

EFFECTS ON SENSITIVE PLANT SPECIES.

The public expressed concerns about the potential effects of road and trail travel on sensitive plant species.

1. EXISTING CONDITION

a. Natural Characteristics

Forest Service sensitive species are defined as “Those plant and animal species identified by a Regional Forester for which population viability is a concern, as evidenced by: a) significant current or predicted downward trends in population numbers or density or b) significant current or predicted downward trends in habitat capability that would reduce a species’ existing distribution” (USDA Forest Service 1991). Regional Foresters are delegated the authority to designate sensitive plant species based on the definition above (USDA Forest Service 2005). The current USFS Northern Region (R-1) sensitive plant species list was developed October 28, 2004 (Kimbell 2004a). On November 24, 2004, long-styled thistle (*Cirsium longistylum*) was removed from the Regional Forester’s list after completion of a status assessment (Kimbell 2004b).

The Lewis and Clark National Forest Land and Resource Management Plan provides Forest-wide management direction in regards to sensitive plants stating “Conduct biological evaluations of each program or activity which is Forest Service funded, authorized, or carried out on occupied Threatened, Endangered, or Sensitive species habitat, to determine whether the activity may effect Threatened and Endangered or Sensitive species” (USDA Forest Service 1986). The three plants listed on the Endangered Species List as “threatened” and occurring in Montana are water howellia (*Howellia aquatilis*), Spalding’s catchfly (*Silene spaldingii*), and Ute ladies’-tresses (*Spiranthes diluvialis*). Species occurrences and suitable habitat are only known on Forests west of the Continental Divide for water howellia and Spalding’s catchfly and in the Missouri, Jefferson, Beaverhead, Ruby, and Madison River drainages for Ute ladies’-tresses. No further analysis will be conducted for the threatened species.

The current Northern Region sensitive plant species list (Kimbell 2004a) was reviewed as it pertains to the project area. There are currently eleven sensitive plant species that either occur or are suspected to occur on the Jefferson Division (Belt Creek, Judith, Musselshell, and White Sulphur Springs Ranger Districts) of the Lewis and Clark National Forest. The presence or absence of plant populations or habitat is summarized in the following table and discussed below. Five species are known to occupy habitat and have documented occurrences in the Jefferson Division. These sensitive plant species are short-styled columbine (*Aquilegia brevistyla*), Northern wild-rye (*Elymus innovatus*), Northern rattlesnake-plantain (*Goodyera repens*), Missoula phlox (*Phlox kelseyi* var. *missoulensis*), and Austin’s knotweed (*Polygonum douglasii* ssp. *Austinae*). Six species, English sundew (*Drosera anglica*), linear-leaved sundew (*Drosera linearis*), Hall’s rush (*Juncus hallii*), Barratt’s willow (*Salix barrattiana*), water bulrush (*Scirpus subterminalis*), and alpine meadowrue (*Thalictrum alpinum*), may also be present on the Lewis and Clark National Forest. Although these species have not been found on the Forest, with the exception noted below, it is suspected that their habitat may occur. One occurrence of Hall’s rush was reported to the Montana Natural Heritage Program (MNHP 2006) in 2004. Twelve species are not known to occur on the Jefferson Division of the Lewis and Clark National Forest. These plant species are round-leaved orchis (*Amerorchis rotundifolia*), Lackschewitz’

milkvetch (*Astragalus lackschewitzii*), upward-lobed moonwort (*Botrychium ascendens*), peculiar moonwort (*Botrychium paradoxum*), small yellow lady's-slipper (*Cypripedium parviflorum*), sparrow's-egg lady's-slipper (*Cypripedium passerinum*), giant helleborine (*Epipactis gigantea*), Lackschewitz' fleabane (*Erigeron lackschewitzii*), Macoun's gentian (*Gentianopsis macounii*), stalked-pod crazyweed (*Oxytropis podocarpa*), blunt-leaved pondweed (*Potamogeton obtusifolius*), and five-leaved cinquefoil (*Potentilla quinquefolia*). Habitat information for these species is listed in Table III-68.

Table III-68. R-1 Sensitive Plant Species On The Lewis And Clark National Forest.

SPECIES NAME	HABITAT PREFERENCE AND OCCURRENCE IN PROJECT AREA
short-styled columbine	Open woods and stream banks at mid-elevations in the montane zone. <i>Known to occur in the project area.</i>
Northern wild-rye	Sandy meadows, streambank and rocky hillsides to open lodgepole pine or spruce forests. Elevations range from 4,600 to 5,200 feet on the Forest. <i>Known to occur in the project area.</i>
Northern rattlesnake-plantain	North-facing, mossy forested slopes in the montane zone. Usually in old-growth/late successional forests. <i>Known to occur in the project area.</i>
Missoula phlox	Open, exposed, limetstone-derived slopes in foothills and montane zones. <i>Known to occur in the project area.</i>
Austin's knotweed	Barren to sparsely vegetated, dry, gravelly, often shale-derived soils of eroding slopes and banks in the montane zone. Elevations range from 4,900 to 7,000 feet on the Forest. <i>Known to occur in the project area.</i>
English sundew	Sphagnum moss in wet, organic soils of fens in the montane zone. <i>Habitat may exist in the project area, but no known populations occur.</i>
linear-leaved sundew	Sphagnum moss bogs, organic soils of nutrient-poor fens at mid-elevations in the montane zone. <i>Habitat may exist in the project area, but no known populations occur.</i>
Hall's rush	Montane to sub-alpine, wet sloughs to moist or dry meadows and open, grassy slopes. Often associated with fescue grasslands or more moist meadows, sometimes partially shaded. <i>Known to occur in the project area.</i>
Barratt's willow	Cold, moist soils near or above timberline. <i>Habitat may exist in the project area, but no known populations occur.</i>
water bulrush	Shallow fresh water and boggy margins of ponds, lakes, and sloughs in valley, foothill, and montane zones. <i>Habitat may exist in the project area, but no known populations occur.</i>
alpine meadowrue	Hummocks, often beneath low shrubs in moist, alkaline meadow in the montane zone. <i>Habitat may exist in the project area, but no known populations occur.</i>
round-leaved orchis	Moist to wet coniferous forests in full or partial shade, seepy areas, and along stream habitat on limestone substrate. Associated vegetation includes spruce and horsetail species. <i>Habitat may exist in the project area, but no known populations occur.</i>
Lackschewitz' milkvetch	Open, gravelly calcareous soils and talus on ridge-tops and slopes in alpine and sub-alpine zones. <i>Habitat may exist in the project area, but no known populations occur.</i>
upward-lobed moonwort	Alpine meadows, grassy openings in open sub-alpine forests. <i>Habitat may exist in the project area, but no known populations occur.</i>
peculiar moonwort	Open meadows or dense stand of tall forbs in the foothill to alpine zones, often in areas that have experienced some disturbance. <i>Habitat may exist in the project area, but no known populations occur.</i>
small yellow lady's-slipper	Bogs, damp mossy woods, seepage areas, and moist forest meadow ecotones. <i>Habitat may exist in the project area, but no known populations occur.</i>

SPECIES NAME	HABITAT PREFERENCE AND OCCURRENCE IN PROJECT AREA
sparrow's-egg lady's-slipper	Mossy, moist, seepy places in coniferous forests, often on calcareous substrates. Frequently co-occurs with round-leaved orchis, spruce and horsetail species. <i>Habitat may exist in the project area, but no known populations occur.</i>
giant helleborine	Streambanks, lake margins, seep and springs, often near thermal waters. <i>Habitat may exist in the project area, but no known populations occur.</i>
Lachschewitz' fleabane	Open, gravelly calcareous soils and talus ridge-tops and tundra in the alpine zone. <i>Habitat may exist in the project area, but no known populations occur.</i>
Macoun's gentian	Wet, organic soils of calcareous fens in the valley and foothill zones. <i>Habitat may exist in the project area, but no known populations occur.</i>
stalked-pod crazyweed	Alpine ridge and slope habitats, often on limestone substrates. <i>Habitat may exist in the project area, but no known populations occur.</i>
blunt-leaved pondweed	Shallow water of lakes, ponds, and sloughs in the valley, foothill, and montane zones. Usually at lower elevations. <i>Habitat may exist in the project area, but no known populations occur.</i>
five-leaved cinquefoil	Dry, gravelly soils of exposed ridges and slopes in the montane to alpine zones. <i>Habitat may exist in the project area, but no known populations occur.</i>

b. Desired Condition

One of the long-range goals of the Lewis and Clark National Forest is to promote high quality, wildlife, and fish habitat to insure a desired mixture of well-distributed species and numbers for public benefit with special emphasis given to sensitive plant, animal, and fish species management (USDA Forest Service 1986 (Sec. 2-2 (3)), as amended 1993). A Forest-wide management objective is to insure maintenance of sensitive species populations through inventory data collection and program area coordination (USDA Forest Service 1986 (Sec. 2-5), as amended 1993). Special consideration may be given in land management to maintain genetic diversity (USDA Forest Service 1986 (Sec. C-2(13)), as amended 1993). Based on the Forest Plan goals, objectives, and management standards, viable populations of sensitive plant species would be maintained across the Forest, and Forest populations would contribute to a viable Regional population (USDA Forest Service 1993 - Amendment 12).

2. ENVIRONMENTAL CONSEQUENCES

a. Alternative 1 - No Action Alternative

No new, systematic ground surveys were completed for the existing travel management situation addressed in this analysis. Sensitive plant information is available, however, from past field surveys conducted prior to ground disturbing activities or as part of the sensitive plant program. This effects analysis is based on known sensitive plant occurrences as provided by the Montana Natural Heritage Program (MNHP 2006) and the Lewis and Clark National Forest plant atlas. The measure used in the effects analysis is the intersection of existing travel routes with known sensitive plant populations, as described by element occurrences (EO). Element occurrences are an area depicting what is known from direct observation. In many instances, adjacent, spatially separated clusters of plants are considered subpopulations and are grouped as one occurrence (MNHP 2006).

1. Direct and Indirect Effects

Table III-69 indicates existing roads and trails that intersect known sensitive plant populations in the Little Belt, Castle, and north half Crazy Mountains. The information was derived from element occurrence data provided by the Montana Natural Heritage Program (MNHP 2006). The number of populations intersected by each route is indicated in the table. In some instances, multiple routes intersect a single population.

Table III-69. Roads & Trails That Currently Intersect Sensitive Plant Populations.

Road or Trail	Species Present (# Element Occurrences)	Remarks
Rd 120	Northern rattlesnake-plantain (1)	Dry Fork Belt Creek
Rd 189	Northern rattlesnake-plantain (2)	Willow Park-Haymaker
Rd 251	Missoula phlox (1)	Dry Wolf
Rd 264-A	Northern rattlesnake-plantain (1), short-styled columbine (1)	Running Wolf Spur
Rd 265	Northern rattlesnake-plantain (2), short-styled columbine (7)	Sage Creek
Rd 487	Northern rattlesnake-plantain (4), short-styled columbine (2), Missoula phlox (6)	Memorial Way
Rd 825	Northern rattlesnake-plantain (1), short-styled columbine (1)	Middle Fork Judith River
Rd 839	Northern wild-rye (1), Hall's rush (1)	Divide Road
Rd 2009	Northern rattlesnake-plantain (1)	Bear-Tollgate Mountain
Rd 2084	Northern rattlesnake-plantain (1)	Skunk Gulch
Rd 3309	Northern rattlesnake-plantain (1), short-styled columbine (2)	Bear Gulch
Rd 3309-A	short-styled columbine (1)	East Fork Bear Gulch
Rd 3348	Northern rattlesnake-plantain (1)	Iron Claims
Rd 6366	Northern rattlesnake-plantain (2)	Campsite-Villars
Rd 6390	Northern rattlesnake-plantain (2), short-styled columbine (1)	Hay Canyon
Rd 6392	Northern rattlesnake-plantain (3), short-styled columbine (1)	Dry Pole Gulch
Rd 6393	Austin's knotweed (2)	Fawn Creek
Rd 6395	Northern rattlesnake-plantain (1)	Burley Gulch
Rd 6396	Northern rattlesnake-plantain (4)	Lower Burley Peak
Rd 6397	Northern rattlesnake-plantain (1)	Bluff Creek
Rd 6417	Missoula phlox (1)	Harrison Creek
Rd 6436	Northern wild-rye (1)	4WD Powerline
Rd 6550	Northern rattlesnake-plantain (1)	Burley Peak
Rd 6558	Northern rattlesnake-plantain (1)	Dead Horse T.S. 2
Rd 6573	Northern rattlesnake-plantain (1)	Republican Gulch
Rd 8807	Northern rattlesnake-plantain (1)	West Fork Hopley
Rd 8808	Northern rattlesnake-plantain (1)	Middle Fork Connection
Rd 8809	Northern rattlesnake-plantain (5)	Haymaker Canyon
Rd 8852	Northern rattlesnake-plantain (2)	Butcherknife Divide
Rd 8863	Northern rattlesnake-plantain (1), short-styled columbine (1)	Hay Coulee
Rd 8868	Northern rattlesnake-plantain (1), short-styled columbine (3)	Sawmill Gulch
Tr 401-A	Northern rattlesnake-plantain (1)	Dry Wolf Alternate
Tr 408	Northern rattlesnake-plantain (4)	Bear Park
Tr 409	Northern rattlesnake-plantain (2)	Lost Fork Judith River
Tr 417	Northern rattlesnake-plantain (1)	Butcherknife
Tr 424	Northern rattlesnake-plantain (1)	Arch Coulee
Tr 430	Northern rattlesnake-plantain (1), short-styled columbine (1)	Bear Gulch
Tr 433	Northern rattlesnake-plantain (2), short-styled columbine (1)	Burris-Ettien
Tr 437	Northern rattlesnake-plantain (1), short-styled columbine (3)	Middle Fork Judith River
Tr 439	Northern rattlesnake-plantain (2)	South Fork Judith River
Tr 458	Northern rattlesnake-plantain (3), short-styled columbine (1)	Dry Pole Canyon
Tr 602	Northern rattlesnake-plantain (3)	Haymaker Canyon
Tr 625	Northern rattlesnake-plantain (1)	Basin Creek

Road or Trail	Species Present (# Element Occurrences)	Remarks
U-189087	Northern rattlesnake-plantain (1)	Undetermined
U-2079001	Northern rattlesnake-plantain (1)	Undetermined
U-3309A001	short-styled columbine (1)	Undetermined
U-3309A002	short-styled columbine (1)	Undetermined
U-415	Northern rattlesnake-plantain (1)	Undetermined
U-487002	Missoula phlox (1)	Undetermined
U-487008	Missoula phlox (1)	Undetermined
U-487202	Northern rattlesnake-plantain (1)	Undetermined
U-839266	Missoula phlox (1)	Undetermined
U-8852006	Northern rattlesnake-plantain (1)	Undetermined

Approximately 54 Northern rattlesnake-plantain, 24 short-styled columbine, eight Missoula phlox, one Northern wild-rye, one Hall's rush, and two Austin's knotweed populations are documented along existing routes. Open routes intersect these populations 69, 28, 11, 2, 1, and 2 times, respectively. There are many additional element occurrences that are close to travel routes, but do not intersect them.

2. Cumulative Effects

The cumulative effects for Alternative 1 are the same as for the action alternatives. Therefore, the information is provided below in the Effects Common to All Alternatives section.

b. Action Alternatives 3 - 5

As with Alternative 1, no systematic ground surveys were completed for the management alternatives addressed in this analysis. The analysis for Alternatives 3 through 5 is based on known sensitive plant occurrences as provided by the Montana Natural Heritage Program (MNHP 2006), the Lewis and Clark National Forest plant atlas, the Lewis and Clark National Forest's sensitive plant species geographic information system (GIS) probability model, and habitat potential as determined by habitat and site characteristics. The measure used in the effects analysis is the intersection of existing or new proposed travel routes with known sensitive plant populations and the probability of new proposed routes intersecting sensitive plant habitat. New routes include construction, reconstruction, realignment, rerouting, adoption, and conversion of existing, new, undetermined, and abandoned roads and trails. Routes with known plant occurrences or moderate and high probabilities of sensitive plant habitat were identified. In addition, routes intersecting known plant populations from Alternative 1 that would be eliminated in Alternatives 3, 4, or 5 were also identified.

1. Direct and Indirect Effects

Actions proposed in Alternatives 3 through 5 have the potential to positively and negatively impact known sensitive plant populations. The information provided in Table III-69 for Alternative 1 applies to Alternatives 3 through 5 with the exceptions noted in Table III-70.

Table III-70. Roads & Trails That May Potentially Affect Sensitive Plant Populations.

Road/Trail	Action Proposed	Species Affected	Remarks
Rd 265	Eliminate portion of route with Alt 5.	Northern rattlesnake-plantain (1)	
Rd 825	Eliminate route through plantain population with Alts 3, 4, and 5.	Northern rattlesnake-plantain (1),	Road parallels Trail 437 through plant populations.
Rd 6395	Eliminate route with Alts 3, 4, and 5.	Northern rattlesnake-plantain (1)	
Rd 6529	Construct road for motorized use with Alts 3, 4, and 5.	Northern rattlesnake-plantain (1)	New construction. The surrounding area has a high probability of providing short-styled columbine habitat.
Rd 8809	Eliminate portion of route with Alt 5.	Northern rattlesnake-plantain (4)	Use existing trail adjacent to road.
Rd 8852	Open road to motorized use with Alts 3, 4, and 5.	Northern rattlesnake-plantain (2)	Road has decommissioned status with existing, but not implemented. Route along Conservation Strategy core population.
Rd 8863	Eliminate route with Alt 5.	Northern rattlesnake-plantain (1), short-styled columbine (1)	
Tr 424	Eliminate route with Alt 5.	Northern rattlesnake-plantain (1)	The surrounding area has a high probability of providing short-styled columbine habitat.
Tr 458	Eliminate route with Alts 3 and 5.	Northern rattlesnake-plantain (3), short-styled columbine (1)	Same EO as Rd 6392.
U-189087	Eliminate route with Alts 3, 4, and 5.	Northern rattlesnake-plantain (1)	
U-2079001	Eliminate route with Alts 4 and 5.	Northern rattlesnake-plantain (1)	
U-3309A001	Eliminate route with Alts 3, 4, and 5.	short-styled columbine (1)	Same EO as Rd 3309-A, therefore, it is still affected.
U-3309A002	Eliminate route with Alts 3, 4, and 5.	short-styled columbine (1)	Same EO as Rd 3309-A, therefore, it is still affected.
U-415 (Trail)	Eliminate route with Alt 5.	Northern rattlesnake-plantain (1)	Same EO as Rd 264-A and Trail 408.
U-487002	Eliminate route with Alts 3, 4, and 5.	Missoula phlox (1)	
U-487008	Eliminate route with Alts 3, 4, and 5.	Missoula phlox (1)	Same EO as on Rd 251 and 487, therefore, it is still affected.
U-487202	Eliminate route with Alts 3, 4, and 5.	Northern rattlesnake-plantain (1)	
U-839266	Eliminate route with Alts 3, 4, and 5.	Missoula phlox (1)	
U-8852006	Eliminate route with Alts 3, 4, and 5.	Northern rattlesnake-plantain (1)	Same as existing condition.

Implementation of the action alternatives would reduce the number of road and trail intersections with known sensitive plant populations and produce beneficial effects on sensitive plants. Although plants are not located on road or trail prisms, route elimination or decommissioning would reduce the potential damage to plants with travel off the road or trail. General cross-country foot and horse travel could still impact populations, but this

would be minimal. Elimination of routes would also reduce the potential of invasive species seed transport to sensitive plant populations. However, decommissioning methods that disturb the ground could create seedbeds favorable for invasive establishment. Alternatives 3, 4, and 5 propose to eliminate 11, 11, and 17 routes (roads, trails, and undetermined) or portions of routes, respectively, that intersect known plant populations. Route elimination with Alternatives 3, 4, and 5 would remove 8, 6, and 17 Northern rattlesnake-plantain; 3, 2, and 4 short-styled columbine; and 3, 3, and 3 Missoula phlox population intersections, respectively. In several instances other open routes still intersect these populations. Although the Record of Decision will determine the travel status of each route, specific decommissioning methods would be determined at a future time and would be designed to avoid ground disturbance and habitat alteration within existing sensitive plant populations. Some routes intersecting populations have yearlong travel restrictions.

In addition to the beneficial effects, the action alternatives also have the potential to negatively impact sensitive plants through route construction, prism modification, or opening previously decommissioned routes. Three northern rattlesnake-plantain populations could be negatively impacted. Construction of road 6529 is proposed through a rattlesnake-plantain population. This population currently intersects trail 424 adjacent to the proposed construction location. Road 8852 has a 'decommissioned' status under the existing condition. This route, which intersects 2 core Northern rattlesnake-plantain populations, would be open for motorized use with the action alternatives. Because this road currently exists, the impact would be from potential invasive species establishment or travel off the prism. Field surveys would be needed prior to road and trail prism modification to determine if sensitive plants are present and need to be avoided.

One of the goals of the Northern Rattlesnake-Plantain Conservation Strategy (USDA Forest Service 1995) is to retain suitable, but unoccupied habitat of northern rattlesnake-plantain for the colonization and establishment of new populations to support the meta-population. In addition, large core areas would be designated and managed to maintain habitat integrity and avoid fragmentation of occupied habitat. Of the ten sub-drainages containing core populations within the project area, travel management activities in two of the sub-drainages may impact core sensitive plant populations. Converting decommissioned road 8852 in Blankenship Gulch to a motorized system trail has the potential to introduce invasive species in the Dry Fork Belt Creek Sub-drainage population. Decommissioning road 8863 would benefit the Hay Coulee core population in the Sage Creek Sub-drainage in the long-term.

There is a high probability that short-styled columbine and Northern rattlesnake-plantain habitat is present along the 825 route proposed for road construction in Alternatives 3 and 4. There is also a high probability that short-styled columbine habitat is present adjacent to and intersecting the non-motorized trail construction routes proposed in Alternative 3 for the Sawmill Gulch, Wagner Gulch, and Logging Creek area. Potential habitat for Austin's knotweed may also occur along a proposed non-motorized abandoned trail realignment/reconstruction route connecting trails 436 and 437 in Alternatives 3 and 5. The Jellison Place and Barker Cemetery proposed youth loops are located adjacent to areas with a high probability of supporting short-styled columbine habitat. The potential impacts of this activity on columbine would depend on the actual placement of the loop. In each of these instances, no sensitive plant species have been surveyed for or previously identified. Field surveys would need to be conducted prior to ground disturbing activities to determine habitat status and the presence of sensitive plants.

Ground disturbing activities associated with implementation of the travel management plan would increase the likelihood of invasive plant species establishment along system roads and

trails. Road and trail management activities such as grading, widening, and other improvements or decommissioning provide fresh seedbeds for invasive species establishment.

The action alternatives propose to allow motorized wheeled-vehicle travel off designated system roads and trails for parking or camping within 300 feet of roads and trails, unless otherwise signed. If allowed in locations with known sensitive plant populations, travel off roads or trails has the potential to damage or remove plants. The exact impact would depend upon plant density and location and use of the off-route site.

2. Cumulative Effects

The cumulative effects for Alternatives 3, 4, and 5 are the same as those for the no action alternative, Alternative 1. Therefore, the information is provided below in the Effects Common to All Alternatives section.

c. Effects Common to All Alternatives

1. Direct and Indirect Effects

Existing system roads and trails would not have a major impact on sensitive plant species since the plants have established off the existing road or trail prism. Some activities associated with the roads and trails do have the potential to negatively affect individual plants, but should not cause population viability losses. Foot, horse, and motorized travel outside the road or trail prism or cross-country travel could negatively impact individual plants through damage or direct removal, but would not likely remove the entire population. Road and trail maintenance activities can disturb soil and provide fresh seedbeds for invasive species establishment. Travel along open routes, regardless of the mode, increases the potential for invasive species seed transport. Invasive plant populations have been documented within close proximity to about 21 sensitive plant populations. Invasive plants are aggressive colonizers that can have long-term negative effects on sensitive plant species and/or potential habitat through direct competition and displacement. Because herbicide use to manage invasive species can kill sensitive plants, mitigation measures identified in the Noxious Weed Control FEIS (USDA Forest Service 1994) for herbicide application are required and would minimize impacts to known sensitive plant populations.

2. Cumulative Effects

Roads and trails within the project area have the potential to be improved, modified, or closed and new roads and trails may be constructed in the future following appropriate environmental analysis. These future projects may have the potential to affect sensitive plant populations, depending on the location and scope of the project. However, project design and mitigation measures should minimize potential impacts. In addition, numerous undetermined routes in the project area may be decommissioned based on future analysis. Decommissioning measures could range from erecting a sign or placing a closure gate to complete route removal including soil compaction relief, grading to contour, establishing permanent drainage, and seeding. The impacts to sensitive plant populations would depend upon the determined decommissioning method and location. In the above described cases, site specific analysis and field surveys for plant populations would be completed prior to project implementation. Appropriate mitigation measures would be incorporated to eliminate or minimize negative effects.

Fuels reduction and timber management projects are currently planned and will continue to be planned for the Jefferson Division. These projects and any associated road use or re/construction have the potential to detrimentally impact individual plants and/or populations through direct plant removal or damage, forest vegetation successional shifts, or habitat alteration (e.g. shade reduction) within or adjacent to plant populations. Prescribed burning and/or wildfire (natural and human-caused) also have the potential to detrimentally impact sensitive plants. These actions may kill individual plants or entire populations, modify habitat (understory and overstory vegetation) to an unsuitable condition, or remove the habitat entirely. Prior to implementation of future management decisions, site specific analysis and field surveys would be completed to determine the presence/absence of sensitive plant populations, determine potential effects to sensitive plants from the actions, and prescribe mitigation measures. Typically, adverse actions to plant populations would be avoided.

d. Effects Common to All Action Alternatives

1. Direct, Indirect, and Cumulative Effects

The direct, indirect, and cumulative effects for the action alternatives (Alternative 3, 4, and 5) are discussed in Section 2.b. Action Alternatives 3-5.

MITIGATION MEASURES

All known sensitive plant species populations would be delineated and protected from ground disturbing activities. The Northern Rattlesnake-Plantain Conservation Strategy (USDA 1995) guidelines would be applied where appropriate.

Herbicide applications along roads and trails would comply with guidelines described in the Lewis and Clark National Forest Noxious Weed Control Final Supplemental Environmental Impact Statement and Record of Decision (USDA 1994) and would maintain a 100-foot buffer around known sensitive plant populations.

