



**File** 2670/1950 **Date:** March 14, 2006  
**Code:**  
**Route**  
**To:**  
**Subject:** Meadow Creek Fuels Reduction – Sensitive Plants BE  
**To:** District Ranger and ID Team Leader – Jan Bowey

### Meadow Creek Fuels Reduction Sensitive Plant Biological Evaluation

#### Proposed Action

The Madison Ranger District, Beaverhead-Deerlodge National Forest, proposes implementing a key element of the 2003 *Madison County Strategic Wildland Fire Plan* by conducting the Meadow Creek Fuels Reduction Project (Meadow Creek Project). The proposed action would treat about 896 acres using standard silvicultural techniques in the South Meadow Creek watershed of the Tobacco Root Mountains. Two distinct treatment types are proposed. Slash and burn (550 acres) and thin from below and burn (346 acres).

**Slash and Burn** - The slash and burn treatment consists of felling and bucking to ground level wildland fuels within each stand. Preplanning and treatment would emphasize increasing the vigor and acreage of quaking aspen (*Populus tremuloides*) within each stand. The proposed treatment would remove conifer trees from within aspen substands to reduce shading and resource competition. Conifers would also be removed from an area surrounding the aspen substand to a distance of about 50 feet. Fire would be applied within 1 to 3 years to treat remaining surface fuels and slash at the site.

**Thin-from-below** - The thin from below treatment would remove live, non-overstory trees from the stand, effectively raising the height from the forest floor of the base of the crown of the remaining trees. Fuels created by the commercial thinning and pre-existing forest fuels would be treated by prescribed burning within one to three years following the thinning treatment. Preplanning and treatment would emphasize increasing the vigor and acreage of quaking aspen within each treatment stand in these stands as well. Harvest activities would be limited to periods when the soils are snow-covered or frozen or after July 15<sup>th</sup>.

No more than 0.5 miles of temporary, low standard road would be constructed for logging truck access to and from the thin from below treatment units. To minimize cumulative soil compaction and surface disturbance, pre-existing road prisms would be used where possible for logging truck access. Upon completion of the Meadow Creek Project, temporary roads would be obliterated.

#### Sensitive Plants

The Regional Forester of the Northern Region has identified plant, bird, and animal species for which viability is a concern as Sensitive. Sensitive Species are those recognized on the Update of Northern Region Sensitive Species List dated October 28, 2004.



After review of existing element occurrence reports (Sensitive Species List and 2670 Files), Montana Natural Heritage Program database, general habitats available (sagebrush/grassland, Douglas-fir, lodgepole pine, sub-alpine fir, and aspen), and field reviews (1989-2005), it was determined that the following sensitive plant species occur or may occur within the project area. The project area includes lands within the National Forest boundary in the South Meadow Creek drainage.

<b>PLANTS:</b>	<p>Known in Project Area – None</p> <p>Potential to Occur in Project Area - <i>Adoxa moschatellina</i>, <i>Allium acuminatum</i>, <i>Botrychium paradoxum</i>, <i>Eleocharis rostellata</i>, <i>Epipactis gigantea</i>, <i>Polygonum douglassii</i> ssp. <i>austinea</i>.</p>
----------------	---

### Species of Concern

*Adoxa moschatellina*: Musk-root is a delicate small plant known to occur in the Madison Range to the east of the project area. No populations have been located in the project area. Ten populations are known across the state. These populations are scattered across the southwestern corner of the state from Stillwater to Granite County. This is a circumboreal species whose range extends south to New York, South Dakota, Colorado and Utah. Montana is part of a larger range in which this plant is sparsely or unevenly distributed. Populations are generally small in area and number of individuals. The plant is generally found in moist places at the bottom of undisturbed, open rock slides. Known populations range from 4,200 to over 10,000 feet elevation and flowers from June to July. Within the Tobacco Root Range a significant amount of potential habitat exists for this species.

*Allium acuminatum*: This species grows on dry hills and plains. There are currently only three known locations in MT. No populations have been located in the project area. One population is known on the northern end of the Madison range east of the project area. This population is a historical record and has not been relocated. Tapertip Onion is a pink flowered perennial growing up to a foot tall. Montana populations are found from 2,400 to 9,100 feet elevation. This species is peripheral in southwestern Montana and is one of the most common species of *Allium* found to the west in Idaho and Washington states.

*Botrychium paradoxum*: This very inconspicuous species is known on the northern half of the Beaverhead-Deerlodge National Forest, but has not been found in the on the Madison District. It has been found in mesic meadows associated with spruce and lodgepole pine forests in the montane and subalpine zones; also found in springy western red cedar forests. Populations are known from 3,600 – 8,500 feet elevation. It is found in scattered locations across the western portion of the state. This species is found in the northern Rocky Mountain states but generally is sparsely or unevenly distributed.

*Eleocharis rostellata*: This grass-like perennial is known to occur on the Beaverhead-Deerlodge National Forest. The one known population on the Forest is found on the Madison District in the Tobacco Root Mountains approximately eight miles north of the project area. No occurrences have been found within the Project Area. *Eleocharis rostellata* is found growing on wet, often alkaline soils, associated with warm springs or fens in the valley and foothills zones. It grows from 2,700 – 6,100 feet elevation. It is found in scattered locations across the western portion of the state. This species is found across the United States but generally is sparsely or unevenly distributed.

*Epipactis gigantea*: This species is suspected to occur on the southern portion of the Beaverhead-Deerlodge National Forest. No populations have been discovered in the project area. The closest known population is found eight miles north of the project area in the South Willow Creek drainage. *Epipactis gigantea* can be found in appropriate habitat across western Montana. Typical plant communities are streambanks, lake margins, and around springs and seepage areas, often near thermal waters. Elevations range from 2,900 - ,6200 feet elevation. There are 23 known populations in the state with the majority centered in the northwestern portion of the state.

*Polygonum douglassii* ssp. *austinea*: This small inconspicuous species is known to occur on the southern half of the Beaverhead-Deerlodge National Forest. It has been found growing from 4,300 to 8,500 feet elevation. One population is known in the northern end of the Tobacco Root Range. This occurrence is outside the project area. The next closest population to the project area is found to the east in the Madison Range. Other populations are found scattered across the western half of the state. Montana is part of a larger range in which this plant is sparsely or unevenly distributed. It is found in California, Nevada and the northwest states to Montana and Wyoming. *Polygonum douglasii* ssp. *austinea* grows on open, gravelly, often shale-derived soil of eroding slopes and banks in the montane zone.

### Biological Risk Assessment

Species	Probability of Effect +	Consequence of Effect +	Cumulative Effect +	Determination of Effect *
<i>Adoxa moschatellina</i>	Moderate	Low	None	No Impact
<i>Agastache cusickii</i>	Low	Low	None	No Impact
<i>Allium acuminatum</i>	Moderate	Low	None	No Impact
<i>Allotropa virgata</i>	Low	Low	None	No Impact
<i>Antennaria densifolia</i>	Low	Low	None	No Impact
<i>Arabis fecunda</i>	Low	Low	None	No Impact
<i>Astragalus scaphoides</i>	Low	Low	None	No Impact
<i>Balsamorhiza macrophylla</i>	Low	Low	None	No Impact
<i>Botrychium crenulatum</i>	Low	Low	None	No Impact
<i>Botrychium hesperium</i>	Low	Low	None	No Impact
<i>Botrychium paradoxum</i>	Moderate	Low	None	No Impact
<i>Carex parreyana</i> spp.	Low	Low	None	No Impact

Species	Probability of Effect +	Consequence of Effect +	Cumulative Effect +	Determination of Effect *
<i>idaho</i>				
<i>Castilleja covilleana</i>	Low	Low	None	No Impact
<i>Eleocharis rostellata</i>	Moderate	Low	None	No Impact
<i>Epipactis gigantea</i>	Moderate	Low	None	No Impact
<i>Erigeron asperugineus</i>	Low	Low	None	No Impact
<i>Eupatorium occidentale</i>	Low	Low	None	No Impact
<i>Haplopappus macronema</i> var. <i>macronema</i>	Low	Low	None	No Impact
<i>Juncus hallii</i>	Low	Low	Low	No Impact
<i>Lesquerella paysonii</i>	Low	Low	None	No Impact
<i>Lesquerella pulchella</i>	Low	Low	None	No Impact
<i>Mimulus primuloides</i>	Low	Low	None	No Impact
<i>Orogenia fusiformis</i>	Low	Low	None	No Impact
<i>Oxytropis podocarpa</i>	Low	Low	None	No Impact
<i>Penstemon lemhiensis</i>	Low	Low	None	No Impact
<i>Phlox kelseyi</i> var. <i>missoulensis</i>	Low	Low	None	No Impact
<i>Polygonum douglasii</i> spp. <i>austinea</i>	Moderate	Low	None	No Impact
<i>Potentilla quinquefolia</i>	Low	Low	None	No Impact
<i>Ranunculus jovis</i>	Low	Low	None	No Impact
<i>Saussurea weberi</i>	Low	Low	None	No Impact
<i>Saxifrage tempestiva</i>	Low	Low	None	No Impact
<i>Scirpus cespitosus</i>	Low	Low	None	No Impact
<i>Thalictrum alpinum</i>	Low	Low	None	No Impact
<i>Trifolium eriocephalum</i>	Low	Low	None	No Impact
<i>Trifolium gymnocarpon</i>	Low	Low	None	No Impact
<i>Veratrum californicum</i>	Low	Low	None	No Impact

+ See Attachment A for explanation of Effect

\*Determination of Effect is based on the documents listed in Literature Cited

## Effects

*Adoxa moschatellina*: Musk-root populations are generally small in area and number of individuals. The plant is generally found in moist places at the bottom of undisturbed, open rock slides. Within the Tobacco Root Range and South Meadow drainage a significant amount of potential habitat exists for this species. However these communities are not found within any of the Meadow Creek Fuels Treatment units. Field surveys have located no populations in Meadow Creek Fuels Treatment units or the project area.

No populations are known in the project area or in any treatment units. The Meadow Creek Fuels Project will have “No Impact” on *Adoxa moschatellina*.

*Allium acuminatum*: This species grows on dry hills, plains and open Douglas fir communities. There are currently only three known locations in Montana. One population is known on the northern end of the Madison range east of the project area. This species is peripheral in southwestern Montana and is one of the most common species of *Allium* found to the west in Idaho and Washington states. Field surveys have located no populations in Meadow Creek Fuels Treatment units or the project area.

No populations are known in the project area or in any treatment units. The Meadow Creek Fuels Project will have “No Impact” on *Allium acuminatum*.

*Botrychium paradoxum*: This very inconspicuous species is known on the northern half of the Beaverhead-Deerlodge National Forest, but has not been found in the on the Madison District. It has been found in mesic meadows associated with spruce and lodgepole pine forests in the montane and subalpine zones; also found in springy western red cedar forests. Potential habitat is found in the South Meadow Creek drainage but in very limited amounts. Field surveys located no populations in Meadow Creek Fuels Treatment units or the project area.

No populations are known in the project area or in any treatment units. The Meadow Creek Fuels Project will have “No Impact” on *Botrychium paradoxum*.

*Eleocharis rostellata*: This grass-like perennial is known to occur on the Beaverhead-Deerlodge National Forest. *Eleocharis rostellata* is found growing on wet, often alkaline soils, associated with warm springs or fens in the valley and foothills zones. These plant communities are not found within any of the Meadow Creek Fuels Treatment units. Potential habitat is found in the South Meadow Creek drainage. Field surveys located no populations in the drainage.

No populations are known in the project area or in any treatment units. The Meadow Creek Fuels Project will have “No Impact” on *Eleocharis rostellata*.

*Epipactis gigantea*: This species can be found in appropriate habitat across western Montana. Typical plant communities are streambanks, lake margins, and around springs and seepage areas, often near thermal waters. These plant communities are not found within any of the Meadow Creek Fuels Treatment units. Potential habitat is found in the South Meadow Creek drainage. Field surveys located no populations in the drainage.

No populations are known in the project area or in any treatment units. The Meadow Creek Fuels Project will have will have “No Impact” on *Epipactis gigantea*.

*Polygonum douglasii* ssp. *austinea* grows on open, gravelly, often shale-derived soil of eroding slopes and banks in the montane zone. Field surveys located no populations in the Meadow Creek Fuels Treatment units or in the drainage. Potential habitat is found in the South Meadow Creek drainage.

No populations are known in the project area or in any treatment units. The Meadow Creek Fuels Project will have “No Impact” on *Polygonum douglasii* ssp. *austinea*.

*Noxious Weeds:* Establishment and the unchecked expansion of noxious weeds into a plant community have major negative affects. Aggressive weeds can out compete native plant species and slowly dominate a site. Plant communities loose their natural diversity in species and structure along with becoming less able to recover from natural disturbances. Sensitive plant species, due to their limited occurrence, can be greatly affected by noxious weeds. Not only may the noxious weed out compete the sensitive plant but also inappropriate weed control measures may destroy individuals or eliminate populations. Current noxious weed infestations within the Project Area are mapped. Primary concern species in this drainage are *Carduus nutans* and *Cynoglossum officinale*. These species are found in the slash and burn treatment units. The District has an ongoing aggressive noxious weed control program.

Prevention is the best management strategy to prevent impacts of noxious weeds. Disturbed ground and bare soils are prime sites for noxious weed establishment. Any ground disturbances associated with the fuels treatment project have the potential to allow weed establishment. Wash all heavy equipment prior to delivery to work site. Locate log landings in weed free areas, or if no weed free areas are available, treat the site prior to use to eliminate weed seed production.

Insure ground disturbance will re-vegetate, either by artificial seeding or use of soil seed bank. If artificially seeded, use only native species common to the site. All seed and mulch material will be certified noxious weed seed free. Monitor the fuel treatment area after completion of project and control noxious weed infestations if found.

### **Cumulative Effects**

Analysis area for cumulative effects is the south portion of the Tobacco Root Mountains (Madison Ranger District) and adjacent private, state, BLM and other Forest Service lands.

Activities that have occurred in the project area in the past, are currently occurring, and that could occur in the future may in themselves have little impact on sensitive wildlife species. When considered together the effects may have a large cumulative impact to the species occurring in the area.

#### Past Activities:

Activities contributing to the existing habitat situation are timber harvest, livestock grazing, mining, and road & trail construction. Recreational activities (i.e., big game hunting) and road management are additional activities influencing habitat security. As shown in the current Interagency Visitor Map for Southwest Montana, the Tobacco Root Mountains are being managed with area restrictions. There are also many specific roads and trails restricted to motorized use seasonally or yearlong.

Within the analysis area, several timber sales (approximately 2600 acres) and road construction projects have occurred in the past few decades.

<u>Sale Name</u>	<u>Harvest Year</u>
Bivens	1987
Chero Mountain	1984-86
Currant	1987
Gibbs	1988
Granite Creek	1985-86
Kings Mill	1998
Mill Gulch	1984
Ramshorn	1985
Sureshot	1986-87
Virginia Creek	1989-91
Washington Creek	1984-86

Mining activity has occurred in the Tobacco Root Mountains for the past century (USDA-Forest Service 1994). Currently, there are 22 mines with active operating plans.

Forest Service has built campgrounds at Branham Lakes, Balanced Rock, Mill Creek, Sureshot Lakes, and Potosi. Dispersed sites occur near Ramshorn, South and North Meadow Creeks, South Meadow Lake, Bell Lake Trailhead, and North Willow Trailhead. Roads and trails have also been constructed in the Tobacco Root Area (Interagency Visitor Map - Southwest Montana).

Existing Activities:

Livestock (cattle) grazing occurs on nine active allotments; 22 mines have active operating plans; post/pole harvest in the Chero Mountain area; and firewood gathering throughout the area are ongoing activities. Moderate recreation in the form of camping, hiking, biking, fishing, hunting, snowmobiling, cross-country skiing, snowboarding, scenic driving, 4X4 driving, motorcycle and ATV use occur throughout the area.

Reasonably Foreseeable Activities:

**Grazing:** Livestock grazing will continue throughout the project area. Seven allotments had management plans updated (Tobacco Root Grazing EA).

**Mining:** Mining activity is occurring within the 22 active sites in the project area.

**Timber Harvest:** Only limited harvest of firewood and post/poles is occurring.

**Road Construction and Access:** Public access may be developed in the South Fork of Hot Springs Creek Area.

**Recreation:** Reconstruction of Mill Creek Campground, Mill Gulch Trail, and construction of the Heather Hike Trail.

**Other:** Subdivision and house building in the North Meadow Creek, South Meadow Creek, Washington Creek, Mill Gulch, Indian Creek and patented mining claim areas

Effects:

Current trends in range management are for an improvement in riparian conditions. Grazing management updates will be designed to improve riparian areas and maintain or improve upland conditions. This will generally result in the same or fewer numbers of livestock and maintaining or shortening the season of use. This would have a beneficial effect for plant species.

Mineral activity is likely to occur at the current rate in the project area. This activity poses an impact on plant species by being unpredictable in nature. Roads needed to access claims increase vulnerability by their ground disturbance.

Reconstruction of campgrounds and trails, and reconstruction and surfacing of roads would not impact any new areas. This may increase the likelihood of use, thereby increasing the amount of recreational disturbance in the area.

Recreational use/activity must be dealt with in two distinct ways: 1) legal use, and 2) illegal use. Legal use of trails, roads, etc., is restricted to the road or trail tread. No off road/trail travel is permitted, so no impact to plant species would occur.

Illegal use of trails, roads, and restricted areas pose a great impact to plant species. This type of use may destroy habitat (i.e., wet bogs, forage), and greatly increase the potential for the introduction of exotic plant species. This type of activity combined with other activities (mining, house building, subdivision) poses the greatest cumulative impact to sensitive plant species.

Subdivision and house building pose the removal of habitat and an increase in disturbance throughout the area. Destruction of plant populations or the introduction of exotic plant species is greatly increased.

### **Conservation Measures**

The following conservation measures are mandatory for a determination of **No Impact** for Sensitive Plant species:

- 1) Wash all heavy equipment prior to delivery to work site. Locate log landings in weed free areas. If no weed free areas are available, treat noxious weed prior to use of the landing.
- 2) Insure ground disturbance sites will re-vegetate, either by artificial seeding or use of soil seed bank. If artificially seeded, use only native species common to the site. All seed and mulch material will be certified noxious weed seed free.

/s/ Kevin Suzuki

KEVIN SUZUKI  
Sensitive Plant Coordinator

**Attachment A**

**Probability of Effect on Species or Habitat:**

<b>LOW</b>	No evidence of species or habitat.
<b>MODERATE</b> Animal	Evidence of species or habitat. Species are highly mobile, low density; responds to a wide variety of habitats.
Plant	Evidence of species or habitat. Habitat abundant in area or not directly affected by project.
<b>HIGH</b> Animal	Evidence of species or habitat. Species occupy a limited area; responds to a narrow range of habitats.
Plant	Evidence of species or habitat. Habitat limited in area or directly affected by project.

**Consequence of Effect on Species and Habitat:**

<b>LOW</b>	None or inconsequential effect (direct or indirect) on habitat or population.
<b>MODERATE</b>	Possible direct or indirect effects on habitat or population. Adverse effects can be mitigated by modifying action.
<b>HIGH</b>	Apparent adverse effects on habitat or population. Adverse effects can not be removed by modifying action. Cumulative effects probable.

**Likelihood of Cumulative Effects on Species and Habitat:**

<b>NONE</b>	Past, present and future activities will not affect habitat or population.
<b>LOW</b>	Past activities or events have affected habitat or populations. Effects of present activities manageable by seasonal or spatial restrictions. Future activities are not likely to affect habitat or populations. No irreversible or irretrievable effects expected.
<b>MODERATE</b>	Cumulative effects are expected through time. Irreversible effects are manageable through special management actions. No irretrievable effects expected.
<b>HIGH</b>	Cumulative effects not controllable. Irreversible effects expected. Irretrievable effects probable.

## Bibliography

- Cooper, S. V., Jean, C. and B. L. Heidel. 1999.** Plant associations and related botanical inventory of the Beaverhead Mountains Section, Montana. Unpublished report to the Bureau of Land Management. Montana Natural Heritage Program, Helena. 235 pp.
- Heidel, B. L. and J. Vanderhorst. 1996.** Sensitive plant surveys in Beaverhead and Madison counties, MT. Unpublished report to the Bureau of Land Management. Montana Natural Heritage Program, Helena, Montana. 85 pp. plus appendices.
- Jones, W. M. 2004.** Ecologically significant wetlands in the Missouri headwaters: Jefferson, lower Madison, lower Gallatin, and upper Red Rock River watersheds. Report to the Montana Department of Environmental Quality. Montana Natural Heritage Program, Helena, MT. 24 pp. + appendices.
- Lesica, P. 2003.** Conserving Globally Rare Plants on Lands Administered by the Dillon Office of the Bureau of Land Management. Report to the USDI Bureau of Land Management, Dillon Office. Montana Natural Heritage Program, Helena, MT. 22 pp. plus appendices.
- Lesica, P. 1992.** Vascular plant and sensitive plant species inventory for the Highland Mountains, Deerlodge National Forest. Unpublished report. Montana Natural Heritage Program, Helena, MT. 21 pp. plus appendices, photographs.
- Mathews, S. 1989.** Sensitive plant surveys: 1989, U.S. Forest Service, Region 1, Gallatin National Forest, Montana. Unpublished report to the USDA Forest Service, Gallatin National Forest, Bozeman, Montana. Montana Natural Heritage Program, Helena. 85 pp.
- Mincemoyer, S. 2005.** Surveys of Significant Plant Resources and Related Vegetation Types for the Butte Office of the Bureau of Land Management. Report to the USDI Bureau of Land Management, Butte Field Office. Montana Natural Heritage Program, Helena, MT. 11 pp. + appendices.
- Montana Natural Heritage Program. 1997-2006.** Montana Rare Plant Field Guide. A web based information database. <http://orion2.nris.state.mt.us/mtnhp/plants/>, Montana Natural Heritage Program, Helena, MT.
- Vanderhorst, J. and B. L. Heidel. 1995.** Sensitive plant survey in the Tobacco Root Mountains, Madison County, Montana. Unpublished report to the Beaverhead and Deerlodge National Forests. Montana Natural Heritage Program. Helena, MT. 66 pp. plus appendices.