narrow, shallow, cobbly, waterless channel having a narrow green strip dominated by Kentucky bluegrass and a few scattered shrubby cinquefoil shrubs.

Rare plant habitat: The spring-fed, sloping wetland contains habitat suitable for Idaho sedge along most of its length. The site is worthy of a future visit to confirm the absence of Idaho sedge. No suitable habitat for this species occurs along the South Fork Fritz Creek green strip.

Habitat risks: The road dropping down to South Fork Fritz Creek parallels the sloping wetland, but does not appear to pose any direct risks to potential Idaho sedge habitat. Cattle grazing is the main disturbance in the sloping wetland. Deepening of the hummocky microtopography may be one impact related to cattle trampling.

Buckboard Gulch - No wetland habitat occurs in Buckboard Gulch. A wide expanse of sagebrush-steppe habitat dominates the gulch area below treeline.

Rare plant habitat: No potential Idaho sedge habitat occurs in Buckboard Gulch.

Habitat risks: No risk assessment made.

Webber Creek - The section of Webber Creek surveyed is a low gradient mountain stream with a willow-dominated bottomland <30 ft (<10 m) wide in most places. Conifer forests, or occasionally open sagebrush-steppe upland slopes rise steeply from the drainage bottom. Booth's and Geyer's willow are the predominant riparian shrubs. The mesic graminoid understory tends to be dominated by beaked sedge and other sedge species in wet sites, and Kentucky bluegrass in drier sites. Occasional wide spots in the canyon give rise to meadow openings, but these are usually dominated by Kentucky bluegrass with Great Basin wild rye.

Rare plant habitat: Potential Idaho sedge habitat is absent, except perhaps at the confluence with the South Fork Webber Creek. The wide bottomland at the confluence is dominated by a dense willow thicket, but a few openings or channel edge areas could be marginal Idaho sedge habitat. I assess a near zero probability Idaho sedge occurs along this section of Webber Creek.

Habitat risks: No threats to potential Idaho sedge habitat were observed. Smooth brome is common along downstream sections and Kentucky bluegrass is well established along the entire length of Webber Creek.

Deep Creek Spring #1 - The spring is located in a small area supporting basin big sagebrush, Wood's rose (*Rosa woodsii*), Great basin wild rye, Kentucky bluegrass, and several weedy species. A small cattle trough (dry during our visit) is present. Sagebrush-steppe vegetation dominates the surrounding slopes.

Rare plant habitat: No potential Idaho sedge habitat occurs in the area.

Habitat risks: No risk assessment made.

Deep Creek Spring #2 - A wood fence enclosure surrounds the spring head zone covering approximately 0.4 ac (0.16 ha). The vegetation is a mosaic of willow/ Nebraska sedge and hummocky Baltic rush-mesic graminoid plant communities. Most of the willows are severely hedged.

Rare plant habitat: Potential Idaho sedge occurs inside the enclosure. Although the amount of potential habitat is limited, it would be worth revisiting this site in the future to confirm the absence of Idaho sedge.

Habitat risks: Canada thistle and black henbane (*Hyoscyamus niger*) occur in the enclosure. The Canada thistle is most abundant in relatively dry portions of the enclosure, while only two skeletons of the black henbane were observed. Cattle graze the bottoms near the enclosure hard, but only a few old cow dropping were seen inside the enclosure. A large water trough is located adjacent to the enclosure. Weed control and enclosure fence maintenance are required to minimize risks to potential Idaho sedge habitat in the spring area.

Deep Creek Spring #3 - A small enclosure has been constructed around a water trough. Basin big sagebrush, Great basin wild rye, Kentucky bluegrass, and western iris are the most common plant species in the immediate area. No wetland habitat occurs and sagebrush-steppe vegetation dominates the surrounding slopes.

Rare plant habitat: No potential Idaho sedge habitat occurs in the area.

Habitat risks: No risk assessment made. It is very weedy around the water trough.

South Fork Deep Creek Spring - This small enclosure site is approximately 0.2 ac (0.08 ha) in size and supports a mesic graminoid-forb wetland community. Common species include Baltic rush, Nebraska sedge, Kentucky bluegrass, western iris, largeleaf avens (*Geum macrophyllum*), and colonies of Canada thistle.

Rare plant habitat: Small patches of Idaho sedge habitat occur within the enclosure. However, ecological condition of the vegetation is relatively degraded. I assess a low probability that Idaho sedge occurs at this site.

Habitat risks: The enclosure fence now keeps cattle out of most of the wetland. The spring had a trickle of surface water flow at the time of our visit. A pipe appears to take much of the water. It is not known what effect, if any, removal of some of the water has on the extent and condition of potential Idaho sedge habitat occurring around the spring.

Antelope Lakes - Antelope Lakes is comprised of a series of springs, ephemeral ponds, and connecting swaths of moist ground separated by low mounds and knolls with sagebrush vegetation. The area covers at least 5 ac (2 ha) of gently undulating topography. The vegetation is a patchwork of western iris-mesic graminoid, mesic graminoid, and willow/mesic graminoid communities. Mesic graminoid areas are dominated by Baltic rush, Nebraska sedge, or common spike-rush (*Eleocharis palustris*). Kentucky bluegrass, and to a lesser extent, bluestem wheatgrass (*Agropyron smithii*), mat muhly (*Muhlenbergia richardsonis*), foxtail barley, and meadow barley (*Hordeum brachycarpum*) are other common graminoids. Several hummocky areas are dominated by Baltic rush and Nebraska sedge. In addition to western iris, other common forbs include aster (*Aster* spp.), dandelion, mule's-ears (*Wyethia* spp.), pepperweed (*Lepidium* spp.), goosefoot (*Chenopodium* spp.), slender cinquefoil (*Potentilla gracilis*), and northern bedstraw (*Galium boreale*). No water was present in the "lakes" at the time of our survey and the area is probably considerably drier compared to its historic hydrology.

Rare plant habitat: Potential Idaho sedge habitat is spotty, but does occur within the Antelope Lakes wetland complex. It would be worth revisiting this site in the future to confirm the absence of Idaho sedge.

Habitat risks: Old cow droppings are scattered throughout the wetland complex. Modified plant community composition and abundance ratios reflect a long history of livestock grazing. Livestock grazing impacts are the main risk to further degradation of potential Idaho sedge habitat at Antelope Lakes.

Myers Creek 1 - This section of Myers Creek supports a very narrow green line immediately next to the channel. The green line is comprised of Kentucky bluegrass, Baltic rush, timothy, and some mesic forb species. Sagebrush vegetation runs alongside the green line margin.

Rare plant habitat: No potential Idaho sedge habitat occurs in the area.

Habitat risks: No risk assessment made.

Myers Creek 2 - The ditch-like channel is incised about one meter below the surrounding benchland. A narrow green line < 3 ft (<1 m) wide parallels the channel and banks are raw dirt in places. Redtop, Baltic rush, Canada goldenrod (*Solidago canadensis*), Canada thistle, aster, and Wood's rose are some of the more common species comprising the green line. Bands of willow species also occur in places. There are multiple channels in the area, including dry channels lined with dead willow skeletons.

Rare plant habitat: No potential Idaho sedge habitat occurs in the area.

Habitat risks: No risk assessment made.

Crooked Creek 1 - This section of Crooked Creek is a low gradient mountain stream averaging approximately 3 ft (1 m) wide and lined with a narrow ribbon of willow/mesic graminoid riparian vegetation. Wood's rose and several species of currant (*Ribes* spp.) are common understory shrubs beneath the Booth's willow-dominated willow canopy. Scattered individual or patches of aspen join or dominate the riparian canopy in places. The main herbaceous species are Kentucky bluegrass, sedge species, stinging nettle (*Urtica diocea*), aster, cow parsnip (*Heracleum lanatum*), and starry Solomon-plume (*Smilacina stellata*). Low terraces adjacent to the creek are dominated by Kentucky bluegrass, smooth brome, and Great basin wild rye. What appears to be a bluebunch (*Agropyron* spp.) cultivar is also established in the drainage bottom. It may have been introduced as part of a post-fire seed mix.

Rare plant habitat: No potential Idaho sedge habitat occurs in the area.

Habitat risks: Forested slopes burned an estimated ten years ago. Disturbances associated with recreation use of the Crooked Creek trail are minimal. Several introduced grass species are well established in the drainage.

Crooked Creek 2 - Crooked Creek is apparently ditched in this section. It has a narrow green line with Baltic rush, mesic forbs, and occasional Wood's rose, currant, or willow shrubs. Sagebrush vegetation runs along the green line margin.

Rare plant habitat: No potential Idaho sedge habitat occurs in the area.

Habitat risks: No risk assessment made.

OTHER RARE PLANT SPECIES

Two new Drummond's milkvetch occurrences were discovered during the course of our field investigation, one near North Fork Fritz Creek (EO 12), the other along lower Left Fork Creek (EO 13). In addition, extensions to the previously know Warm Springs Creek (EO 5) and School Section Creek (EO 11) occurrences were discovered. Drummond's milkvetch is now known from a total of 11 occurrences on the Dubois RD. IDCDC database records detailing location, population, habitat, and other conservation information for Drummond's milkvetch occurrences located on the Dubois RD are in Appendix 5. Mapped locations for all known Drummond's milkvetch occurrences on the Dubois RD are included in Appendix 6. Summary information for the two new and two expanded Drummond's milkvetch occurrences is listed below. Populations of other plant species on our secondary target list were not found during the survey.

Warm Springs Creek (EO 5) – This Drummond's milkvetch occurrence was originally reported in 1989. In 2003, we tallied a total of >1000 Drummond's milkvetch plants from the Antelope Lakes area, south for approximately 2 miles (3.2 km) to near Warm Springs. Most plants occur within sagebrush-steppe vegetation and occupy upper to lower slope positions on southern to western aspects. A small patch of spotted knapweed (*Centaurea maculosa*) was observed along Warm Springs Creek, just south of the Warm Springs. This noxious weed may be more prevalent in the general area.

School Section Creek (EO 11) – This Drummond’s milkvetch occurrence was originally reported in 1998. In 2003, one new subpopulation containing approximately 20 Drummond’s milkvetch plants scattered over 1 ac (0.3 ha) was discovered. We did not attempt to revisit the nearby, original occurrence site. Additional unsurveyed potential habitat is present in the general area. The subpopulation occurs within sagebrush-steppe vegetation on a southerly-facing hillside. Spotted knapweed is becoming established along a nearby roadbed. Control efforts are needed in the near future before this noxious weed spreads further and becomes more difficult to eradicate.

North Fork Fritz Creek (EO 12) - This Drummond’s milkvetch occurrence was discovered in 2003. A cursory survey found three small subpopulations ranging in size from <0.1 - 2 ac (<0.1 – 0.6 ha), and supporting a total of approximately 40 individuals. Two of the subpopulations occur within sagebrush-steppe vegetation, the other along a weedy creek bottom.

Lower Left Fork Creek (EO 13) – This small Drummond’s milkvetch occurrence was discovered in 2003. A cursory survey found five plants scattered over approximately 0.1 ac (<0.1 ha). The occurrence is located within sagebrush-steppe vegetation in an area intensively grazed by livestock.

COPPER MOUNTAIN RNA

Copper Mountain RNA was visited on September 3, 2003. A copy of the completed Basic Stewardship Monitoring Data form for the RNA is in Appendix 7. A map showing the site visit survey route is in Appendix 8. A total of seven photo point stations were used to take a series of 18 photographs documenting conditions within the RNA. A map showing the location of each photo point station is included in Appendix 8. Photographs and associated descriptive information are in Appendix 9.

Within the RNA, evidence of a minor amount of motorcycle or ATV use (in the form of tire impressions) was observed in a few places along the ridgecrest in the northern half of the RNA, north of topographic map point 10,180. There did not appear to be any accelerated erosion problems associated with the motorized vehicle tracks, although a few crushed plants were observed. Motorcycle or ATV tracks were more noticeable along ridgelines to the north and northeast of the RNA. No snowmobile parts or other signs of motorized winter use were seen.

Occasional hikers/climbers likely pass through the RNA enroute to the summit of Copper Mountain. A rock cairn has been erected at the summit, but no register was found. A few old wood stays and what looked to be part of a horse skull were lying on the ground in the summit area. A metal post with a blank signboard is situated along the ridgecrest a little south of topographic map point 10,085, near the northern boundary of the RNA. The post has a “USFS 1988” engraving.

No evidence of recent cattle or domestic sheep use was observed within the RNA. High cover of white locoweed (*Oxytropis serocia*) in places along the mountain ridgecrest suggests there may have been a period of intensive livestock grazing in the area in the past. A wildlife guzzler was observed on an upper easterly-facing slope within, or immediately adjacent to the northeastern boundary of the RNA. Another guzzler has been placed along a ridgeline approximately 0.3 mile (0.5 km) south of the RNA boundary. A fairly extensive animal trail network occurs on the steep, rocky, upper slopes of the Copper Mountain massif.

No evidence of logging, firewood cutting, or other disturbances to wooded portions of the RNA was observed. No mineral claim markers were found within the RNA. No exotic or invasive plant species were observed within the RNA, although some weed species would have been hard to detect so late in the summer season. Overall, Copper Mountain RNA continues to support an alpine ecosystem of high ecological integrity. The landscape surrounding the RNA appears to be intact and with the exception of a few ridgeline motorized vehicle traces, largely undisturbed as well.

DISCUSSION AND RECOMMENDATIONS

LOST RIVER MILKVETCH AND LEMHI MILKVETCH

Populations of both Lost River and Lemhi milkvetch are known from within a few miles of the southwestern boundary of the Dubois RD, in the southern Lemhi Range. Habitat for both species is widespread and locally common west of the Lemhi crest in several lower canyon areas on BLM and Salmon-Challis NF lands. However, west of the Lemhi crest, on land administered by the Dubois RD, suitable-looking habitat for the two species is largely absent. A few rocky areas in upper South Fork Kyle Canyon represented the best potential habitat seen for either species. Vantage points along the southern boundary of the Dubois RD revealed more extensive areas of potential habitat occurred downslope and south of the Forest boundary. None of the other canyons we surveyed in the southern Lemhi Range had more than a few small outcrops of marginally suitable habitat. There is no evidence potential habitat for either species occurs on Caribou-Targhee NF lands in the Lemhi Range in canyons to the north of our survey area.

A field investigation for several rare plant species, including Lost River and Lemhi milkvetch was conducted on the Salmon NF (now part of the Salmon-Challis NF) in 1989 (Moseley 1989). Areas along the eastern flank of the Lemhi Range north of the Dubois RD boundary were included in this field survey. Neither milkvetch was found, lending further evidence that these two species do not occur on Forest Service lands in the central or northern portions of the Lemhi Range.

Lost River and Lemhi milkvetch have never been reported from the southern Beaverhead Range. Most of the southern Beaverhead canyons we surveyed in 2003 had one or a few outcrops, cliffs, or talus zones with habitat potentially suitable for one or both species. Overall, potential habitat is limited, but more widespread compared to areas surveyed in the southern Lemhi Range. However, we failed to find any large, extensive areas of high quality potential habitat for either species on Dubois RD land in the southern Beaverheads.

Both Lost River and Lemhi milkvetch occur on the Salmon-Challis NF and are USFS Region 4 sensitive plant species. However, based on our negative field survey results and the limited extent of high quality potential habitat we encountered, it seems unlikely that either Lost River or Lemhi milkvetch occur on the Caribou-Targhee NF. The addition of either species to the Caribou-Targhee NF sensitive plant list is not warranted at this time. Instead, we recommend both species be added to a category reserved for species that are not known, but could potentially occur on the Forest (such as a Watch category). This would more accurately reflect what we know about the distribution of Lost River and Lemhi milkvetch in east-central Idaho.

IDAHO SEDGE

Idaho sedge is a relatively difficult species to survey for under the best of conditions due to its rather low, inconspicuous appearance, and propensity to occur in scattered patches and be infrequent where it occurs. Cattle had already grazed all or parts of several of our targeted survey areas to near ground level prior to the field investigation. We surveyed these areas nonetheless, but could have easily overlooked any Idaho sedge if only grazed plants without reproductive culms were present. The survey areas where this was most problematic included Calf Creek, Dairy Creek, Horse Creek Spring, Left Fork Creek, Meadow Creek, Owens Creek, and Pass Creek Spring; and to a lesser extent, Pete Creek and School Section Creek.

A limited amount of potential Idaho sedge habitat was observed in most of the wetlands we searched. However, relatively extensive high potential habitat was encountered only in the Modoc Creek drainage. Some creek bottoms may have contained a greater amount of higher quality Idaho sedge habitat in the past, but many years of intensive livestock grazing has altered the plant community composition and structure of many of the wetlands we surveyed. Graminoids such as Idaho sedge are usually adapted to grazing and able to persist under light to moderate grazing pressure, but it is reasonable to assume this species will decline with heavy grazing (Lesica 1998). Livestock grazing was the most common disturbance we observed to Idaho sedge habitat during the survey.

Modoc Creek is the highest priority for an Idaho sedge resurvey. Several other areas with a medium priority are also recommend to be revisited in the future to confirm the absence of Idaho sedge. Horse Creek is a tributary to Modoc Creek and a search of both drainages could be readily combined. Further west, the Divide Creek 3, South Fork Fritz Creek, Deep Creek Spring 2, and Antelope Lake survey areas contain sufficient amounts of potential habitat to be worth revisits. The Dairy Creek survey area is a low priority area recommended for resurvey. In all cases, it would be advantageous to conduct survey efforts during wetter years and when the target wetland areas are being rested from livestock use, or before the livestock turn out date.

The conservation status of Idaho sedge in Montana has been well documented (Lesica 1998). In Montana, Idaho sedge is currently a Forest Service Region 1 sensitive species on the Beaverhead-Deerlodge NF (Steve Shelley, U.S. Forest Service, Region 1 botanist, pers. com.). It appears Idaho sedge is less common in Idaho than Montana, and that this is not due simply to more complete and thorough inventory work done in Montana. The relatively low number of known populations, the small size of most of these populations, and habitat and population impacts related to livestock grazing, combine to make Idaho sedge a conservation concern in Idaho. The majority of known populations in Idaho occur on lands administered by the Caribou-Targhee NF. For this reason, the long-term conservation of Idaho sedge in the state is strongly linked to its conservation on the Forest and we recommend its addition to the Caribou-Targhee NF sensitive plant species list.

OTHER RARE PLANT SPECIES

Six other plant species of conservation concern in Idaho comprised a secondary target list for our field investigation. Effort to survey for these species was confined to keeping an eye out for them when passing through potentially suitable habitat. Of the six species, only meadow milkvetch is on the U.S. Forest Service, Region 4 sensitive species list. New populations or high quality wetland habitat suitable for this species were not encountered during our field investigation. For the other species on the secondary list, only Drummond's milkvetch was encountered during the field investigation. It is now known from 13 occurrences in Idaho, all but

two of these at least partially located on land administered by the Dubois RD. It seems likely that additional Drummond's milkvetch occurrences will be found on the Dubois RD and nearby areas if targeted field surveys are undertaken in the future. Drummond's milkvetch is an Idaho BLM Type 4 (species that are generally rare in Idaho, having small populations or localized distribution and low threat levels) special status plant species.

COPPER MOUNTAIN RNA

Copper Mountain is an alpine mountain ridge complex jutting southward from the Beaverhead Range toward the upper Snake River Plain. It was established as a RNA in 1986, with the objective of preserving the integrity of several vegetation types, specifically: (a) the alpine graminoid community; (b) the high elevation sagebrush-steppe community; (c) the alpine rock communities; and (d) the high elevation woodland communities (Wellner and Moseley 1986). Elevation within the RNA ranges from 10,303 feet (3140 m) on the Copper Mountain summit, to 8320 feet (2536 m) where the boundary crosses Skull Canyon. The RNA is approximately 550 ac (223 ha) in size.

Nearly 20 years after its establishment, plant community and other ecological values at Copper Mountain RNA remain intact. No largescale disturbances have occurred within the RNA since its designation. No adverse impacts were observed related to the occasional hikers/climbers that likely visit the RNA each year. Although prohibited, a limited amount of ridgecrest motorized travel is taking place in the northern segment of the RNA. The steep, rocky pitch leading south from the saddle uphill to topographic map point 10,180 has served as a barrier to motorized travel into the southern half of the RNA. This steep talus slope appears impractical even for determined motorcyclists or ATV riders, but is probably passable to modern snowmobiles. Motorized use is notably less compared to ridgelines north of the RNA, where trails are much more clearly visible. Motorized use has not yet resulted in any noticeable increases in erosion or other adverse impacts within the RNA. However, the potential for problems exists if this use continues or increases.

To minimize trespass motorized use into the RNA we recommend posting a "no motorized use" sign on the signpost already in place near the northern boundary of the RNA. The signpost is currently located approximately 0.2 mile (0.3 km) inside the RNA boundary. The Forest may want to consider moving this signpost so it sits a little north of the RNA boundary. We also recommend site stewardship visits be conducted on a more regular basis. Visits every two to three years are warranted in light of some motorized use occurring within the RNA. We recommend implementing a monitoring program if future visits indicate increasing motorized use within the RNA.

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