



Forest
Service

April 2008



Environmental Assessment

Wolverine Timber Sale

Norwood Ranger District, GMUG National Forest
Montrose County, Colorado

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SUMMARY

The Grand Mesa, Uncompahgre and Gunnison (GMUG) National Forest proposes to apply silvicultural treatment to stands exhibiting symptoms of sudden aspen decline in the Wolverine Project Area through commercial clearcutting to move them toward a healthy, regenerated state. The proposed harvest units are located in two areas. The first contains Unit 29 and is located off National Forest System Road (NFSR) 603, the Houser Road. This unit is approximately 70 acres. The second area is located on both sides of the Tri-State power line adjacent to National Forest System Trail (NFST) 541, the Powerline Trail, approximately one mile from its intersection with NFSR 540 (Old Hwy 90). This area consists of four units: Units 43, 431, 432 and 50, ranging in size from 31 to 38 acres and is within the Norwood Ranger District, Uncompahgre National Forest, Colorado. This action is needed because sudden aspen decline may compromise a stand's ability to regenerate.

In addition to the proposed action, the Forest Service also evaluated the following alternatives:

- No action
- Limiting clearcut units to a maximum of 40 acres

Based upon the effects of the alternatives, the responsible official will decide whether or not to harvest timber, construct temporary roads and conduct other support activities to meet the stated purpose on National Forest lands within the Project Area.

INTRODUCTION

Document Structure

The Forest Service has prepared this Environmental Assessment in compliance with the National Environmental Policy Act (NEPA) and other relevant Federal and State laws and regulations. This Environmental Assessment discloses the direct, indirect, and cumulative environmental impacts that would result from the proposed action and alternatives. The document is organized into four parts:

- *Introduction:* The section includes information on the history of the project proposal, the purpose of and need for the project, and the agency's proposal for achieving that purpose and need. This section also details how the Forest Service informed the public of the proposal and how the public responded.

- *Comparison of Alternatives, including the Proposed Action:* This section provides a more detailed description of the agency's proposed action as well as alternative methods for achieving the stated purpose. These alternatives were developed based on significant issues raised by the public and other agencies. This discussion also includes design criteria applicable to the alternatives. Finally, this section provides a summary table of the environmental consequences associated with each alternative.
- *Environmental Consequences:* This section describes the environmental effects of implementing the proposed action and other alternatives. This analysis is organized by resource area. Within each section, the affected environment is described first, followed by the effects of the No Action Alternative that provides a baseline for evaluation and comparison of the other alternatives that follow.
- *Agencies and Persons Consulted:* This section provides a list of preparers and agencies consulted during the development of the environmental assessment.
- *Appendices:* The appendices provide more detailed information to support the analyses presented in the environmental assessment.

Additional documentation, including more detailed analyses of project-area resources, may be found in the project planning record located at the Norwood Ranger District Office in Norwood, Colorado.

Background

Some aspen forests on the Uncompahgre Plateau and throughout Colorado are dying for reasons that scientists don't yet fully understand. The phenomenon has been termed "sudden aspen decline." This sudden decline seems to primarily affect lower elevation, mature, "climax" aspen stands, leaving younger recently-regenerated stands (several of which are adjacent to declining stands included in this proposal) apparently unaffected. Investigations on the San Juan National Forest indicate that in stands experiencing sudden decline, aspen root systems are dying and that in some declining stands, few root suckers are being produced. Because aspen regenerates primarily through root suckering, some managers and scientists feel that initiating intensive management activities before sudden decline advances too far may be the best way to retain decline-affected stands on the landscape (Shepperd, 2008). The proposal under consideration involves the clearcut harvest and regeneration of several aspen stands that are exhibiting symptoms typical of sudden aspen decline. The project, known as the Wolverine Timber Sale, is located on the Uncompahgre Plateau, approximately 30 air miles north of Norwood, Colorado. See the attached map.

Since 2002, the project has been listed on the Schedule of Proposed Actions as Plateau Aspen Timber Sale. However, following the discovery of rapidly declining conditions during field reconnaissance in 2007, Plateau Aspen was redesigned as two projects, the Wolverine and Spartan timber sales. The Wolverine sale, the subject of this proposal, is comprised of lower-elevation stands with conditions symptomatic of sudden aspen decline, while the Spartan sale, which is not a part of this proposal, has higher elevation stands not currently exhibiting signs of sudden decline.

The management emphasis for the Wolverine Timber Sale, as identified in the Amended Land and Resource Management Plan for the Grand Mesa, Uncompahgre, and Gunnison National Forests (the Forest Plan), is livestock management (6B) for the four power line units and aspen management (4D) for unit 29.

An Environmental Assessment has been completed to document the Wolverine sale analysis.

Purpose and Need for Action _____

The purpose and need of this initiative is to apply silvicultural treatments to sudden aspen decline-affected stands in the Wolverine Project Area through commercial clearcutting to move them toward a healthy, regenerated state. There is a need to implement treatment before root systems die and lose their ability to regenerate.

There is a need to better understand through monitoring the relationship between sudden decline and regeneration response to disturbance.

Because young aspen stands do not seem affected by sudden decline, there is a need to promote ecosystem resilience by providing a diversity of age classes among aspen stands in the area.

There is a need to provide commercial forest products from National Forest System lands suitable for such purpose to local dependent industries before the commercial potential of these stands is lost.

This proposal responds to the goals and objectives outlined in the Amended Land and Resource Management Plan for the Grand Mesa, Uncompahgre, and Gunnison National Forests Forest Plan (Forest Plan), and helps move the project area towards desired conditions described in that plan.

Proposed Action _____

The proposed action to meet the purpose and need is to clearcut harvest and regenerate an estimated 210 acres of aspen in five units that are in various stages of sudden decline. The project is within Sections 22 and 23 of T47N., R13W; and Sections 29, 30 and 31 of T47N., R12W, New Mexico Principal Meridian, Montrose County, Colorado. The proposed harvest units are located in two areas. The first area contains one harvest unit, Unit 29, and is located off National Forest System Road (NFSR) 603 (the Houser Road). This unit is approximately 70 acres. The second area is located on both sides of the Tri-State power line adjacent to National Forest System Trail (NFST) 541, the Powerline Trail, approximately one mile from its intersection with NFSR 540 (Old Hwy 90). This area consists of four units: Units 43, 431, 432 and 50, ranging in size from 31 to 38 acres. The proposed action includes monitoring to ensure the best possible regeneration results.

Decision Framework

Given the purpose and need, the deciding official reviews the proposed action and the other alternatives in order to make the following decisions:

- Whether or not to harvest timber, construct temporary roads and conduct other support activities to meet the stated purpose on National Forest System lands within the Project Area
- If an action alternative is selected, under what conditions and by which methods timber harvest and associated activities would be conducted.

Scoping and Public Involvement

Scoping is a process designed to determine the potential issues associated with a proposed action and then from this list further identify those issues that are substantial and relevant to the decision (40 CFR 1501.7). First, comments are obtained from interested and affected parties, both within and outside the agency, to develop potential issues that should be considered. Second, these “potential issues” are reviewed by the interdisciplinary team to determine: 1) substantial issues to be analyzed in detail; and 2) the issues that are not substantial or that have been covered by prior environmental review and should be eliminated from detailed analysis.

The Plateau Aspen Timber Sale proposal was first listed in the Schedule of Proposed Actions for the 2nd quarter of 2002 (April 1st –June 30th). In 2007, the Plateau Aspen Timber Sale proposal was split into two sales: Wolverine and Spartan. The proposal for Wolverine was provided to the public and other agencies for comment during scoping when a legal notice was published in the Telluride Daily Planet on December 14, 2007. Letters were also sent to interested individuals, businesses and other agencies. This notice fulfills the requirements of 36 CFR 215.1b & 215.6. The comment period ended on February 12, 2008.

A public field tour was held to view the proposed Wolverine Aspen Sale on October 10, 2007, prior to scoping. A record of the attendees can be found in the project file.

The purpose of scoping is not only to identify the range of issues and concerns regarding a proposal, but also to determine the substantial issues to be analyzed in depth. The substantial issues become the focus of the interdisciplinary interaction and alternative development process. NEPA provides for the identification and elimination from detailed study of those issues that are not substantial or have been covered by prior environmental review, thus narrowing the discussion of those issues to a brief statement as to why they would not have a substantial effect on the human environment or by providing reference to their coverage elsewhere (40 CFR 1501.7(3)).

Using the comments from the public and other agencies, the interdisciplinary team developed a list of issues to address.

A summary of public comments and responses to these comments are in Appendix A. All public comment letters are located in the project record.

Issues

The Forest Service separated the issues into two groups: substantial and non-substantial issues. Significant issues were defined as those directly or indirectly caused by implementing the proposed action. Non-significant issues were identified as those: 1) outside the scope of the proposed action; 2) already decided by law, regulation, Forest Plan, or other higher level decisions; 3) irrelevant to the decision to be made; or 4) conjectural and not supported by scientific or factual evidence; or 5) potential effects are known to be minor or nonexistent and effects can be effectively eliminated or reduced through standard project design criteria or mitigation measures. The Council on Environmental Quality (CEQ) NEPA regulations require this delineation in Sec. 1501.7, "...identify and eliminate from detailed study the issues which are not significant or which have been covered by prior environmental review (Sec. 1506.3)..." A list of non-significant issues and reasons regarding their categorization as non-significant may be found at Norwood, Colorado in the project record.

As for significant issues, the Forest Service identified one topic raised during scoping. This issue includes:

Issue: If you exceed the Regional and Forest Plan standards, there is a very real risk that the stand will not regenerate and become a non-forested meadow: Concern for exceeding the 40 acre clearcut maximum was given due to the fact that these large clearings already produce significant habitat fragmentation, water quality degradation and visual disturbance. Opposition was given to exceeding the maximum based on the uncertainty of aspen regeneration in the timber sale unit in question (unit 29).

ALTERNATIVES, INCLUDING THE PROPOSED ACTION

This section describes and compares the alternatives considered for the Wolverine Timber Sale project. This section also presents the alternatives in comparative form, sharply defining the differences between each alternative and providing a clear basis for choice among options by the decision maker and the public. Some of the information used to compare the alternatives is based upon the design of the alternative and some of the information is based upon the environmental, social and economic effects of implementing each alternative.

CONSISTENCY WITH THE FOREST PLAN, LAWS, REGULATIONS, POLICIES AND OTHER DIRECTION

Forest Plan Consistency

Alternatives 2 and 3 are consistent with the overall management direction provided within the 1991 Forest Plan, as amended. Factors that were considered in determining whether this project is consistent with the Forest Plan are as follows:

1. The selected alternative assists in reaching multiple use objectives listed in Chapter III, pages 5 to 8 of the Forest Plan.
2. The selected alternative responds directly to Forest Plan goals listed in Chapter III, pages 2 to 4. The planned activities will not detract from or jeopardize any of the Forest Plan goals.
3. The selected alternative is consistent with Forest Plan Management Direction, Standards and Guidelines, and with the following Management Area Prescriptions:

4D: Aspen Management. Unit 29 is located in this Management Area. The management emphasis is to maintain or improve aspen and to provide wood fiber, wildlife habitat, visual quality and plant and animal diversity. Silvicultural treatments of aspen stands have been designed to enhance aspen size and age diversity. Wood fiber will be provided to local industries. Temporary road construction will occur. New temporary roads will be closed and obliterated by the purchaser immediately after timber is removed. Semi-primitive non-motorized, semi-primitive motorized and roaded natural recreation opportunities will not be affected by treatments. Livestock grazing is compatible with aspen management.

6B: Livestock Management Emphasis. The four power line units are located in this Management Area. The management emphasis is livestock grazing, but investments are made in compatible resource activities. Semi-primitive non-motorized and roaded natural recreation opportunities will not be affected by treatments. Aspen management is compatible with livestock grazing.

4. Silvicultural treatments are consistent with the Forest Plan.
5. Timber harvest occurs on lands suited for timber production or occurs in areas where timber harvest is permitted and is necessary to help achieve other resource management objectives.
6. In May 2005, the Forest Supervisor on the Grand Mesa, Uncompahgre and Gunnison National Forests (GMUG), issued an amendment that, in part, revised the list of Management Indicator Species (MIS). This list revision was completed under the authority and guidance provided in 36 CFR 219.19 (1982 Rule). Also as part of this amendment, the GMUG used authority provided in 36 CFR 219.14(f) in the 2005 planning Rule (2005 Rule) to make monitoring of MIS populations discretionary. However, on March 30, 2007 the Forest Service was

enjoined by the 9th Circuit District Court from implementation of the 2005 Rule. That ruling invalidated the authority provided by 36 CRF 219.14(f).

Revision of the GMUG list of MIS was completed under authorities provided in the 1982 Rule and, therefore, remains valid and in effect. However, since the 2005 Rule has been enjoined and, therefore, authority granted in 36 CFR 219.14(f) invalidated, the GMUG has reinstated MIS requirements per the 1982 planning regulations to monitor both habitat and populations. Regardless of the planning rule in effect, the GMUG has considered and will continue to consider the “best available science” in forest and project level planning, including data and analysis needs for MIS.

The scope of analysis for management indicator species is determined by forest plan management direction, specifically, its standards and guidelines (Chapter II) and monitoring direction (Chapter IV). The GMUG National Forest’s Forest Plan (Forest Plan) establishes monitoring and evaluation requirements that employ both habitat capability relationships and, at the appropriate scale, population data. The analysis completed for this project examined how the project directly, indirectly and cumulatively affects selected MIS habitat and populations and how these local effects could influence Forest-wide habitat and population trends.

Further, the analysis indicates that the project contributes to meeting Forest Plan direction as it relates to MIS.

Uncompahgre National Forest Travel Plan

Alternatives 2 and 3 are consistent with the Uncompahgre National Forest Travel Plan.

Law, Regulations, Policies and Other Guidelines

1. Clean Water Act – No specific provisions of the Clean Water Act apply to this project. Wetlands or waters of the U.S. which may be affected by this decision are not proposed for dredge, fill, or any direct site specific disturbance.
2. Clean Air Act – There are no effects on any aspect of air quality covered by the Clean Air Act or associated regulations.

ESA, National Historic Preservation Act, NFMA, etc.

National Historic Preservation Act - Adequate cultural resource surveys have been performed in accordance with the National Historical Preservation Act. No significant impact to heritage resources will occur because eligible sites will be avoided, protected, or excavated and additional heritage resources discovered during harvest activities will be protected. The Colorado State Historical Preservation Office concurred with these findings on April 21, 2008. At the time of cultural resource surveys and the environmental analysis, the Northern Ute Tribe required American Indian consultation upon discovery of any potential Traditional Cultural Properties. No such properties were recorded during the surveys of the analysis area (Cultural Resources Survey 2007). The intent of the American Indian Religious Freedom Act (P.L. 95-341) has been met.

The Endangered Species Act - A Biological Assessment (January 2008) has been prepared for the EA in accordance with the Endangered Species Act of 1973 (P.L. 93-205). Alternative 2 was determined to “may affect but not likely to adversely affect”

(NLAA) the Canadian lynx, a species listed as Threatened under the Endangered Species Act.

NFMA – Alternatives 2 and 3 comply with the National Forest Management Act. See the project file for further detail.

Alternative 1

No Action

The NEPA requires consideration of a “no action” alternative (40 CFR 1502.14d) where none of the proposed actions identified in Chapter 1 would occur. This alternative provides a baseline of comparison to aid in determining the significance of issues and effects of the proposed action. Under this alternative, no commercial timber harvest, road reconstruction or road construction would occur. The existing road conditions would be maintained in the project area. This alternative also responds to those who oppose any additional timber harvest or road construction in the analysis area.

Alternative 2

This alternative is the proposed action previously described. It is the initial proposal developed to meet the purpose and need. Alternative 2 is described in further detail below.

- Harvest about 210 acres of mature aspen. The harvest prescription would be coppice (clearcutting) with natural regeneration. The harvest of this timber is expected to produce approximately 5600 CCF of timber product. The method used to remove the timber would be by tractor or other ground based system. Logging slash and cull logs would be lopped and scattered and/or piled and burned. See Table 1 for a complete unit summary.
- Principle access would be from the Divide Road (NFSR 402), Houser Road (NFSR 603), Old Highway 90 (NFSR 540), Powerline Trail (NFST 541) and temporary roads. Approximately 1.5 miles of closed roads will be re-opened and used for the life of the sale. New temporary road construction, which does not include the re-opening of existing roads, will not exceed about 1.2 miles.
- All new temporary roads would be obliterated after completion of the timber sale.
- All re-opened roads would be closed after completion of the timber sale.
- Implement monitoring measures. See pages 16-17 and Appendix B.

Unit	Acres	Method of cut	Volume (CCF)	Logging Method	Slash Disposal
29	73	Coppice/clearcut	2072	Ground based system	Lop & scatter/pile & burn
43	35	Coppice/clearcut	871	Ground based system	Lop & scatter/pile & burn
432	31	Coppice/clearcut	772	Ground based system	Lop & scatter/pile & burn
431	38	Coppice/clearcut	946	Ground based system	Lop & scatter/pile & burn
50	33	Coppice/clearcut	965	Ground based system	Lop & scatter/pile & burn
TOTAL	210		5626		

Alternative 3

Based on public comment, this alternative was developed to keep harvest units to a maximum of forty acres. This alternative would reduce proposed harvest unit 29 to 40 acres or less. The other four units in the sale would stay the same as in Alternative 2. Reduced acreage and the associated volume reduction are the only significant differences from Alternative 2. As a result of the smaller area, less fencing costs will be incurred. Temporary road construction will remain approximately the same.

Comparison of Alternatives

The table below briefly compares the three alternatives studied in detail.

Item	Alternative 1	Alternative 2	Alternative 3
Timber Sale			
Coppice (clearcut) treatment (acres)	0	210	177
Volume Removed (CCF)	0	5626	5023
Road Construction			
Re-opened roads (miles)	0.0	1.5	1.5
Re-opened roads closed (miles)	0.0	1.5	1.5
Temporary Road Construction (miles)	0.0	1.2	1.0
Temporary Road Obliterated (miles)	0.0	1.2	1.0

Design Criteria

This section describes project design criteria that are common to Alternatives 2 and 3. The analysis of effects in the Affected Environment/Environmental Consequences section of this document assumes that these common design criteria are a part of the

alternatives. Design criteria come from a variety of sources, including Forest Service Handbooks, the Forest Plan, timber sale contract provisions, etc. Some design criteria are specifically required and developed by resource specialists to address specific issues related to the Wolverine area and the proposed activities. The source of design criteria is identified in the following list of design criteria.

Cultural Resources

The cultural resources design criteria are standard timber sale contract provisions that would be administered by the timber sale administrator, engineering representative, pre-sale forester and marking crews.

Locations of known cultural resource sites needing protection would be shown on internal working maps not subject to disclosure and/or identified on the ground so that these areas are avoided and protected during all phases of project implementation. If any new cultural resource sites are discovered during implementation, project activities would stop and the archeologist would be contacted immediately. The archeologist would evaluate the site and determine how the site would be protected.

Noxious Weeds

The noxious weed design criteria are either standard inventory/treatment methods or standard timber sale contract provisions that would be administered by the rangeland management specialist, timber sale administrator, or engineering representative.

The Forest Service would conduct a noxious weed inventory in and around the power line units prior to implementation of earth-moving activities. Any infestations of weeds would be treated prior to implementation by the Forest Service. A treatment is funded and scheduled for the 2008 field season.

The timber sale contract requires that the timber sale purchaser not move any "Off-Road Equipment" which last operated in an area that is infested with one or more invasive species of concern onto timber sale areas without having first taken reasonable measures to make each such piece of equipment free of soil, seeds, vegetative matter, or other debris that could contain or hold seeds. The purchaser must advise the Forest Service of measures taken to clean Off-Road Equipment and arrange for Forest Service inspection prior to such equipment being placed in service or moved from cutting units infested with invasive species of concern to units that are free of such invasive species.

Disturbed areas, such as roads, landings, and skid trails, would be revegetated by the purchaser with approved certified weed-free seed mixes to prevent soil erosion and/or establishment of noxious weeds. Certification tags that are removed from the seed mixture would be provided to the timber sale administrator or engineering representative. Seeding is the responsibility of the purchaser and would be accomplished during the first seeding season immediately following completion of activity in an area.

The Forest Service would designate the seed mixture to be used. The following list displays the seed mixture. Appropriate substitutions can be made and are at the discretion of the Forest Service rangeland management specialist based on availability at the time the seed is to be purchased.

Species of seed	PLS % by weight % of mix
Slender Wheatgrass	20
Muttongrass	5
Letterman's Needlegrass	20
Fringed Brome	20
American Vetch	35

Range

The design criteria would be implemented through timber sale contract provisions and administered by the timber sale administrator.

A consequence of the post-harvest fence construction in unit 29 is the possible displacement of livestock into the meadow west of the unit. To avert this possible use change, the Forest Service will supply materials and the livestock permittee will relocate the existing fence to the west to restrict cattle from the riparian area. Also, the existing pasture fence inside unit 29 will be removed by the Forest Service before logging occurs.

Excessive livestock browse pressure can reduce the likelihood of aspen regeneration success. In annual permittee meetings, the rangeland management specialist will instruct the permittee to place salt blocks away from regenerating areas and to ride the allotment frequently enough to assure that excessive livestock browse does not occur.

The rangeland management specialist will monitor the permittee's compliance with this instruction and the silviculturist will monitor regeneration condition. If monitoring indicates livestock are adversely affecting regeneration success¹, the Forest Service will fund through K-V, appropriated funds or outside funds and install fence to exclude livestock from regeneration.

The Forest Service will spray the existing spotted knapweed infestation in the summer of 2008 before sale operations begin. The K-V plan will include monitoring and treatment of noxious weeds for five years after sale closure. Additionally, the timber sale contract requires disturbed areas to be protected from establishment of noxious weeds and incorporates seed mixtures that meet the required specifications.

¹ "adverse effects" is defined as any area three acres or greater in size where the height of regeneration outside monitoring exclosures is less than 85 percent of the regeneration height within exclosures and livestock are the most significant browse animal present.

Recreation and Lands

If requested by the timber sale purchaser, winter haul and snowplowing of these roads may be permitted, subject to terms and conditions agreed upon by the Forest Service and the purchaser. Plowing and hauling could be in either direction from the units, depending on the mill location to which logs will be delivered. Unit 29 would be hauled either west on the Houser Road to the Delta-Nucla Road, then south toward Naturita; or east from the unit to the Divide Road. From there, logs would be hauled either down Transfer Road or Highway 90 toward Montrose and Delta. Timber from units 43, 431, 432 and 50 would be hauled south on Highway 90 toward Naturita or north on Highway 90 to Divide Road and then either down Transfer Road or Highway 90 toward Montrose and Delta. Colorado state law prohibits the use of snowmobiles on roads open to wheeled traffic; plowed roads will be closed to snowmobile use during non-holiday weekdays, and closed to wheeled traffic on weekends and holidays. The timber purchaser would post signs on plowed roads advising the public of these restrictions.

These requirements would be implemented through timber sale contract provisions and administered by the timber sale administrator.

Unless waived in writing by the District Ranger and timber sale administrator, on NFSR 402, NFSR 540 and NFSR 603, no log hauling or snowplowing would be allowed:

- All day on Saturday and Sunday from November 30th through March 31st.
- All day Thanksgiving Day, the following Friday, Saturday, and Sunday.
- All day December 24 through January 1.
- All day on the federal holidays of Martin Luther King Day and Presidents Day.

- From November 30th through March 31st, the purchaser would be required to post the following signs: “Road Closed to Wheeled Vehicles: Sat – Sun, Holidays, and December 24 – January 1;” “No Snowmobiles Monday – Friday except Holidays and December 24 – January 1”; and “Road Plowed Ahead.”

From November 30th through March 31st the Forest Service would issue a closure order for public vehicles and snowmobile use on effected sections of roads for the time periods stated above.

During snowplowing operations, the timber purchaser would leave no less than four inches of snow on the roads and would provide a smooth travel surface. Roads would be plowed to their full widths so that public vehicles and log trucks can pass or turnouts would be plowed open. When snowplowing creates berms along designated snowmobile trails or at the junctions of designated snowmobile trails, the purchaser would remove the berms so that snowmobile riders can safely enter and exit trails.

If winter hauling and plowing occur, an agreement between the purchaser and the Uncompahgre Valley Trail Riders snowmobile group will be negotiated and approved.

A private land parcel of 160 acres is located directly to the south of unit 50. Barring a better understanding of the actual land line location, the Forest Service would determine the private land line on the ground as it is shown on the EA map and establish the unit 50 southern boundary parallel to and 25 to 50 feet north of this line.

Silviculture

The silviculture design criteria were recommended by the certified silviculturist based upon professional experience, Forest Service Handbook 2409.17 “Silvicultural Practices Handbook” or silvicultural literature. These recommendations would be implemented through timber sale contract provisions as administered by the timber sale administrator or following harvest activities as monitored by the silviculturist and rangeland management specialist.

Aspen regeneration in stands affected by sudden aspen decline is a major concern. Post-harvest browse by livestock and elk must be controlled in unit 29 until regeneration is established – a period of about five years.

The Forest Service will fund and install a fence system around unit 29 capable of excluding both livestock and big game following completion of harvest activities. The Forest Service may experiment with different fencing methods.

K-V funds would be used to conduct annual stocking surveys in each of the sale units for five years after harvest. K-V funds would be used to install two elk monitoring exclosures and one cattle monitoring exclosure in each of the four Wolverine units near the power line the year of harvest or the year after.

Down Woody Debris / Slash Treatment

These design criteria are Forest Plan standards and guidelines for maintenance of existing snag habitat and down woody debris. These design criteria would be implemented during the time of sale preparation by the silviculturist, pre-sale forester and marking crews or through timber sale contract provisions as administered by the timber sale administrator.

A minimum of ten tons per acre of material greater than five inches in diameter would be left for purposes of maintaining desirable soil characteristics and to provide habitat features for certain desirable organisms,

Where woody debris loading exceeds about thirty tons (2,300 cubic feet) per acre, slash would be piled by the purchaser for later burning by the Forest Service. To reduce soil disturbance and the soil erosion and noxious weed establishment that can arise from it, piling would be accomplished with a grapple piler rather than a conventional bulldozer.

Tops and limbs would be lopped and scattered in harvest units to a maximum depth of 24 inches.

Landing piles and cull decks would be burned by the Forest Service.

Individual landing piles and cull decks would not exceed 2000 ft³.

Stumps would be cut to a maximum height of 12 inches.

Soil and Water

The most recent guidelines described in Forest Service Handbook 2509.25 “Watershed Conservation Practices Handbook,” (WCPH) developed by the USDA Forest Service, Rocky Mountain Region are the basis for soil and watershed design criteria. These design criteria would be implemented during sale preparation or through timber sale

contract provisions administered by the timber sale administrator or fuels contracting officer representative.

The area detrimentally impacted by tractor yarding would be limited to less than 15 percent of each cutting unit (WCPH 14.1 - Standard 13). If more than 15 percent of a cutting unit is detrimentally impacted, then skid trails would be ripped to eliminate compaction and restore productivity.

Wet areas (seeps, ponds, springs) within harvest units would be avoided by leaving small islands of leave trees to prevent disturbance of these areas.

All perennial and intermittent streams, lakes, reservoirs, and designated wetlands, would be shown on sale area maps.

The number of roads, skid trails, and landings would be kept to the minimum number, width, and total length needed to accomplish the timber harvesting and fuels reduction activities. Skid trails and temporary roads would follow existing travelways to the extent feasible. Cut and fill slopes would be kept to a minimum by designing roads to fit the terrain and avoiding toes of slopes or earth flow lobes.

Soil disturbing actions would be avoided during long periods of heavy rain or wet soils to prevent excessive rutting and mobilization of sediment during runoff events. Operation of heavy equipment within harvest units would occur when the soil moisture is below the plastic limit or protected by at least one foot of packed snow or two inches of frozen soil to prevent excessive compaction.

Cross-drain spacing would follow the maximum cross-drain spacing guidelines listed in Exhibit 01, WCPH 13.3 - Standard 11. This is the maximum spacing and would be reduced if warranted by on-site factors such as road use, slope stability, erosion hazard, filter capability to trap runoff and sediment, and conservation of ground cover integrity. Cross-drainage structures would include water bars, rolling dips, or ditch relief pipes. These structures would be designed to empty into stable slopes that disperse runoff into vegetation or slash (filter strips).

No cull log decks or landing piles would occur within the Water Influence Zone (WIZ) of lakes, reservoirs, perennial or intermittent streams. The WIZ is generally defined as the land next to water bodies where vegetation plays a major role in sustaining long-term integrity of aquatic systems. It includes the geomorphic floodplain, riparian ecosystem, and inner gorge. Its minimum horizontal width (from top of each bank) is 100 feet or the mean height of mature dominant late-seral vegetation, whichever is greatest (36 CFR 219.27e).

During road construction, initial clearing operations would fully contain material on-site and not allow material to move into the WIZ. Excess excavated material, construction debris, and other new slash developed along roads near streams would be disposed of in an area outside of the riparian area and floodplain. Disposal methods include creating filter windrows, piling and burning, disposing inside the cutting units, or disposal by other means agreed to by the timber sale administrator or engineering representative.

Ground disturbance would be minimized to the extent possible within the WIZ of perennial and intermittent streams. No harvesting would occur within the WIZ except to remove designated timber within the right-of-ways of temporary roads or skid trails.

Temporary roads or skid trails necessary to cross the WIZ or access logs would be designated and approved by the timber sale administrator, within 100 feet of the channel or ordinary high water shoreline. Crossings by roads or skid trails would be perpendicular to the channel. No skid trail would be permitted which parallels the stream within the 100 foot buffer. At least one end of the log would be suspended during skidding in the WIZ. Trees would be felled in a way that protects vegetation in the WIZ from damage.

Mechanical ground disturbance in or immediately adjacent to ephemeral drainages would be avoided. Crossing of these drainages would be permitted on designated skid trails and temporary roads as described immediately above.

Travel Management and Roads

The design criteria are implemented through timber sale contract provisions administered by the timber sale administrator.

The Powerline Trail (NFST 541) is a road that has been used for logging access in the past and is currently used by Tri-State for maintenance access to the power line. When logging operations occur during that period, the trail will be closed to all except logging and power line maintenance-related traffic during non-holiday weekdays. On weekends and holiday weekdays, the trail will be open to motorcycle use and closed to four-wheel traffic. The timber purchaser will place and maintain signs at both ends of the trail to alert recreationists of these use restrictions. Signs will also be posted to prevent recreational use of temporary roads and skid trails off the power line for the duration of the timber sale contract.

Road Maintenance: NFSRs would be maintained by the timber sale purchaser commensurate with use. This would include a deposit for surface rock replacement (gravel) on roads with a gravel surface (NFSR 402 and 540). Existing NFSRs currently open for use would also receive pre-haul maintenance depending upon on their condition and the needs of the project. Pre-haul maintenance would not include road reconstruction or repairs of an extraordinary nature but would include maintenance of drainage structures, grading the road surface, corrections to cut/fill failures, etc.

Temporary Roads: Roads constructed for temporary access into a harvest unit would be guided by the classic principles of temporary road construction requirements and would be consistent with the Watershed Conservation Practices Handbook. As necessary to attain stabilization of roadbed and fill slopes of temporary roads, the purchaser would employ such measures as out-sloping, drainage dips, and water-spreading ditches. These roads serve no long-term need as a road; therefore, they would be obliterated by the purchaser after use.

Temporary roads would be closed to public use by a closure order and signs during the life of the timber sale. Temporary roads would be physically blocked at the end of each operating season.

Closure of re-opened roads would include: removal of culverts; elimination of ditches, ruts and berms; recontouring the roadbed; revegetating, effectively blocking the road to normal vehicular traffic under existing terrain conditions; and building cross ditches and water bars, as staked or otherwise marked on the ground by the timber sale administrator.

When culverts are removed, associated fills would also be removed to the extent necessary to permit normal maximum flow of water and to restore the channel profile.

Obliteration of newly constructed temporary roads would include all items described under closure plus recontouring the roadbed.

Timber sale purchasers would be required to develop and implement a specific Traffic Control Plan prior to commencing timber sale operations. The Traffic Control Plan would be approved by the timber sale administrator.

The timber sale purchaser would be required to furnish, install and maintain all temporary traffic controls that provide Forest users with adequate warning of hazardous or potentially hazardous conditions associated with timber sale activities.

Wildlife

These design criteria would be implemented during sale preparation activities and/or through timber sale contract provisions. The wildlife biologist, pre-sale forester, timber sale administrator or silviculturist is responsible to implement these design criteria.

Prior to beginning project activities, survey for and mark as wildlife leave trees those snags containing nest cavities and other signs of wildlife use.

Attainment of Forest Plan standards and guidelines for habitat capability and habitat effectiveness are evaluated below. The HAPCAP computer model was used to determine the baseline habitat capability under current conditions, and to calculate the potential change to habitat capability resulting from project implementation.

Rocky Mountain Elk

The sale areas are utilized by elk as transitional range. Harvest activities, and access to the sale areas and harvest units can affect habitat capability and habitat effectiveness. Specific design criteria included in the project for elk include:

Effectively close roads that were re-opened and obliterate all newly constructed temporary roads used by the Purchaser that are not part of the permanent "open" transportation system.

Avoid important habitat features such as wallows and travel corridors.

Prevent unauthorized use by ATV's and the proliferation of user-developed routes within the project area by keeping the gate on the Powerline Trail locked at all times.

Northern goshawk

Additional surveys would be conducted during project implementation to determine if new, active goshawk nests appear within the project area. If an active nest is located, timber sale activities would not occur within ¼ mile of the active goshawk nest from March 1 to July 31 if those activities would cause nest failure or abandonment.

Merriam's turkey

The proposed timber sale occurs in summer and fall habitat of Merriam's turkey. Aspen habitats are utilized as brood rearing areas. The understory herbaceous vegetation provides ground cover and food for adults and their young. Insects associated with this understory vegetation also provide an important food source. Understory shrubs such as snowberry, current, and rose, as well as the interspersed stands of Gambel oak provide berries and mast in the fall.

Maintain a minimum of ten tons per acre of logs and other down woody material. Where it exists, retain at least 50 linear feet per acre of down-dead logs at least 10 inches diameter.

Red-naped Sapsucker

The proposed timber sale occurs in suitable breeding habitat for the red-naped sapsucker. This species is a cavity nester that utilizes live and dead standing aspen trees for nesting. The forest Plan includes management standards and guidelines for retention of structural habitat attributes.

Where they exist, retain 120-300 snags 8" dbh or greater per 100 acres.

Monitoring

Monitoring the presence and severity of sudden aspen decline and its effects on regeneration is a key feature of the project. The intent of decline monitoring is to begin to add to the current small body of knowledge regarding this relationship. A detailed description of decline monitoring is located in Appendix B of this EA.

Other project monitoring includes:

The timber sale administrator would monitor timber sale contract operations and enforce contract provisions to protect resources in the sale area from adverse impacts.

The wildlife biologist would continue to monitor habitat conditions for the goshawk.

The rangeland management specialist would monitor disturbed areas, such as roads, landings, and skid trails, for at least two years after the end of timber harvest operations to assess the presence of noxious weeds and, if necessary, implement chemical treatment of weeds.

A certified silviculturist would monitor regeneration success in harvest units for at least five years after harvest and, if necessary, implement actions to protect aspen seedlings

from excessive browse damage. The minimum stocking standards for aspen are 1200 trees per acre over 75% of the area after 5 years.

The soil scientist would monitor total area disturbed during and after harvest activities to assure that the soil quality objectives have been met.

Implementation of the Wolverine Timber Sale would be completed and monitored by personnel. Implementation would be documented in such reports as stand prescriptions, marking guides, marking checks, cruise designs, appraisal and contract reports, timber sale administration inspection reports, wildlife survey reports, site-visit reports, project design checklists, etc. The District Ranger would review and approve project development after completion of each major step of implementation (i.e. complete certification reports for timber sale gates 1 to 4).

ENVIRONMENTAL CONSEQUENCES

This section summarizes the physical, biological, social and economic environments of the affected project area and the potential changes to those environments due to implementation of Alternatives 2 and 3.

Economic Efficiency

This sale is attractive to the timber industry because of the demand for commercial aspen products. Although the aspen is dying, it is anticipated that approximately 50% of the volume in unit 29 and 75% of the volume in the other units will produce about 3700 ccf of live product.

The purpose of economic analysis is to evaluate each proposed alternative using discounted cash flow rate of return analysis. The analysis tool used for this process is the USDA Forest Service financial analysis software package (Quicksilver v. 5.004.45). For each alternative the financial measures of Present Net Value, Benefit-Cost-Ratio, Net Annual Equivalent, Composite Rate of Return, and Internal Rate of Return are considered.

The first step in the evaluation process is to identify relevant cost activities for each given alternative and determine their timing and units of measurement for both accuracy in the discounting process and proper equivalency. The next step in the process is to determine the relevant benefits of each management alternative. Total yearly benefits and costs are summed up based on the units of measure and the inputs, outputs, and timing of logging activities as proposed.

Guided by the scope of this analysis, benefits and costs directly related to the management activities are considered for each mutually exclusive alternative. In this report benefits and costs are compared between Alternatives 2 and 3.

Cost and benefit estimations are derived from averages taken from recent timber sales on the GMUG NF. All benefits and costs are measured in terms of real dollar values to reflect constant purchasing power. Cumulative effects and requirements are derived from the specific management alternative. Benefits are accumulated based on the estimated stumpage yields of each proposed management alternative.

Some inputs to the analysis are assumed for simplicity. The discount rate used in the project is 4%. The timing of all benefit and cost activities is consecutive or bi-yearly, thus derived from the desired start year of the project. Inflation is assumed to equal cost escalation over the analysis period.

	Alternative 2	Alternative 3
PV Benefits (\$)	\$ 97,608.00	\$ 81,485.25
Present Net Value (\$)	-\$119,075.33	-\$106,857.04
Benefit/Cost Ratio	0.45	0.43
Net Annual Equivalent (\$)	-\$26,747.55	-\$24,002.99
Composite Rate of Return (%)	-11.33	-12.05

There are no differences in environmental consequences between implementing alternative 2 or 3. The economic results are essentially the same.

Heritage Resources

No heritage resources were discovered during the inventory of the Wolverine Timber Sale. One eligible historic site is adjacent to the project area. The eligible site consists of the remains of the Old Paradox Road. The historic location of this segment of the original route built in the late 1870's has since become a modern, mechanically maintained Forest Service system road (NFSR 603). Although historic in origin, no intact wagon road features were recorded. The road template has not changed since its last documentation in 1993 by Foothill Engineering and Consultants, Inc. The site is evaluated as eligible to the National Register of Historic Places. Avoidance is not recommended because the road template has not changed since its last documentation and the use is compatible with the project activities.

There are no differences in environmental consequences between implementing alternative 2 or 3.

Silviculture

Affected Environment

Harvest under the proposed action would be confined to three seventh-level hydrologic unit code (HUC) watersheds - Little Cottonwood, Upper Cottonwood, and Sheep Creeks – which total 19,658 acres. The aspen cover type extends over 3,222 acres, which is 16

percent of the analysis area. The only prior commercial aspen harvest in this area occurred in the 1987 Raspberry sale when 248 acres in seven units were harvested. About 226 acres of that cutting occurred in Sheep Creek and about 22 acres in Upper Cottonwood Creek. All seven Raspberry sale units received stocking surveys and were certified as having met or exceeded minimum stocking standards. Three of the Raspberry sale units are adjacent to proposed Wolverine units. These regenerated units were visited during Wolverine sale reconnaissance and were found to be densely stocked with healthy young aspen trees approaching twenty feet in height. Dense, uniform stocking is also readily apparent in the 2005 aerial photography. The Raspberry sale units have fully recovered and are no longer openings, as that term is defined in the Forest Plan (III-44).

All Wolverine units exhibit to varying degrees symptoms of sudden aspen decline, such as Cytospora canker (usually caused by *Valsa sordida*), the poplar and bronze-poplar borers (*Saperda calcarata* and *Agrilus liragus* respectively) and bark beetles (*Trypophloeus populi* and *Procryphalus mucronatus*) (Worrall, in press). Sudden decline seems to primarily affect lower elevation, mature, climax aspen stands, leaving younger recently-regenerated stands - several of which are adjacent to declining stands in the Tri-State area - apparently unaffected. There are about 22,800 acres of decline-affected stands on both public and private lands of the Uncompahgre Plateau. In the Wolverine analysis area, there are about 1,100 mapped decline acres, which represents about one-third of the analysis area aspen acreage.

The most apparent characteristic of sudden aspen decline is a substantial increase in mortality occurring within a short period of time. For example, in some stands on the San Juan National Forest, more than 60 percent of overstory trees died between 2003 and 2006. And in Wolverine Unit 29, at the time stand inventory occurred in 2001, merchantable mortality was about 8 percent of total stand volume. Today, that figure is closer to 30 percent - a considerable change in the six-year intervening period.

A second and very critical characteristic of sudden aspen decline is a reduced ability to self-regenerate. The above-ground mortality that is so apparent in decline-affected stands reflects the below-ground condition of trees as well: a dead and dying overstory indicates a dead and dying root system. Because aspen reproduces almost exclusively through root suckering, sudden decline reduces aspen's ability to self-regenerate. The results from a 2007 field survey of aspen decline stands on the GMUG Forest and the Dolores District of the San Juan Forest indicate that "there is no significant regeneration response to overstory mortality in damaged stands." (Worrall, personal communication)

Healthy aspen stands usually respond well to clearcutting, as evidenced in the 1987-era clearcuts adjacent to the power line. Removal of the overstory diminishes the production of auxins that inhibit root sprouting. Although the occurrence of sudden aspen decline is cause for caution in judging aspen regeneration potential, some managers and scientists feel that clearcutting before sudden decline advances too far may be the best way to regenerate a new stand. All stands proposed for harvest in the Wolverine sale appear currently to have the capability to self-regenerate. All units are situated on soils suitable for the regeneration and maintenance of aspen cover. The forest soil scientist visited all

units and confirms that soil-related regeneration potential is high. Additionally, the presence of younger age classes indicates self-regeneration capability. In 2007, the district silviculturist observed both recent and long-term evidence of sprouting in all units, including unit 29. Stand surveys indicate between 480 and 1300 seedlings per acre in the proposed units, and in all units except unit 50, between 260 and 300 saplings per acre. This relatively recent expression of regeneration potential suggests that these stands currently retain the ability to self-regenerate. However, if left untreated, the vegetation in unit 29 will likely shift from aspen to shrub dominated. This elimination of aspen has already occurred in several aspen stands in the project vicinity.

Environmental Consequences

Under the no action alternative, the vegetation in unit 29 would likely shift from aspen- to shrub-dominated within five or ten years. This elimination of aspen has already occurred in several aspen stands in the unit 29 vicinity. Sudden decline symptoms are currently not as widespread in the Tri-State area and under the no action alternative, aspen dominance would be maintained longer than in the unit 29 area; however, if decline continues its advance, it is likely that here too, aspen would be replaced by a shrub-dominated community.

The proposed action would result in the conversion of about 210 acres of mature aspen forest to young aspen stands. About 137 acres of cutting would occur in Sheep Creek. The balance, about 73 acres, would occur in Little Cottonwood. Within five years of harvest, these areas would be stocked with aspen seedlings at levels that meet or exceed Forest Plan standards. After about 10 years, these even-aged, single-story stands would advance into the sapling/pole stage, or the structural stage in which the 1987 Raspberry sale units are currently classified. After about fifty years, stands would move into the mature structural stage. As stands approach 80-to-100 years of age, decline in vigor due to age and disease would lead to an increase in snags, down dead trees, and canopy gaps. These are characteristics of old-growth aspen forest.

Clearcutting the Wolverine stands before sudden decline further diminishes regeneration potential would likely result in the perpetuation of the aspen cover type in these areas. This young forest would contribute to the vegetation diversity of the analysis area and impart a level of ecological resilience: these young stands would be better able to endure climatic and biological stressors than if left untreated.

The environmental consequences of Alternative 3 would be similar to those associated with Alternative 2; however, only about 40 acres of aspen would be regenerated in Unit 29. The approximately 33 acres that would be retained uncut would likely continue to decline and within about 10 years would most likely be converted to a shrub-dominated community. The opportunity to retain aspen cover would be lost as well as the commercial timber value.

Cumulative Effects

A reasonably foreseeable action that must be considered the analysis is the Spartan aspen timber sale, a proposal for which scoping has not yet been initiated. Spartan is listed on

the Schedule of Proposed Actions for the GMUG as an aspen sale proposed for implementation in 2009.

The table below shows the harvest acreages of the Raspberry, Wolverine and the anticipated Spartan aspen timber sale.

About 250 acres of the Raspberry sale lie within the analysis area. These units are no longer considered openings, as that term is defined in the Forest Plan (III-44). The recovered Raspberry units account for almost half of the timber harvest that has or is expected to occur in the analysis area.

Wolverine and the Spartan aspen sales together total almost 300 acres, which is about 1.5 percent of the 19,658-acre analysis area and less than 10 percent of the aspen cover type in the analysis area. All proposed harvest in the Wolverine and Spartan sales would occur in structural stages 3B and 4B, with most (89 percent) lying within 4B. Treatment would change these areas to young aspen stands.

Sale Acres by Watershed					
WATERSHED NAME	Total Watershed Acres	Sale Name (Implementation Year)			All Sales Watershed Total
		Raspberry (1987)	Spartan (2008)	Wolverine (2009)	
LITTLE COTTONWOOD CREEK	4,425	-	-	69	69
SHEEP CREEK UPPER COTTONWOOD CREEK	4,431	226	51	137	414
UPPER COTTONWOOD CREEK	10,803	22	34	5	62
SALE TOTAL	19,658	248	86	210	544

Structural Stage Acres by Sale			
	Structural Stage		TOTAL
	3B	4B	
SPARTAN (2009)	0	86	86
WOLVERINE (2008)	33	177	210
TOTAL	33	263	296

Water

There will be no planned harvest within the Water Influence Zone (WIZ). The WIZ is defined as 100 feet either side of the streambank for perennial and intermittent streams. The boundaries for the WIZ will be defined during layout. Incidental harvest of trees may occur when needed for skid trail or road crossings.

No ground based logging equipment, landings or work areas will be permitted within the WIZ, unless necessary for skid trail or temporary road crossings. All crossings will be perpendicular to the stream. At least one end of the log would be suspended during skidding across the WIZ. Trees would be felled in a way that protects vegetation in the WIZ from damage.

All skid trails and landings will be checked by Forest Service inspectors at the conclusion of logging operations and evaluated to ensure the requirements of the WCP Handbook have been met. If needed corrective measures will be implemented. Stabilization requirements may include water barring; blockage at intersections with roads; ripping; application of slash and organic matter to disturbed sites; and seeding with desirable species.

All perennial and intermittent streams will be identified as protected streamcourses in the timber-sale contract and thus require the review and approval of suitable crossings for either skid trails or temporary roads. No temporary structures in the channel will be permitted to remain at the end of the normal operating season, unless agreed upon with the Forest Service representative. During temporary road construction, initial clearing operations will contain material on-site or remove it from the WIZ.

Should any road re-construction or heavy maintenance be required on an existing system road, within the WIZ, all material must be retained within the road prism or be removed from the WIZ.

The full length of all newly constructed temporary roads would be closed to a "Level 6" specification as defined in the EMS operational controls for road decommissioning (EMS-4.4.6-001-NO). Level 6 includes: re-contouring road prism (slopes and shoulders) and seed with natural species. Drainage crossings will be fully restored.

Road surfaces and ditches will divert water prior to intersecting the stream. Road drainage water will be discharged into either natural or constructed sediment filters/traps.

No ground disturbing operations will be allowed in ephemeral drainages except at designated crossings. Crossings would be perpendicular to the stream. At least one end of the log would be suspended during skidding across the channel. Trees would be felled in a way that protects vegetation in the channel from damage.

There are no differences in environmental consequences between implementing alternative 2 or 3.

Wildlife

Affected Environment

The Wildlife Biologist reviewed the Unit Species List for the Grand Mesa, Uncompahgre, and Gunnison National Forests (August 24, 2007) for potentially federally

listed species and habitat of concern. Based upon the project area location and habitats affected, it was determined that Canada lynx is the only federally listed species potentially affected by the proposed action. Aspen forest habitat is classified as “other” suitable lynx habitat on the GMUG National Forest. This type of habitat can provide alternative winter forage habitat for lynx and provide general forest habitat connectivity within or between Lynx Analysis Units (LAU). Both the Houser unit and the units along the power line are not within the boundaries of an LAU. The aspen stands included in the two areas are on the edge of aspen habitat that extends from the Traver Mesa LAU into non-lynx habitats such as Gambel oak or ponderosa pine forest on the south side of the Uncompahgre Plateau that are not within an LAU. Therefore, they do not provide connectivity within an LAU or between adjacent LAU's.

The wildlife biologist has reviewed the Regional Forester's Sensitive Species List and Unit Species List (August 24, 2007) for the Grand Mesa, Uncompahgre, and Gunnison National Forests to determine which species or habitats may be potentially affected. Additional plant species information for the GMUG (Johnston, 2005) was reviewed for species of concern. For this analysis, the entire Unit Species List for the GMUG was reviewed in context of the proposed action. All of the species listed were considered, and the following species were determined to be associated with the analysis area:

Forest Service Sensitive Species		
Evaluated in Detail		
Common Name	Scientific Name	Habitat(s) Potentially Used Within the Project Area
<i>Birds</i>		
Flammulated owl	<i>Otus flammeolus</i>	Ponderosa pine forest, P/J, aspen
Northern goshawk	<i>Accipiter gentilis</i>	Aspen, aspen/conifer mix, ponderosa pine
Purple martin	<i>Progne subis</i>	Aspen forest
<i>Amphibians</i>		
<i>Northern leopard frog</i>	<i>Rana sylvatica</i>	<i>Wetlands, beaver ponds, streams</i>

In accordance with the Endangered Species Act and USFS Manual Direction, the Wildlife Biologist prepared a combined Biological Assessment and Biological

Evaluation for the project to determine the effects of the proposal upon federally listed and USFS sensitive species and habitat. This report is located in the project file.

Environmental Consequences

The remaining sensitive species potentially occurring on the GMUG National Forest are outside of any effects of the proposal, geographically or biologically, and are eliminated from further review. The proposed action would have no impact upon any of these species or their habitat.

The proposed action and Alternative 3 *may effect but is not likely to adversely affect* the Canada lynx.

Rationale:

- There will be no loss or degradation of suitable habitat within an LAU.
- The proposed harvest will not impact habitat connectivity within an LAU or between adjacent LAU's.
- Potential snow plowing of Forest roads will not result in an increase in snow compaction within any of the affected LAU's. All roads that could be authorized for snow plowing to facilitate winter logging operations are currently within the Forest's Baseline Snow Compaction.

The proposed action and Alternative 3 will have *no impact* on the northern goshawk.

Rationale:

- The project area is within the known distribution of the species. However, site-specific surveys have not located any birds or signs of birds utilizing the two proposed sale areas.
- The project design would include additional surveys and monitoring during project implementation to identify any future nesting activity. Timing restrictions would be included in the timber sale contract to prevent disturbance to nesting goshawks.

The proposed action and Alternative 3 *may adversely impact individuals, but is not likely to result in a loss of species viability on the planning area, nor cause a trend toward federal listing or a loss of viability range wide* for the flammulated owl, purple martin, and northern leopard frog.

Rationale:

- Potential habitat for the species evaluated is present within the project area that could be affected by the proposed action.
- The project area is within the known distribution of the species. However, none of the species have highly limited distribution or are known to occur only within the project area.
- Planned clearcut harvest can result in localized habitat degradation for these species.
- Planned clearcut harvest that occurs during the breeding and nesting season can result in mortality of nesting birds and/or eggs.
- Planned harvest activities can result in mortality of adult leopard frogs that are outside streams and wetland areas and their associated no-harvest buffer zones

CONSULTATION AND COORDINATION

The Forest Service consulted the following individuals, Federal, State, and local agencies, tribes and non-Forest Service persons during the development of this environmental assessment:

ID TEAM MEMBERS:

Monica Ruiz Diaz	ID Team Leader
Tim Garvey	Silviculturist
Brian Hoefling	Range Management Specialist
Craig Grother	Wildlife Biologist
Robert McKeever	Cultural Resource Specialist
Terry Hughes	Soil Scientist
Glenn Webb	Fuels Specialist
Scott Spielman	Snow Ranger
Dee Clossen	Lands and Special Uses
Chiara Palazzolo	Landscape Architect

FEDERAL, STATE, AND LOCAL AGENCIES AND MEMBERS OF THE PUBLIC :

Colorado Division of Wildlife

Colorado Wild

Sheep Mountain Alliance

Black Canyon Audubon

High Country Citizens Alliance

Western Colorado Congress
Uncompahgre Valley Trail Riders
West End Sledders
Intermountain Resources, LLC
San Miguel Power Association
Uncompahgre Plateau Project
Delta Timber Company
Todd Enterprises
Western Excelsior Corporation
Public Access Preservation
Kinder Morgan, Inc
Ute Mountain Ute Tribe
San Miguel Environmental Health
Montrose County Commissioners
San Miguel County Commissioners
Tri-State Generation and Transmission Association
Montrose County Public Works
East Montrose County Weed Commission
Transcolorado Gas and Pipeline
Rocky Mountain Natural Gas
Telluride Watch
Colorado Trophies
Cooper Ranches
Cheatin Heart Ranch
Galley Ranch Partnership
Town of Norwood
Redwine Resources, Inc
Weimer Hunting Camp
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Dean Nasland
Garvey Brothers
Mary C Cooper Family Trust

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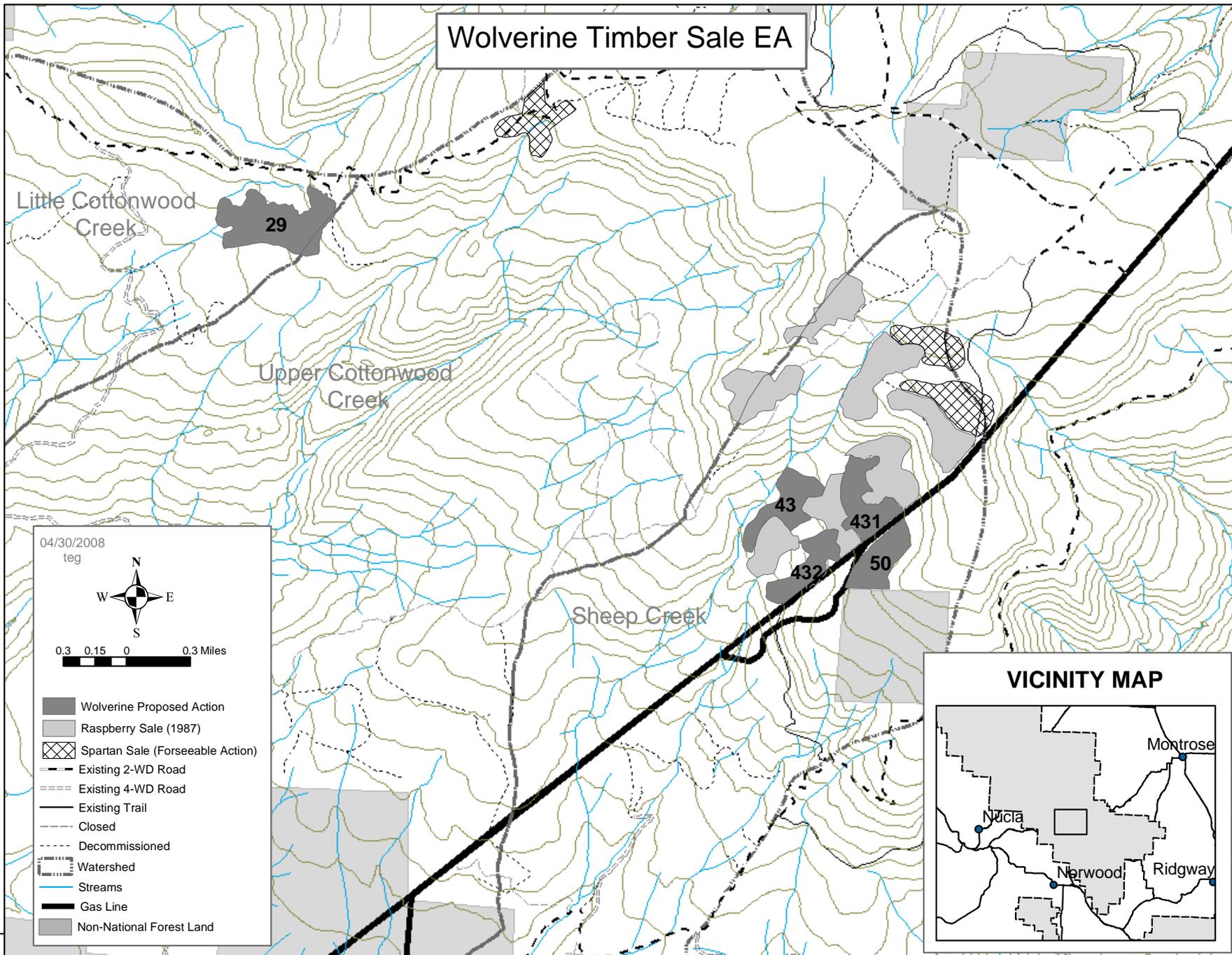
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MAPS AND APPENDICES

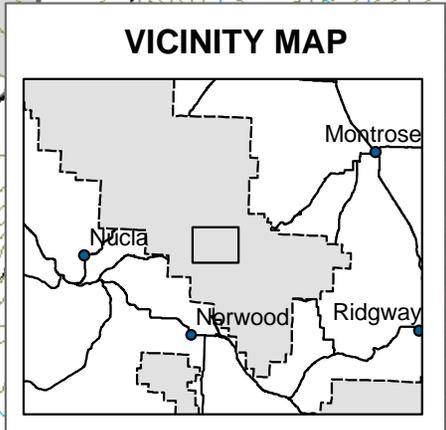
Wolverine Timber Sale EA



04/30/2008
teg

0.3 0.15 0 0.3 Miles

- Wolverine Proposed Action
- Raspberry Sale (1987)
- Spartan Sale (Forseeable Action)
- Existing 2-WD Road
- Existing 4-WD Road
- Existing Trail
- Closed
- Decommissioned
- Watershed
- Streams
- Gas Line
- Non-National Forest Land



Appendix B

Monitoring Protocol Wolverine Timber Sale

Objective: Monitoring objective is to correlate the severity of aspen decline with post-harvest sprouting response to clearcutting as compared to sprouting in untreated control areas.

Sample Design: Sampling involves the installation of “permanent” sample plots in stands to be treated through clearcutting as well in areas to remain untreated. Untreated areas will serve as experimental control. Because there is considerable variability in sudden decline symptoms within stands, a point-based sampling approach will be used. Pre-harvest decline condition will be compared with post-harvest regeneration response at each point. The plot itself, and not the stand, is the sample unit of interest.

Features of the Protocol

General

- A no-cut control in each area (Houser and Power Line) of three- to five-acres in size.
- Ten points per clearcut stand, located on a square grid. Three to five points per control area.
- Permanent plots for the expected five-year duration of the project. Points GPS'ed, monumented, and witnessed.
- Pre-harvest assessment will be conducted one time, before harvest begins. Post-harvest stocking surveys will be conducted annually for five years following completion of harvest. An overstory decline severity assessment will be conducted in year 5 following harvest in control areas only.
- Elk-and-livestock-proof fence surrounding Unit 29.
- Two 1/40th-acre elk-and-livestock-proof exclosures and one two-acre livestock exclosure in each clearcut unit and control area to monitor browse intensity. No unit fencing in clearcuts other than Unit 29 unless browse monitoring indicates a need.

Stand-level Data

- Slope, aspect, elevation, soils (soils survey or soils pit data); landform; plant community.

Plot-Level Data

- Pre-harvest sudden decline severity will be assessed using a variable radius plot (VRP) 20 BAF for trees with diameter at breast height (DBH) 5.0 inches and greater. Trees less than 5.0 inches DBH, including existing aspen suckers, will be sampled on a nested (i.e. concentric) 1/100th acre fixed radius plot (FRP). Big game pellets and cow “chips” will be counted on a 1/50th-acre FRP. (See attached drawing).
 - Pre-harvest data: species, age, crown class, crown ratio; crown class; live crown base height; decline indicators; tree species, diameter, height.

- Post-harvest stocking will be determined with a four-point cluster of FRP's (1/300th acre) centered on the same location used in the pre-harvest assessment. The cluster configuration is as follows: cluster sub-plot 1 at plot center; sub-plot 2 @ 0 degrees and 15 feet from sub-plot 1; sub-plot 3 at 120 degrees and 15 feet from sub-plot 1; sub-plot 4 at 240 degrees and 15 feet from sub-plot 1. Big game pellets and cow "chips" will be counted on a 1/50th-acre FRP. (See attached drawing).
 - Post-harvest data: number of tree; height of tallest 10%; number of stocked quadrants; damage agents.

