Appendix A:

SUGARBERRY PROJECT

Botany Report
For
Special Interest Plant Species
And
Other Botanical Resources

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I. INTRODUCTION

PURPOSE:

The purpose of this Botany Report is to describe the effects of the proposed project on: plant species of the Plumas National Forest (NF) Special Interest list, special habitats, and other botanical resources. Notes about revegetation with native species are included in the Recommendations section.

METHODS:

Geographic Analysis Area: The geographic boundary for analyzing cumulative effects to special interest plants and special habitats is the project boundary. Special interest plants are managed at the project level according to the PNF Interim Management Prescriptions (Hanson 2007). All known ecology, habitat, range, and distribution information is considered in creating these prescriptions, and they are periodically reviewed and updated by forest service botanists. The Sugarberry project will not cause effects to special habitats outside of project area insures adequate conservation.

Timeframe of Analysis: Past and current activities listed in the BE have altered special interest plants and special habitats. The effects of past activities are built into this analysis in that they are largely responsible for the existing landscape.

Analysis Method

The Sugarberry Project area was reviewed using aerial photographs, soils maps, and known occurrences to help determine potential habitat for rare species. In the field, areas identified as potential special habitats were surveyed at a high level of intensity (complete survey). Special habitat location data were recorded using Global Positioning Systems, and the data were then entered into a Geographic Information System (GIS). Treatment units were added to the GIS to analyze proximity to special habitats and identify potential detrimental treatments.

II. EXISING ENVIRONMENT FOR SPECIAL INTEREST SPECIES:

According to Weingardt (2006), watch list species (Plumas NF special interest species) should be considered during project planning and documentation retained in the planning file. These species make an important contribution to forest biodiversity and should be maintained under the provisions of the National Forest Management Act (NFMA). Therefore, they must to be addressed appropriate throughout the National Environmental Policy Act (NEPA) process. Potential impact to these species including context, intensity, and duration of likely effects should be analyzed during project planning.

There are 7 known Special Interest plant species within the project area. They are listed in table 1 with total acres known from the analysis area and approximate acres of plants located within potential treatment units. Three of the species were not found in the potential treatment units, *Botrychium simplex*, *Darlingtonia californica*, *Drosera rotundifolia*, and *Sphagnum angustifolium*. All three of these species are found in wet meadows, seeps and springs. These special habitats will be protected under existing riparian standards and guidelines. For these reasons, no direct or indirect impacts are expected under the range of alternatives. If any of these species are found during project

implementation they will be protected by applying the standard management requirements, such as flagging and avoidance. They will not be further analyzed in this document.

Species	Common name	Acres in analysis area	Acres in treatment units
Botrychium simplexi	Yosemite moonwort	.10	.0
Clarkia mildrediae ssp. lutenscens	Golden-anthered clarkia	22.14	.60
Darlingtonia califronica	California pitcher plant	.10	.0
Didymodon norrisii	Norris's beard moss		
Drosera rotundifolia	Round-leaved sundew	5.11	.0
Sidalcia sp. novum (gigantean)	Tall checkerbloom	2.11	3.09
Sphagnum anugistofolium	Narrow-leaf peat moss	.10	0
Trichodon cylindricus	Trichodon moss	.10	.10
Vaccinium coccinium	Scarlet huckleberry	42.02	2.85
Viola tomentosa	Woolly violet	69.68	.73

Table 1, Plumas National Forest Special Interest plant species located with the Sugarberry project analysis area.

CURRENT MANAGEMENT DIRECTION:
Summary of relevant species management guides, interim management prescriptions, and other species direction or guidelines follows. The most recent Interim Management Prescriptions (IMPs) are in effect (Hanson 2007). Management direction for Special Interest Species, Category 1 (which are species that are of a global concern but do not meet the criteria for the sensitive list) is to survey and recommend conservation measures (Hanson 2007). Management direction for Special Interest Species, Category 2 (which are species that are representative of range extensions, of public interest, or are rare but not of global concern) is to report occurrences, and recommend conservation measures (Hanson 2007).

Special Interest Species:
Specific recommendations for each occurrence in a potential treatment unit are found in Appendix B, the botany Protection Plan, and are based on the Plumas NF Interim Management prescriptions 2007. The Interim Management Prescription for *Clarkia mildrediae* spp. *lutescens* , *Sidalcea gigantea*, *Vaccinium coccinium* and V*iola tomentosa* is the same.

Prescription: Evaluate all project activities on a site by site basis considering species abundance, population size, geographic distribution, and known species ecology.
Comments: By determining an occurrence's ecological significance (such as geographic position, contribution to habitat diversity or uniqueness, or species abundance) and coordinating this information with management activities, populations numbers can be maintained to avoid species addition to the sensitive list.

The interim management Prescription for *Trichodon cylindricus* is:
Prescription: Maintain hydrologic conditions. Evaluate activities and use mitigation measures consistent with Riparian management Objectives (HFQLG FEIS) or riparian Conservation Objectives (ROD, Sierra Nevada Forest Plan Amendment, p. 32-35) as appropriate. If establishing no-disturbance buffers is appropriate, consider size conditions, topographic position, slope, aspect, stand structure including height, intensity of the management activity proposed, and proximity to water in determining size and shape of the buffer.
Comments: This species is known to occur in wet and riparian habitats.

III. EFFECTS OF THE PROPOSED PROJECT ON SPECIAL INTEREST PLANT SPECIES
The following briefly summarizes the survey, habitat and distribution information and analysis of effects about the species listed in the introduction in the existing environment known from the project area. Direct/indirect effects are discussed below. Also, the cumulative effects are summarized for each species, a discussion of analysis parameters follows.

***Clarkia mildrediae* spp. *lutescens* (CLMIL)-Golden-anthered Clarkia**

This clarkia has golden colored anthers and pollen and lavender flowers in the shape of a claw with two lobes near the base. This species is found in semi-shaded openings on granitic soils or volcanics. This subspecies is found on the Plumas NF south of the North Fork of the Feather River on The Feather River RD. Surveys for this species began in 1993. There are 12 known occurrences of this species found within the project area. Over 22 acres of this species is found within the project area. Only .60 acres are located in proposed treatment units.

Effects of Alternative A on Golden-anthered Clarkia

Direct Effects: No direct effects

Indirect effects-Habitat will become more susceptible to high intensity wildfire however this would likely benefit Golden-anthered Clarkia. This subspecies is known to be tolerant of moderate to high disturbance and likely needs clearings in the forest to successfully reproduce. This is based on where the Golden-anthered Clarkia occurs across the landscape.

Cumulative effects-Habitat may be prone to noxious weed invasion as a result of high intensity wildfire. Overstory trees and shrubs will out-compete the Golden-anthered Clarkia for sunlight and water.

Effects of Alternative B and C on Golden-anthered Clarkia

Direct/Indirect Effects: Only .60 acres acre located in potential units that will be treated with groups. Groups should only occupy ten percent of the unit. This subspecies is found in semi-shaded openings which is the silvicultural prescription for the groups. Therefore, it is unlikely that the groups will be placed in clarkia habitat. If, however, a group is placed next to clarkia habitat the species is known to be a species found in openings and could invade into the created opening. If a group is placed in clarkia habitat plants may be uprooted, buried, or physically damaged in other ways by harvest activities.

Cumulative Effects: - This project in unlikely to have any negative effects to the clarkia because it is tolerant of moderate to high disturbance and requires openings in the forest canopy. Only 3% of the plants in the analysis area are located in a group selection unit and they will likely benefit from alternatives B, C, and D. Also, there are four occurrence outside of treatment units, within one mile of clarkia that will be treated. In the unlikely event that plants within the treatment unit are killed, the geographic distribution of plants will be maintained.

***Sidalcea* sp. novum ("*gigantea*") (SIGI)-Tall Checkerbloom**

This taxon is thought to be a separate species from its current placement as *Sidalcea celata* in the Jepson Manual of Higher Plants of California. Recent observations (Oswald 2002, Clifton 2005) have separated the robust Sierran populations into a new species, *Sidalcea "gigantea"* that has yet to be described. These plants are typically found in middle to high conifer forest (2100-5400ft.). Although not in the wettest areas, individuals are found in moist areas or areas with nearby water. Records of this taxon have been kept on the Plumas NF since 1999. There are six known occurrences within the project area. All of these are located along streams. Three occurrences are located within proposed treatment units.

Effects of Alternative A on Tall Checkerbloom

Direct Effects: No direct effects

Indirect effects-Habitat will become more susceptible to high intensity wildfire

Cumulative effects-Habitat may be prone to noxious weed invasion as a result of high intensity wildfire

Effects of Alternatives B and C on Tall Checkerbloom

Direct/Indirect Effects: All of the known occurrences of the tall checkerbloom are found along streams. The standard Stream Side Management Zone buffer of 150 feet on each side of the stream will provide protection for this species in proposed treatment units. Since prescribed fire can occur in Stream Side Management Zones, headfires or backfires can occur but directly lighting the checkerbloom habitat should be avoided to reduce direct heat intensity. Since fire is an integral part of the Sierra Nevada ecosystem there should be no direct or indirect effects from prescribed fire.

Cumulative Effects: There will be no known negative cumulative effects as a result of project implementation because there will be no negative direct/indirect effects due to streamside management zone protection. Also, there are no known lingering negative effects from past projects in the project area.

***Trichodon cylindrcus* (TRCY)-Trichodon moss**

This taxon is a small moss. It grows in broadleaved upland forest and upper montane coniferous forest on sandy, exposed soil and road banks at elevations of 100 to 5000 feet above sea level. CNPS (2001) gives it a ranking of 2.2

indicating that it is fairly endangered in California but more common elsewhere. There are six known occurrences on the Plumas NF

Effects of Alternative A on Trichodon moss

Direct Effects: No direct effects

Indirect effects-Habitat will become more susceptible to high intensity wildfire

Cumulative effects-Habitat may be prone to noxious weed invasion as a result of high intensity wildfire

Effects of Alternative B and C on Trichodon moss

Direct/Indirect Effects: The known occurrence in Sugarberry of this moss is found on a roadside cutbank and roadside ditch and will be protected as a controlled area.

Cumulative Effects: There will be no cumulative effects to this moss species because there are no direct/indirect effects as a result of this project. There are no past projects that overlap Trichodon moss populations. Consequently, there are no known lingering negative effects of past projects. Also, thee are no future projects planned for areas with Trichodon moss.

***Vaccinium coccinium* (VACO)-Scarlet Huckleberry**

The current distribution of the "Scarlet Huckleberry" is from Nevada County north to Alaska. In the Klamath Range and in Oregon this plant isn't as habitat specific. This plant is known to grow in moist slopes, drainages and meadows within mixed conifer or red fir forest. Sixty eight occurrences are known from the Plumas National Forest. The trend for this *Vaccinium* appears to indicate that it is in decline due to impacts and disease. However, there are some questions regarding whether this *Vaccinium* is a valid species. Threats to this moist habitat include mining, timber harvest, fuelwood gathering, livestock grazing, road construction and maintenance, and recreational activities. It is believed that periodic fire may benefit this plant. Surveys for this species began in 1979. *V. coccinium* is also a Plumas National Forest Management Indicator Species (MIS) (see Appendix D for MIS discussion). There are seven known occurrences of the huckleberry in the project area. Only one is found within a proposed treatment area. 42 acres of scarlet huckleberry is found within the project area with only 2.85 found within a proposed treatment unit.

Effects of Alternative A on Scarlet Huckleberry

Direct Effects: No direct effects

Indirect effects-Habitat will become more susceptible to high intensity wildfire

Cumulative effects-Habitat may be prone to noxious weed invasion as a result of high intensity wildfire

Effects of Alternative B and C on Scarlet Huckleberry

Direct/Indirect Effects: Only 2.85 acres acre located in potential units that will be treated with groups. Groups should only occupy ten percent of the unit. This species is known to grow in moist slopes and drainages. If a group is placed in huckleberry habitat plants may be uprooted, buried, or physically damaged in other ways by harvest activities. However, in the 1985 scarlet huckleberry plants were in a clear cut unit that was broadcast burned in 1986 and in 1992, the plants began to resprout (Lava Timber Sale monitoring). Therefore, this species is probably more resilient to impacts than might be expected.

Cumulative Effects: - This project in unlikely to have any negative effects to the clarkia because it is tolerant of moderate disturbance. Only 7% of the plants in the analysis area are located in a group selection unit and they will likely benefit from alternatives B, C, and D. Also, there are six occurrences outside of treatment units, within one mile of the hucklberry that will be treated. In the unlikely event that plants within the treatment unit are killed, the geographic distribution of plants will be maintained.

***Viola tomentosa* (VITO)-Woolly Violet**

This is a herbaceous perennial with stems and leaves covered with gray woolly hairs. This violet is found in flat gravelly openings in the forest. This species is known to occur in the Sierra Nevada range from Plumas county to El Dorado county. On the Plumas NF, this species is known to occur on the Feather River RD and surveys for this species began in 1979. There are three known occurrences of the violet in the project area. Only one is found within a proposed treatment area. However, the two other large occurrences are found on private land. 70 acres of woolly violet is found within the project area with only .7 acres is found within a proposed treatment unit.

Effects of Alternative A on Woolly Violet

Direct Effects: No direct effects

Indirect effects-Habitat will become more susceptible to high intensity wildfire

Cumulative effects-Habitat may be prone to noxious weed invasion as a result of high intensity wildfire

Effects of Alternative B and C on Woolly Violet

Direct/Indirect Effects: Only .70 acres acre located in potential units that will be treated with groups. Groups should only occupy ten percent of the unit. This species is found in openings. Therefore, it is unlikely that the groups will be placed in woolly violet habitat. Since there is only a small amount of woolly violet on public land and it is in a proposed treatment unit it will be flagged for avoidance.

Cumulative Effects: There will be no negative cumulative effects as a result of project implementation because there will be no negative direct/indirect effects because the occurrence on public land will be protected**.** . Also, there are no known lingering negative effects from past projects in the project area.

DESCRIPTION OF CUMULATIVE EFFECTS ANALYSIS PARAMETERS

The general description of direct/indirect effects and cumulative effects would be the same as that in the Sugarberry BE. A description a cumulative effects analysis parameters and the logic behind the analysis is described below.

What is the analysis area?

The cumulative effects analysis area for *Clarkia mildrediae* spp. *lutescens , Sidalcea gigantea, Trichodon cylindricus, Vaccinium coccinium* and V*iola tomentosa* is the Sugarberry project area. The area of cumulative effects analysis was bounded in this manner because direct/ indirect effects from proposed project activities will be limited in geographic scope to the project area and none of these taxa are exceedingly rare.

How many acres of habitat are present in the area?

There are 134 acres of habitat for these five plant species within the area of cumulative effects analysis. Only areas occupied with the species are considered habitat.

How many acres will be treated with this project?

The project will only affect 0.6 acres *C. mildrediae* spp. *lutenscens* habitat and 2.85 acres of *V.* coccinium habitat. All other areas of habitat will be excluded from project activities. The total cumulative impacts to habitat for these species are 3.45 acres; approximately 2.5 percent of habitat will be treated.

What is the timeframe for the analysis?

In assessing cumulative effects for these species, impacts of past actions were included for actions implemented since 1984. Actions preceding that date were not included because no spatial data set exists. A GIS was created of all past, present, and future foreseeable actions. Spatial distribution of these past and future projects was then compared to known plant locations. There are no known past projects that overlap known occurrences of the four taxa in table 1.

What are the baselines for these species?

The baseline level of habitat is the estimated amount of habitat that the area would be capable of providing under optimum conditions. The baseline associated with this cumulative effects analysis area is the current occupied habitat for these species. This can be seen in table 1, acres of species in the project area. These baselines are comprised of the best known population data for the project area and have been compiled from botanical surveys spanning 21 years (See table 2 in the BE). It is likely that historic disturbances such as mining and timber removal negatively impacted *Clarkia mildrediae* spp. *lutescens , Sidalcea gigantea, Trichodon cylindricus, Vaccinium coccinium* and V*iola tomentosa* because these taxa are not known from habitats with recent ground disturbance.

What are the threshold levels for these species?

We attempt to preserve the genetic diversity present within the species. To accomplish this two main criteria are examined:

1. The geographic distribution of the species. Populations at the extreme edges of the range are considered very import as they may contain unique genes.
2. Populations present in unique, plant community associations and soils.

IV. SPECIAL HABITATS AND BIODIVERSITY AREAS

CURRENT MANAGEMENT DIRECTION

In order to promote and protect biodiversity and general forest health, it is necessary to maintain the unique character of many different types of habitats. Therefore, when performing botanical surveys, in addition to protecting individual species, surveys are also performed for special habitats. In the 2004 Sierra Nevada Forest Plan Amendment, Final Supplemental Environmental Impact Statement, Record of Decision (USDA 2004b) where it states as one of its management goals: "Maintain and restore the distribution and health of biotic communities in special aquatic habitats (such as springs, seeps, vernal pools, fens, bogs, and marshes) to perpetuate their unique functions and biological diversity." (pg 32). Wetland habitats are considered sensitive resources because they provide valuable habitat for a diversity of plants and wildlife and perform essential ecological and hydrological functions. Wetlands also support numerous Plumas NF Sensitive and Special interest plants species (Hanson 1999, 2003a,b). Serpentine outcrops have unique chemistry that provides habitats for unique assemblages of plants, including threatened, sensitive, and special interest species.

On the Plumas NF, this is a partial list of the types of special habitats that should be surveyed and mapped on projects. These are general guidelines, as some special habitats with particular botanical value may not fit neatly into any category, or may span more than one category. These include aspen stands, bear grass stands, fens, seeps/springs, meadows, scabs, serpentine/ultramafic soils, vernal pools, microbiotic and cryptogamic crusts.

Special Habitats:

Seep, springs, and meadows will be protected with the riparian management Objectives (HFQLG FEIS) for Riparian Conservation Areas (RHCA). A detailed description can be found in the Sugarberry project EIS appendix.

EXISTING ENVIRONMENT

There were no Bear Grass Stands, Bogs, Fens, Vernal Pools, or Microbiotic/Cryptogamic Crust habitats located in the botanical surveys of the Sugarberry area.

Springs, seeps and meadows

These types of special habitats were located on the project area, including 2 meadows, one in unit 638 and one just outside of unit 639. The meadow just outside unit 639 is habitat for 2 special interest species (*Darlingtonia californica* and *Sphagnum angustifolium*). 30 seeps and springs were found in units of the project, in units 3, 12G1, 12P3, 15, 29, 37, 65, 560, 587, 599A, 608, 610, 613, 614, 618, 624, 627, 628, 632, 638, 639, 648, 649, 791, and 912. Any known seep or spring or meadow, including those discovered during botanical surveys was surveyed by qualified botanists. Botanists searched these areas at a high level of intensity for sensitive, special interest, and noxious weed plant species. These special habitats will not affected by the action alternatives because the riparian/wetland areas will be avoided.

Quaking aspen (*Populus tremuloides*)

Five quaking aspen stands are present in the project area and all five of these will be treated in this project. These five aspen stands equal approximately 20 acres. Aspen provide important foraging and cover habitat to a variety of species. In Montane regions, healthy aspen stands are known to support the greatest level of avian and botanical species diversity (DeByle, N.V., 1985; Mueggler, W.F., 1985). Aspen stands are limited in distribution on the Plumas National Forest. Aspen generally has been regarded as a fire-induced successional species able to dominate a site until it is replaced by less fire-enduring but more shade tolerant and environmentally adapted conifers (Mueggler,W.F., 1985) Due to fire suppression all stands suffer from conifer encroachment and a subsequent decrease in aspen stand vigor (Bartos and Campbell, 1998). Complete fire protection will permit coniferous species to take over the majority of sites (Jones, J. R. and DeByle, N.V., 1985).

Beginning in the 1920's, an effective fire suppression program began on the Plumas National Forest. Prior to this time, large-scale fires, deliberately set by sheep and cattle herders as well as prospectors, occurred during the latter half of the nineteenth century and into the early twentieth century. Fires were routinely used by sheep and cattle herders to consume undergrowth and to stimulate the sprouting of palatable shrubs and grass. Prospectors used fires

to clear vegetation to make ground features more visible. Extensive sheep and cattle grazing followed the gold seekers. Numbers of sheep in California peaked in the 1880's and then began to decline, initially due to poor range conditions and later due to controls placed on the herding of sheep on public lands. Extensive railroad logging occurred in the project area during the 1920's and 1930's. Many of the abandoned railroad beds are now used as part of the road system in the project area (USDA 1996).

A landscape analysis of Slate Creek was completed in 1999. Fire intervals for large stand-replacing fires within the northern Sierra Nevada is estimated to be between 150 to 500 years prior to Euro-American settlement. Low to moderate intensity fires would have also occurred, appearing at intervals ranging from 15 to 80 years depending upon the ecological group being considered (USDA, 1999). According to Fites-Kaufman, in the northern Sierra Nevada, elevation is the most important and visible vactor underlying changes in fire regimes and vegetation. The sugarberry Project ranges from approximately 3,000 feet in elevation to approximlatey 6,000 feet in elevation. This broad range of elevation is described by thee of the six fire regimes zones Fites-kaufman describes: lower montane, mid-montane and upper montane zones. Historic fire return intervals in the project area probably ranged from 5-15 years in the lower elevations and increased to 40 years in the higher elevations (Fites-Kaufman, 2000).

Research and application has showed conifer removal to be effective at releasing existing aspen and causing root suckering. Noticeable results of increased vigor of existing trees and sucker formation from these trees would be visible within the first few growing seasons (Shepperd, 2001). Aspen stand recruitment in northern California can be achieved by removing competing conifers from the stand (Jones et al, in ed). Conifers need to be removed at least a tree height in distance from the aspen stand to ensure enough light to the forest floor for aspen release (Shepperd, 2004). For the west side of the Plumas Naitonal Forest the distance is 150 to 200 feet (Shepperd, 2004). Underburning may also be used to promote reproductions in certain circumstances.

This special habitat would benefit from removal of conifers that are competing with the aspen for sunlight and moisture. Conifers would be removed from approximately 20 acres of five aspen stands. The proposed action states to enhance 20 acres of aspen stands. Aspen enhancement is proposed in the Howland Flat area (Map 3, Appendix A). Proposed aspen enhancement would remove encroaching conifers to increase water, growing space, and light available for young aspen.

Treatment would consist of:

- Removal of conifers from the aspen stand. The aspen stand is defined as the area with visible aspen trees and the aspen root zone that extends past the aspen trees. The root zone beyond the visible aspen trees outlines the historical footprint of the aspen stand. Conifer removal in the entire aspen stand will increase light and moisture to the stand which will release existing aspen and cause root suckering to increase the size of the aspen stand to its historical size.
- In unit SBA-1, conifers greater than 9 inches dbh would be removed with ground-based harvesting systems. In units SBA-3, SBA-4 and SBA-5 conifers greater than 9 inches dbh would be removed by helicopter. Conifers less than 9 inches dbh would be hand cut. Some conifers may be retained if deemed to be performing critical hydrologic services (for example, contributing to channel stability or riparian conditions).
- In units SBA-2, no trees greater than 10 inches dbh would be removed. Trees less than 10 inches dbh would be removed by hand-cutting to protect: (1) archeological sites where ground disturbance is prohibited.
- In unit SBA-5, approximately one acre with extensive evidence of deer browse would be fenced using material cut in the area and additional material as needed. Conifers not used for the fence would be removed from the aspen stand.
- Snags will be retained whereever possible, however, due to operability and safety concerns, some snags may be removed. A wildlife biologist would assist during the marking process for the retention of snags.

- In all units, logging (including tops and limbs) and hand-cutting slash would be hand piled and burned. Piles to be burned would generally be located away from aspen root systems to minimize scorching of roots.
- The general layout of the Sugarberry aspen units involves small patches of aspen trees in riparian corridors or sandwiched in the fringe of wet meadows adjacent to conifer forest. Layout of aspen generally extends out from the visible aspen trees to incorporate the root zone; hence not all acres within aspen units would be treated in the same degree due to the absence of conifer trees in wet areas or meadows. Of the total 20 acres of aspen treatment, large conifers would be removed on approximately 12 acres and approximately 150–180 trees greater than 30 inches dbh are expected to be removed.

Removal of conifers less than 9 inches dbh will be funded by KV, if available, otherwise appropriated funds will be used.

Special measures would be implemented to minimize impacts to aspen during removal operations. These measures include, whole-tree yarding, no equipment areas, limited operating period (8/15 – until wetting rains in fall), designated skid trails, directionally fell trees, leave tree mark, and end-line yarding.

Revegetation guidelines using native species are outlined in the mitigation measures that need to be followed to maintain biodiversity in the project area.

III. MANAGEMENT RECOMMENDATIONS:

SPECIAL INTEREST PLANTS
For specific recommendations detailing protection methods for each occurrence see Appendix B (Botany Protection Plan).

SEEPS/SPRINGS AND MEADOWS: Avoid all seeps and springs within the project area. Some of the seeps are flagged and tagged for avoidance.

ASPEN STANDS: Special measures would be implemented to minimize impacts to aspen during removal operations. These measures include, whole-tree yarding, no equipment areas, limited operating period (8/15 – until wetting rains in fall), designated skid trails, directionally fell trees, leave tree mark, and end-line yarding.

1. Remove conifers in aspen stands.
2. C Clause C6.417 Whole Tree Yarding will need to be placed in the contract for sales with aspen stands that will receive treatment through this timber sale.

R5-C6.417

C.6.417#-WHOLE TREE YEARDING (8/2002) In subdivisions (payment units) aspen units; trees smaller than 20 inches dbh shall be skidded to agreed landing locations prior to limbing, bucking, and lopping, unless otherwise agreed in writing.

Trees larger than or equal to 20 inches dbh shall be bucked into two or more pieces with the butt portion no longer than 25 feet prior to being skidded into agreed landing location. The butt log shall be limbed prior to being skidded.

3. No equipment beyond the blue and white stripe flagging or blue and white stripe tags or tractor prohibited signs.

4. A limited operating period will need to occur. Operations can start in aspen stands on August 15 and can continue until wetting rains in the fall.

5. Designate skid trails within the aspen stand prior to timber harvest. Placement shall impact any riparian areas to a minimum. Consult hydrologist, if needed.

6. Directionally fell trees to avoid pulling trees across any riparian areas. Consult hydrologist, if needed.

7. Leave tree mark-Trees that are to be left within the riparian area will be marked with blue/white stripe tags.

8. End-line yarding will be used on all aspen stands to pull trees out of the riparian areas, inside the blue and white stripe flagging, or blue and white stripe tags or tractor prohibited signs.

REVEGETATION OF DISTURBED AREAS WITH NATIVE SPECIES:
All activities that require seeding or planting will need to use only locally collected native seed sources. Examples of proposed activities that may need to be seeded are road closures, landings, or skid trails. This will implement the USFS Region 5 policy (Stewart, 1994) that directs the use of native plant material for revegetation and restoration for maintaining "the overall national goal of conserving the biodiversity, health, productivity, and sustainable use of forest, rangeland, and aquatic ecosystems." An alternative method of erosion control where erosion is a particular concern and where adequate sources of local native seed are not available, is to use weed-free seed or weed-free straw with seed-heads of non-persistent cereal grains such as white oats. This will provide erosion control until native species can naturally seed in. Use K-V or other funds as available for collecting and planting native grasses for revegetation of disturbed areas.

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