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DNRC - Trust Land Management Division LEGISLATIVE ENVIRONMENTAL POLICY OFFICE

CHECKLIST ENVIRONMENTAL ASSESSMENT

Project Name:	Upper Stickney Creek
Proposed Implementation Date:	November 1, 2005
Proponent:	DNRC – Helena Unit, 8001 North Montana Ave., Helena, Montana 59602
Location:	Section 16, T15N, R1W
County:	Cascade County, Montana

I. TYPE AND PURPOSE OF ACTION

A. Type of Action: *Upper Stickney Creek Timber Sale*

The Montana Department of Natural Resources and Conservation (DNRC) is proposing a helicopter timber sale near Upper Stickney Creek in Cascade County, Montana. Under this harvest alternative, the DNRC plans to cut approximately 480 MBF of sawlog material from one, 80-acre unit. Noxious weed control and/or monitoring shall continue five years after harvesting has been completed.

The proposed action could be implemented as early as July 1, 2006. Due to limited access and specialized logging requirements, the timber sale contract would be five years in length, ending November 1, 2011.

B. Purpose of Action:

The lands involved in this proposed project are held by the State of Montana in trust for the support of specific beneficiary institutions such as public schools, state colleges, universities and other specific state institutions such as the School for the Deaf and Blind (Enabling Act of February 22, 1889; 1972 Montana Constitution, Article X, Section 11). The Board of Land Commissioners and the DNRC are required by law to administer these trust lands to produce the largest measures of reasonable and legitimate return over the long run for these **beneficiary institutions (Section 77-1-202, MCA).** On May 30th, 1996, the Department released the "Record of Decision" on the State Forest Lands Management Plan (SFLMP). The Board of Land Commissioners approved the SFLMP's implementation on June 17, 1996. The SFLMP outlines DNRC's philosophy for management of state forested Trust Lands.

The Department shall manage lands involved in the project according to the philosophy in SFLMP, which states the following:

> Our premise is that the best way to produce long-term income for the trust is to manage intensively for the healthy and biologically diverse forest. Our understanding is that a diverse forest is a dynamic forest that will produce the most reliable and highest long-term revenue stream. In the foreseeable future, timber management will continue to be the DNRC's primary source of revenue and primary tool for achieving biodiversity objectives.[1]

- In order to meet the goals of the management philosophy adopted through programmatic review in the SFLMP, the Department has set the following specific project objectives:

[1] "*State Forest Land Management Plan, Final Environmental Impact Statement, Record of Decision*", Montana Department Of Natural Resources And Conservation, May 30, 1996, p. ROD-1, ROD-2.

1. Improve forest health by maintaining an "ecological balance".

Ponderosa Pine: Approximately two hundred insect species may affect ponderosa pine from its cone stage to maturity. Twenty-four are seed and cone insects, sixty affect seedlings and saplings, and one hundred and sixty affect pole or sawlog-sized trees.

Bark Beetles, Dendroctonus and Ips are major killers of ponderosa pine in unmanaged stands. A long-term solution to beetle infestations may be to regulate stand density through timber harvesting. Maintaining dominant and codominant trees that are fairly uniformly spaced and removing smaller diameter or poorly formed trees could reduce mountain pine beetle numbers.[2]

Indicators: Field evaluations can identify increased Mountain Pine Beetle activity. Indications of bark beetle activity include:

- Popcorn-shaped masses of resin, called "pitch tubes," on the trunk where beetle tunneling begins. Pitch tubes may be brown, pink or white.
- Boring dust in bark crevices and on the ground immediately adjacent to the tree base.
- Evidence of woodpecker feeding on trunk. Patches of bark are removed and bark flakes lie on the ground or snow below tree.
- Foliage turning yellowish to reddish throughout the entire tree crown. This usually occurs eight to 10 months after a successful Mountain Pine Beetle attack.
- Presence of live MPB (eggs, larvae, pupae and/or adults) as well as galleries under bark. This is the most certain indicator of infestation. A hatchet for removal of bark is needed to check trees correctly.
- Blue-stained sapwood. Check at more than one point around the tree's circumference.[3]

Douglas-fir: Can be seriously damaged by a number of insects and disease including: Western Spruce Budworm, Armillaria Root Disease, Douglas-fir Beetles, and Douglas-fir Dwarf mistletoe.

Indicators: Field evaluations can identify increased Douglas-fir Beetle activity. Indications of Douglas-Fir beetle activity include:

- Evidence that a tree has been successfully attacked is usually the reddish-brown boring dust found in bark crevices on the lower portion of the tree's bole or on the ground at its base. Wind and rain may remove the dust, however, and since attacks are often high on the bole, careful inspection may be required to determine if beetles are present. An occasionally evident sign of infestation may be a clear resin, which has exuded from the upper level of attacks-typically 30 to 35 feet off the ground. These pitch streamers are often

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[2] David M. Baumgartner, "*Ponderosa Pine The Species and Its Management Symposium Proceedings*", Washington State University, Pullman, Washington, 1987, p. 93-95.
[3] D.A. Leatherman, "*Mountain Pine Beetle*", # 5.528, Colorado State University Cooperative Extension. Available at: http://www.ext.colostate.edu/pubs/insect/05528.html

visible for a considerable distance. Streams of pitch lower on the bole may be evidence of unsuccessful attacks or other injury. As a rule, successful attacks can only be confirmed by removing sections of bark to reveal egg galleries, eggs, and/or developing brood.[4]

Lodgepole Pine: Is mainly susceptible to both Dwarf Mistletoe and Mountain pine Beetle.

Indicators: Field evaluations can identify increased Mountain Pine Beetle activity. Indications of bark beetle activity have been mentioned above.

Indicators: Field evaluations searching for witches brooms, cankers, and swelling on stems and branches would indicate Dwarf Mistletoe infections.[5]

Our goal in managing this stand is to create a biological balance between pathogens, their host, and the environment.

2. Increase growth and yield.

Due to the presently high stocking levels, tree diameter growth has slowed. Implementation of the proposed alternative should reduce tree competition for available nutrients and water while enhancing tree vigor and increasing diameter growth.

Indicators: Increased growth and yield can be obtained through monitoring the radial growth by measuring the width of the last ten rings from increment borings.

3. Reduce risk of catastrophic disaster from fires, disease, and insect infestations.

"Catastrophic" is a social connotation when a large acreage of forest is burned by a high fire intensity, "stand replacing" event where typically > 70% of the trees are killed.

Catastrophic fire within or approaching urbanized areas presents tremendous potential for loss of lives and property and can be categorized as follows:[6]

- ***High Intensity Potential*** is characterized by active crown fire, one that spreads through the green needles and tops of trees independently or at the same time as a ground level fire. Most of the trees burned are killed.

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[4] "*Douglas-Fir Beetle*", Forest Insect and Disease Identification and Management Training Manual. Available at: http://www.barkbeetles.org

[5] Hagle, Susan K., Gibson, Kenneth G., Tunnock, Scott, "*Field Guide To Diseases And Insect Pests of The Northern And Central Rocky Mountain Conifers*", Report # R1-03-08, United States Department of Agriculture, Forest Service State and Private Forestry, Northern Region, Missoula, Montana, 1987, 89p.

[6] "*Flagstaff Area Wildfire Risk Assessment, a collaborative effort in cooperation with the Ponderosa Fire Advisory Council*", Greater Flagstaff Forest Partnership. Available at: http://www.gffp.org/about_gffp/firerisk.htm

- ***Moderate Intensity Potential*** is characterized by running ground fires with individual trees or groups of trees burning. These fires may produce large areas of killed trees or merely scattered clumps of tree mortality.

- ***Low Intensity Potential*** is characterized by ground level surface fires that have flame lengths generally less than four feet. These are usually not catastrophic fires, with mortality generally among the very young trees.

Indicators: Reducing the amount of ground fuels, ladder fuels, and tree canopy fuels can decrease the catastrophic (crown) fire potential. Some important factors to consider are:

- Removing ladder fuels will reduce the potential for ground fire reaching the tree crowns.

- Reducing ground fuels limits the fuel load and fire intensity that could initiate a crown fire.

Increasing the amount of discontinuous canopy layer will reduce the ability of a crown fire to maintain its integrity (that is, being able to "jump" from tree to tree or group to group).

4. Opportunity to generate revenue for the State Trust.

Harvesting approximately 500 MBF of Douglas-fir and ponderosa pine sawtimber would generate a net positive return to the State Trust.

Indicator: Stumpage receipts to the DNRC in dollars.

II. PROJECT DEVELOPMENT

1. PUBLIC INVOLVEMENT, AGENCIES, GROUPS OR INDIVIDUALS CONTACTED:

Provide a brief chronology of the scoping and ongoing involvement for this project.

1.1 History of Planning Process:

A scoping letter was sent out August 2003 to interested parties on the DNRC, Helena Unit "Timber Sale Scoping List". The "Initial Proposal" letter briefly outlined project needs and objectives as well as existing landscape conditions.

Adjacent landowners also received the same scoping letter. They were identified using GIS Metadata obtained through the Montana Cadastral Mapping Project. This public-private sector partnership creates, maintains, and disseminates a digital GIS land ownership (cadastral) map database of the entire state. In addition, current land-use information on State Trust property was obtained from the DNRC Trust Lands Management System.

A legal notice was published in the *Cascade Courier* and the Great Falls Tribune, local newspapers, in September 2003. Comments were to be directed to the DNRC Helena Unit office by September 31, 2003.

Written comments were received from Don Henen, Cascade County Surveyor. A complete listing of persons, groups, and agencies as well as written comments are on file at the Helena Unit DNRC office located at 8001 North Montana Avenue, Helena, Montana 59602.

1.2 Issues Studied in Detail:

The DNRC carefully considers comments received, identifying the following issues:

1.2.1 Issue #1: Condition of Adel Road and impacts due to timber hauling.[7]

1.2.2 Issue #2: Limited Access through Sieben Live Stock Company. Access has been granted provided a mutually agree upon logging contractor is used to harvest timber on both State Trust and Sieben Live Stock lands. Due to the high cost of helicopter logging, harvesting timber on both private and State Trust lands at the same time should increase stumpage rates (due to additional volume), while minimizing impacts to the landscape.

2. OTHER GOVERNMENTAL AGENCIES WITH JURISDICTION, LIST OF PERMITS NEEDED:

2.1 Smoke Monitoring Unit:

In 1978, federal, state, local government agencies, and the forest products industry formed the Montana State Airshed Group. Their purpose was to manage and limit the impacts of smoke generated from necessary prescribed burning. In 1990, agencies and companies in North Idaho joined the Montana group on an operational basis to accomplish the same purposes. Agencies and companies from southern Idaho joined the group in 1999.

Accumulation of smoke from controlled burning is limited through scientific monitoring of weather conditions and formal coordination of burns. Members submit a list of planned burns to the Monitoring Unit in Missoula, Montana. For each planned burn, information is provided describing the type of burn to be conducted, the number of acres, as well as the location and elevation at each site. Burns are reported by "Airshed", which are geographical areas with similar topography and weather patterns. The program coordinator and a meteorologist provide timely restriction messages for airsheds with planned burning.[8]

Slash generated from the timber harvest would be lopped and scattered to reduce wildfire risk, adhering to state standards, which are as follows:

> "*General Standard*" as defined by Administrative Rule-36.11.222, Number 4, which states: "*Slash must be reduced such that a fire starting under conditions similar to a standard day, as defined by the department's HRA Manual, would burn with a flame length of four feet or less, as calculated by the fire science BEHAVE model, or other fire behavior model selected by the department*".

[7] Henen, Don, Cascade County Surveyor, *"Letter"*, September 9, 2003, 1p.

[8] *"Smoke Monitoring Unit"*, Montana/Idaho State Airshed Group. Available at: http://www.smokemu.org

Minimal amount of slash that would accumulate at the landing area would be piled and burned by the DNRC, Helena Unit Fire Crew after submitting a request and receiving approval to burn from the Smoke Monitoring Unit.

2.2 Streamside Management Zone Law:

In 1991 Montana Legislature passed House Bill 731, known as the Streamside Management Zone (SMZ) Law (Sec.77-5-301 through 77-5-307, MCA). This law restricts forest practices within a 50-foot streamside management zone (SMZ) along each side of a stream, around lakes, or other bodies of water. The SMZ width can be extended for areas with steeper slopes or adjacent wetlands.

A small volume of timber, which is in the SMZ along Upper Stickney Creek, may be suitable for harvest. Rule #5 (36.11.305), Clearcutting and Retention Trees in the SMZ, would be applicable to proposed timber cutting along this Class-One stream segment.

2.2.1 Tree Retention on each side of a Class-1 stream segment must consist of 50% of the trees ≥ 8 inches in diameter, or 10 trees ≥ to 8 inches in diameter in each 100 liner-feet of the SMZ.[9]

3. ALTERNATIVES CONSIDERED:

3.1 Introduction:

Alternatives including the proposed action are the heart of this "Checklist Environmental Assessment". The purpose of this section is to describe the alternatives, comparing them in terms of environmental impacts and achieved objectives. Alternatives were determined through scoping, identifying the issues of concern, input from Interdisciplinary Team (IDT) specialists, and guidance from resource management standards set forth in the "SFLMP" and "Administrative Rules".

3.2 Description of Alternatives:

This section describes the activities of the No Action Alternative and all other Action Alternatives.

3.2.1 Alternative A: Deferred Harvest (No Action)

3.2.1.1 Principle Actions: Alternative A

Timber harvesting would be deferred until a later entry. However, ongoing State Trust Land permitted, licensed, and approved activities would continue as follows:

[9] DNRC, "Guide to the Streamside Management Zone Laws and Rules," DNRC Forestry Division, Service Forestry Bureau, Missoula, Montana, 2002, 32p.

- **Livestock grazing** - existing grazing lease #5569 would continue in the project area contributing $153.66 (26 AUM's x $5.91) annually to the State Trust.

- **Exclusive Outfitting Hunting** - License # CLO-99-017, acquired by Sieben Livestock Co. at $0.15/acre, would continue regardless of implementation of proposed timber harvest. Annually this license generates $96.00 for the State Trust.

- **Fire suppression** - human and natural caused fires would be suppressed by the DNRC, volunteer fire departments, and other government agencies.

- **Hunting** - deer, elk, bear, other big game hunting, as well as upland game bird hunting would continue according to the rules and regulations set forth by Montana Department of Fish, Wildlife & Parks. Beginning in 2004, purchase of a conservation license will also authorize use of accessible trust lands for hunting and fishing.

- **Public vehicle access -** existing motorized access privileges, as well as limitations, would remain the same. Currently this section is not accessible to motorized vehicles.

- **Hiking and other recreational uses -** persons having a valid State Trust Land Recreational Use Permit are welcome to hike, pick chokecherries, or perform other outdoor activities on this acreage.

3.2.1.2 Present Relevant Action Not Part of the Proposed Action:

Current land uses as described above would continue on property owned by the State of Montana. Timber harvesting on Sieben Livestock Co. lands would continue, as they are actively involved in forest management. No current timber management activity is taking place on BLM or U.S. Forest Service lands close to the project area.

3.2.1.3 Reasonably Foreseeable Relevant Actions Not Part of the Proposed Action:

U.S. Forest Service, BLM, and Private ownership would undoubtedly experience timber-harvesting activities during the next several decades.

3.2.2 Alternative B: Upper Stickney Creek Timber Harvest:

3.2.2.1 Principle Actions: Alternative B

If Alternative B were selected for implementation, the following actions would occur:

- The proposed harvest would cut approximately 480 MBF of Douglas-fir, lodgepole and ponderosa pine sawtimber, generating a net positive return to the State Trust.

- Ponderosa pine would be maintained on the landscape (successional trend of this area is towards Douglas-fir) through an even-aged seed tree method with heavy reliance on natural regeneration. This should reduce costs as well as lower administrative overhead while providing adequate ponderosa pine regeneration.

  A new age class of ponderosa pine should develop from seedlings that germinate in fully-exposed micro-environment after removal of all the previous stand except for a small number of trees, which have been left to provide seed. Instead of removing these seed trees after regeneration is established, as is a common practice, they will be left as reserves.

- In areas dominated by Douglas-fir, an even-aged silvicultural system should be employed.

  Regeneration where/when appropriate should be through a shelterwood harvest method. This method of regenerating an even-aged stand allows a new age class of Douglas-fir to develop beneath the partially shaded microenvironment provided by the residual overstory.[10]

  Successful shelterwood harvests leave sufficient trees to ameliorate temperature and moisture extremes in the openings, and provide large quantities of seed. Commonly forty trees to the acre at spacing of thirty-three feet would be adequate for regeneration.[11]

  Low thinning (thinning from below) is one of several even-aged intermediate cuttings. It removes trees from the lower crown classes and leaves those of the upper classes. The heavier the thinning, the higher the removals progress into the intermediate and codominant crown classes.[12] Low thinning should be applied in areas not suitable for Douglas-fir regeneration.

  An uneven-aged silvicultural system was considered for managing Douglas-fir in this area, but due to the multiple layered forests it produces, outbreaks of western spruce budworm would be expected.

  In group selection harvests where openings ranged from one to three tree heights, natural regeneration of Douglas-fir would be expected to occur. However, seedlings/saplings defoliation and dead tops would most likely result from western spruce budworm.[13]

- An even-aged silvicultural system of clearcutting is the preferred method for managing pure stands of lodgepole pine within the project area. Slash will be lopped and scattered to provide an adequate seed source and reduce fire hazards.

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[10] David Adams, John Hodges, David Loftis, Jim Long, Bob Seymour and John Helms, "*Silvicultural Terminology*", SAF's Silvicultural Working Group Newsletter (D-2), 1993.
[11] David M. Baumgartner, "*Interior Douglas-Fir The Species And Its Management, Symposium Proceedings*", Washington State University, Pullman, Washington, 1990, p. 196.
[12] Karl F. Wenger, "*Forestry Handbook, Second Edition*", John Wiley & Sons, Inc., 1984, P. 421.
[13] David M. Baumgartner, "*Interior Douglas-Fir The Species And Its Management, Symposium Proceedings*", Washington State University, Pullman, Washington, 1990, p. 197.

- No road construction would be necessary to access the proposed harvest unit. Harvest method would consist of using a helicopter to transport hand-felled trees to the designated landing area. Existing roads on Sieben Livestock property that are used as part of this project would require minor spot re-construction.

- Weed spraying may be done to control noxious weeds before and after timber harvesting. Post-harvest weed management would consist of monitoring for noxious weeds a minimum of five years after cutting has been completed and spot spraying if necessary. Prior to coming into the project area, harvesting equipment would be required to be clean of noxious and nuisance weeds.

III. IMPACTS ON THE PHYSICAL ENVIRONMENT

- *RESOURCES potentially impacted are listed on the form, followed by common issues that would be considered.*
- *Explain POTENTIAL IMPACTS AND MITIGATIONS following each resource heading.*
- *Enter "NONE" If no impacts are identified or the resource is not present.*

4. GEOLOGY AND SOIL QUALITY, STABILITY AND MOISTURE:

Consider the presence of fragile, compactable or unstable soils. Identify unusual geologic features. Specify any special reclamation considerations. Identify any cumulative impacts to soils.

4.1 Soils:

Geology is basic volcanic bedrock, which is exposed on ridges. No unstable slopes or unique geology features are present. Soils are Tolex channery loams/Rock outcrop complex on 30-60% slopes. Tolex channerly loams are shallow (<20") with high rock content and clayey subsoils just over the fractured volcanic bedrock. Erosion risk is low to moderate and soils are droughty. Planned helicopter harvest would have low direct, in-direct or cumulative effects to soils. Coarse woody debris and foliage would be retained on site for nutrient cycling. Road drainage would be improved along the existing access road.[14]

5. WATER QUALITY, QUANTITY AND DISTRIBUTION:

Identify important surface or groundwater resources. Consider the potential for violation of ambient water quality standards, drinking water maximum contaminant levels, or degradation of water quality. Identify cumulative effects to water resources.

5.1 Potential Issues:

5.1.1 Water Quality

Land management activities such as timber harvest and road construction and use can impact water quality by accelerating sediment delivery to streams above natural levels. These impacts are caused by erosion of fine sediments from roads, stream crossings, skid trails and landings, as well as removal of vegetation along stream channels.

[14] Jeff Collins, "*e-mail*", Soil Scientist, Montana DNRC, March 15, 2005, 1p.

5.1.2 Cumulative Watershed Effects:

Cumulative watershed impacts are described as impacts on water quality and quantity that result from the interaction of past and current activities, and the proposed action. Timber harvest can affect the timing of runoff, increase duration and magnitude of peak flows and increase the overall water yield of a watershed. The amount of water yield increase is proportional to the percentage of the forest canopy removed and the area of watershed harvested. Increased water yield may result in physical damage to stream channels causing instability, loss of fisheries habitat and downstream water quality impacts.

5.2 Affected Environment:

5.2.1 Watershed:

The proposed timber sale area is located within a single parcel of State land (Section 16, T15N R1W) located in the South Fork of Stickney Creek watershed. Stickney Creek is a tributary to the Missouri River near Craig, Montana. The South Fork drains an area of approximately 17,194 acres. Only 34 % of the watershed area is considered forested (40-100 % crown cover) and approximately 36 % is partially forested (10-40 % crown cover) the remaining 30 % consist of open parks, range foothills and pasture bottomlands.

The proposed harvest area is located on moderate slopes bordered by an unnamed intermittent tributary to the South Fork of Stickney Creek on one side and the mainstem of the South Fork of Stickney Creek on the other side. The South Fork is a perennial, Class I stream under the Montana SMZ Law and Rules, and contain a known cold water fishery. Downstream of the proposed project area, the South Fork and mainstem Stickney Creek both contain segments of channel that are intermittent. Continuous surface discharge from the headwaters to the Missouri River probably only occurs during spring snowmelt and other high runoff producing precipitation events.

Road access to the proposed helicopter landing area would utilize approximately 22 miles of county road and 9.8 miles of existing road located on private ranch and timbered land. The existing road contains 3 ford crossings of a small, unnamed, perennial tributary to the South Fork of Stickney Creek. This unnamed tributary also contains a cold-water fishery.

5.2.2 Regulatory Framework:

This segment of the Missouri River basin, including the South Fork of Stickney Creek, is classified B-1 in the Montana Water Quality Standards. The B-1 Classification is for multiple use waters suitable for domestic use after conventional treatment, growth and propagation of cold water fisheries, associated aquatic life, wildlife, agricultural and industrial uses. Among other criteria for B-1 waters, no increases are allowed above naturally occurring concentrations of sediment, which will harm or prove detrimental to other beneficial uses. Downstream beneficial uses in the South Fork of Stickney Creek include cold water fisheries, irrigation and livestock watering.

Naturally occurring includes conditions or materials present from runoff on developed land where all reasonable land, soil and water conservation practices have been applied. Reasonable practices include methods, measure or practices that protect present and

reasonably anticipated beneficial uses. The State of Montana has adopted Forestry Best Management Practices (BMP'S) through its Nonpoint Source Management Plan as the principle means of controlling nonpoint source pollution from silvicultural activities.

The South Fork of Stickney Creek has not been identified as an impaired water body in the 303(d) list that appears in the 2004 Montana 305(b) Report. The 303(d) list was compiled by the Montana Department of Environmental Quality as required by Section 303(d) of the Federal Clean Water Act and the EPA Water Quality Planning and Management Regulations (40 CFR, Part 130). Under these laws, the State was required to identify water bodies that do not fully meet water quality standards or beneficial uses are threatened.

5.3 Cumulative Watershed Effects-Existing Conditions:

A cumulative watershed effects analysis was completed by DNRC to determine the existing conditions of the South Fork of Stickney Creek during the preparation of the Stickney Creek Timber Sale Environmental Assessment in 1995. That analysis determined that only a moderate level of development activity had occurred in the South Fork of Stickney Creek drainage. At that time it was estimated that approximately 1763 acres of timber harvest had recently occurred on private ownership in the South Fork drainage. This represented approximately 10 % of the watershed area and most of the harvest had occurred as partial or selective cutting in the lower to middle portions of the watersheds. Recent field reconnaissance was used to verify that watershed conditions had not changed substantially from those evaluated for the 1995 analysis.

The 1995 analysis was completed using the Equivalent Clearcut Area (ECA) methods as outlined in Forest Hydrology Part II, USFS - Region 1, 1974. The ECA model is designed to estimate changes in average annual streamflow resulting from forest practices or treatments that remove or reduce vegetative cover, including the area disturbed by road construction. There have not been substantial levels of additional harvest within the watershed since that analysis was completed. The results of that analysis are summarized in the following table:

WATERSHED	EXISTING HARVEST (acres)	EXISTING ROAD (miles)	EXISTING ECA	EXISTING WYI
South Fork. Stickney Cr.	1763	20	1417	3 %

Equivalent Clearcut Area (ECA) is a function of total area roaded and harvested, % crown removal in harvest areas and the amount of vegetative recovery that has occurred in harvest areas. % Water Yield Increase (% WYI) is the predicted increases in average annual water yield above natural due to timber harvest and road construction.

Large segments of the South Fork drainage remain largely undeveloped and unroaded, particularly in the headwaters areas. Locations which where historically logged have successfully regenerated and appear to be at or exceed natural stocking and canopy closure levels. These older harvest activities are considered hydrologically recovered.

Stream channel condition and stability surveys were conducted on all stream channels and ephemeral draw bottoms draining the proposed harvest area. Channel conditions were rated using the Pfankuch method outlined in Forest Hydrology Part II, USFS, 1974. Stream condition

and channel stability were evaluated and rated as "good" in those portions of the South Fork of Stickney Creek draining the proposed sale area.

Field evaluations have determined that there is no evidence of cumulative watershed effect resulting from timber harvest in either watershed. The existing harvest levels are well below those levels known to cause appreciable increases in peak flows, duration of peak flows or overall average annual water yield. Existing stream channel impacts are localized and generally attributed to either poorly located roads, substandard stream-crossings, livestock grazing, and other channel alterations.

5.4 Water Quality:

Access to the sale area is provided by an existing county and private ranch and forest road system. The existing road system is low standard and several segments do not currently meet minimum BMP's. The existing road contains 3 unimproved ford crossings and segments that lack adequate surface drainage, which has resulted in undesirable concentrations of surface runoff. Low levels of sediment delivery do occur at the ford crossings.

5.5 Environmental Consequences:

5.5.1 Cumulative Watershed Effects:

The proposed prescription is to treat approximately 80 acres with group selection, single-tree selection and overstory removal. These treatments would remove approximately 30 -70% of the existing crown cover from the 80 acres harvested. This level of harvest is expected to result in a negligible amount additional ECA (equivalent clearcut area) in Stickney Creek watershed when compared with existing and natural conditions of the watershed.

The estimated potential for increase in water yield resulting from the proposed harvest is expected to be negligible. The cumulative levels of ECA and resulting potential for water yield increase resulting from the proposed harvest are expected to remain well below those levels normally associated with detrimental impacts. It is very unlikely that the predicted levels of water yield increase would influence downstream channel conditions. There is little risk of impacts to downstream channel stability or downstream beneficial uses as a result of the proposed harvest.

There is little risk of cumulative watershed impacts occurring from this proposal due to the following reasons: 1) the moderate amount of existing development activity in the watershed. 2) The low level of additional ECA and resulting water yield increase that would be generated by the proposed actions. 3) Historic timber harvest are considered to be largely hydrologically recovered due to tree regeneration and forest encroachment onto historic rangelands, and 4) Lack of existing channel impacts that can be attributed to silvicultural activities or water yield increases.

5.5.2 Water Quality:

The helicopter logging proposed for this timber sale is expected to result in low risk of erosion or accelerated rates of sediment delivery to streams within the project area due to timber harvest and yarding. The helicopter landing and log decking area located far from any stream channels or other water resources. The landing is located over 1,000

feet from the South Fork of Stickney Creek, which is the nearest potentially affected body of water.

The Streamside Management Zone Law (SMZ Law) and DNRC Forest Management Administrative Rules regulate DNRC forest management activities that occur adjacent to streams, lakes, other bodies of water, and wetlands. All proposed harvest activities shall be conducted in accordance with the SMZ Law and Rules, and Forest Management Rules addressing Streamside Management and Riparian Management Zones (ARM 36.11.425). All areas requiring SMZ and RMZ delineation have been field reviewed by a DNRC hydrologist to determine their adequacy in meeting the requirements of the law, and in protecting water quality and aquatic resources.

The primary risks to water quality are associated with roads, especially roads located adjacent to or crossing streams. The proposal timber sale does not include any new road construction or installation of new stream crossings. Three existing ford crossing of a small perennial tributary to the South Fork will be improved for proposed use that is associated with the timber sale. Rubber-tire ford mats will be installed to reduce potential impacts to the streambed and to minimize the potential for additional sediment delivery. Other improvements to the existing access/haul road include grading and installation of additional road surface drainage features.

DNRC will utilize all applicable BMPs, and reasonable mitigation and erosion control p-ractices during timber harvest, road improvement and road use activities. Site-specific design recommendations from DNRC Hydrologist, Soil Scientist will be fully implemented under the proposed actions. Use of improved ford stream crossings is subject to approval from the Department of Fish Wildlife and Parks through the permitting process required under the Montana Stream Protection Act. All provisions and mitigation measures stipulated in the 124 permit will be fully implemented.

Some short-term increases in sediment delivery are expected to occur during use of the improved ford stream crossings for sale access and timber hauling. Application of BMPs and site-specific designs and mitigation measures are expected to reduce potential for erosion, sediment delivery and subsequent impact to water quality to an acceptable level as defined in the water quality standards. Acceptable levels are defined under the Montana Water Quality Standards as those conditions occurring where all reasonable land, soil and water conservation practices have been applied.

The use of ford mats to improve the existing fords and other and other improvements to the existing road system are expected to result in adequate protection of downstream water quality and beneficial uses. There is little risk of adverse impact to water quality or downstream beneficial uses occurring as a result of the proposed actions.[15]

[15] Gary Frank, e-mail, Supervisor, Resource Management Section, FMB – Montana DNRC, November 4, 2005, 4p.

6. AIR QUALITY:

What pollutants or particulate would be produced? Identify air quality regulations or zones (e.g. Class I air shed) the project would influence. Identify cumulative effects to air quality.

6.1 Air Quality:

Air quality may be affected by burning slash that would accumulate as a result of implementation of this proposed timber harvest. As this is a proposed helicopter harvest, minimal amounts of slash are anticipated at the log decking/landing area. Majority of slash should be lopped and scattered within the harvest unit.

6.1.1 Montana / Idaho Airshed Group:

The DNRC, a member of the Montana / Idaho Airshed Group, is required to:

- Minimize or prevent the accumulation of smoke in Montana to such degree as is necessary to protect state and federal ambient air quality standards when prescribed burning is necessary for the conduct of accepted forest practices such as hazard reduction, regeneration and wildlife habitat improvement. The development of alternative methods shall be encouraged when such methods are practical.[16]

- Submit a plan and receive approval to burn, in Airshed 6, the slash that would accumulate as a result of this project.

7. VEGETATION COVER, QUANTITY AND QUALITY:

What changes would the action cause to vegetative communities? Consider rare plants or cover types that would be affected. Identify cumulative effects to vegetation.

7.1 Rare Plants and Weeds:

No rare plants have been identified in the project area (Reference Montana NRIS data files. Spotty infestations of Spotted Knapweed occur along existing access roads and proposed landing. DNRC will have a direct effect of reducing existing weeds and potential spread by pre-treating weeds with spot application of herbicide and grass seeding of new disturbed areas at landing site and selected road segments. There is low risk of in-direct or cumulative impacts to weeds.[17]

7.2 Vegetative Cover Type Changes:

The overall vegetative community of the surrounding ecosystem should not be adversely impacted due to the relatively small scope of this project. When applicable, ponderosa pine management should be a priority to maintain it on the landscape.

7.3 Vegetative Analysis:

A "Vegetative Analysis" was conducted for the Upper Stickney Creek watershed and proposed project area. Issues studied in detail as well as expected impacts as a result of implementation of the proposed project are as follows:

- Transportation System
- Property Ownership

[16] "*Smoke Monitoring Unit*", Montana/Idaho State Airshed Group. Available at: http://www.smokemu.org
[17] Jeff Collins, "*e-mail*", Soil Scientist, Montana DNRC, March 15, 2005, 1p.

- Helicopter Logging
- Forest Management

This document is part of the Upper Stickney Creek project folder an can be obtained by contacting Shawn P. Morgan, Helena Unit Forester at: DNRC Central Land Office, Helena Unit, 8001 North Montana Ave., Helena, Montana 59602, 406-458-3516.

7.4 Old Growth:

Information pertaining to old growth was derived from the following source: P. Green, J. Joy, D. Sirucek, A. Zack, B. Naumann, "*Old-Growth Forest Types of The Northern Region",* USDA Forest Service, Northern Region, April, 1992, 43 p.

7.4.1 Old Growth Definition:

There is no single all-inclusive definition of old growth, as characteristics vary by region, forest type, and local conditions. However, a generic definition of an old growth forest would be an ecosystem that is distinguished by old trees and related structural attributes. It would encompass the later stages of stand development that typically differ from earlier stages in characteristics such as tree age, tree size, number of large trees per acre and basal area. In addition, attributes such as decadence, dead trees, the number of canopy layers and canopy gaps are important but more difficult to describe because of high variability.

Old growth stands may be classified into three broad forest structures, which are:

1. *Late Seral, Single-Story* -- these stands are still dominated by the tree species and tree canopy layer that first captured the site after a stand replacing disturbance. The upper canopy is relatively closed. If understory trees are present, they are generally small, exhibit little growth, and do not form an apparent canopy layer. Other understory vegetation may be sparse. Ages and sizes of dominant trees are significantly beyond what may be found at culmination of mean annual increment of tree stand volume growth, growth rates are slowing, and tree crowns are showing signs of maturity or old age (flat, wide tops with slow main leader growth). This stage may have moderate amounts of tree decay, but little mortality, and few snags or pieces of down woody material.

2. *Late Seral, Multi-Story* -- the initial seral trees and canopy layer have lost control of the site. Disturbance or the natural mortality of age has produced holes in the upper canopy; shade tolerant understory vegetation and trees are increasing in crown volume; and shade tolerant understory tree species are growing towards the main canopy, and may have occupied part of it. Two or more canopy layers are obvious, the canopy may be irregular, and broken tops, bole rot, snags, and large down woody debris may be common. The stand may have small openings dominated by shrubs or understory forbs. Although there may be some very large or old individual trees, stand average diameter and age may be either greater or less than in the previous Late Seral, Single-Story stage. There is often great variation in average tree diameter.

3. *Near Climax* -- this stage is dominated by shade tolerant (possibly climax) tree species that captured the site after the initial seral stand has been largely replaced. A few remnant shade intolerant, early seral trees may persist, but they represent a small part of total live canopy. Depending upon overstory structure, there may be great variation in understory characteristics and tree diameter distributions. If the shade tolerant tree species are relatively short lived (such as subalpine fir), or only moderately long lived (such as grand fir), the canopy will be multi-storied, and contain significant numbers of snags and down woody debris. If the shade tolerant tree species is very long lived

(such as cedar), there may be 1 dominant canopy layer, with relatively few snags or pieces of down woody debris.

The above 3 stages are generalities useful for explaining why an individual old growth stand may be expected to have, or not have, various structural characteristics sometimes identified with old growth in forest ecology literature. Individual old growth stands may combine various elements of the above 3 stages, or may have some other unique characteristics as the result of particular site and stand history.

7.4.2 Habitat Type:

In order to classify old growth forests for stratification of site potential, groups of habitat types are used. Habitat types are a land classification system based on the potential plant associations that will dominate a site at the end of plant succession (climax). Habitat types are ideal for stratifying sites conditions in order to predict the type of old growth forest they will produce. The habitat type classification system used for grouping old growth forest in the Northern Rocky region are the "Forest Habitat Types of Northern Idaho: A Second Approximation" and "Forest Habitat Types of Montana".

Old growth types for the Northern Region have been developed for three different geographic areas, which are, northern Idaho, western Montana, and eastern Montana. The Eastern Montana Zone (in which the project area is located in) extends from the Continental Divide east to the eastern portions of the Rocky Mountains that occur near Billings and north to Lewistown and Great Falls. This area is strongly influenced by both a continental climatic influence and storms from the west. It lies in the rain shadow of the Rocky Mountains and receives much less precipitation than northern Idaho or western Montana. A relatively high percentage of the precipitation occurs in the summer. A minor percentage of the soils are influenced by volcanic ash deposition. A large percentage of the soils are developed on limestone parent material. Landforms north of Great Falls were generally developed through continental glaciation, while landforms to the south were generally developed as a result of mountain glaciation and gradual to moderate river downcutting.

7.4.3 Screening Criteria Used to Identify Old Growth Stands:

Screening criteria, such as those listed below can be used to identify stands that may meet the old growth type descriptions.

- Old Growth Type - is a group of forest cover types that have similar characteristics relative to size, number, and age of dominant overstory trees. Most common forest cover types in the northern region are: ponderosa pine; Douglas-fir; western larch; lodgepole pine; western yew; grand fir; Engelmann spruce and subalpine fir; western hemlock; western white pine; mountain hemlock, alpine larch, and subalpine fir; whitebark pine; western redcedar; limber pine.

- Habitat Type Group - Habitat type groups are cluster into larger groups based on similarity of temperature and moisture regimes within each zone.

- Minimum Age of Large Trees - This is the minimum average age for the largest size class for the old growth type.

- Number TPA/DBH - Number of live trees per acre greater than a given dbh level. This would be the minimum number of live trees per acre greater than a set dbh level.

- Minimum Basal Area - the minimum basal area in square feet for trees greater than 5" dbh.

- DBH Variation - variation in diameter of trees greater than 5' dbh. The variation is classed into L = low (+ 0-20%). M = moderate (+ 21-40%), and H = high (+ 41 - 100%).

- Percent Dead/Broken Top - the percent of trees greater than 5" dbh with dead or broken tops.

- Probability of Down Wood - the probability that abundant down wood will be present. Probabilities are classed into L = low (+ 0-20%), M = moderate (+ 21-40%), and H = high (+ 41 - 100%).

- Percent Decay - the percent of trees greater than 5" dbh with significant decay.

- Tree Canopy Layers - an indication of the number or variation in numbers of tree layers that can be expected, i.e. single layer; multiple layers.

- Snags > 9" - range in number of snags (dead standing trees) > 9" diameter.

7.4.4 Old Growth Forest Type Description For Proposed Timber Sale Area:

East Side Montana-Zone:
Old Growth Type Code 1
Douglas-fir cover type on warm, very dry environments

Habitat Types, Groups, and Geographic Distribution
Douglas-fir series habitat types
East-side Montana Zone Group A.
This type is well represented across all six of the National Forests in this zone. These Forests include the Beaverhead, Custer, Deerlodge, Gallatin, Helena. and Lewis and Clark.

Forest Types
Douglas-fir

Minimum Characteristics
4 trees per acre 17 inches DBH or more
Large trees 200 years old or more
Basal area 60 ft2 per acre or more
Sample size: 989 plots

Site Description
This old growth type occupies warm, very dry, well drained environments on predominantly southerly aspects at elevations from 4600 to 8000 feet. Two habitat types also occupy northern aspects or bench lands at lower elevations, Douglas-fir/common juniper and Douglas-fir/idaho fescue. Douglas-fir is the climax dominant on all these dry sites. Bunchgrass dominated understories are the least productive habitat types, typically with relatively low stocking, because of site stockability limitations. Other habitat types in this group are only slightly more productive. Prior to 1900, cool underburns at intervals of 5 to 20 years on the driest habitats and 35 to 40 years on the others in this habitat type group promoted open stands. Following fire-free periods of extended length multiple storied stands would develop setting the stage for stand replacing severe fires.

Vegetation Characteristics
This type may be single or multistoried. A single story is most common during seral stages, or in climax stands with frequent fire. Large Douglas-fir dominate all these habitat types under seral and climax conditions, and lodgepole pine is a seral dominant on some Douglas-fir/common juniper sites. Lodgepole pine is only an accidental species on Psme/Aruv and Psme/Arco habitat types, but cannot exist on the bunchgrass habitat types because of the dry, warm environment. This old growth type maintains old growth characteristics for a long duration.

The average age of the largest trees in this type is 243 years, with a range from 211 to 255. Individual trees may reach an estimated age of 500 years. There are an average of 25 trees per acre 17 inches DBH or more, with a range of means across Forests and forest type is from 21 to 34. The largest diameters were 37 inches DBH. The average basal area is 136 ft2 per acre with a range of means of 118 to 160 ft2, but the lowest BA was 41 ft2.

The average number of dead standing trees greater than 9 inches DBH is 6 with a range of 4 to 18. The average percent of trees greater than 9 inches DBH with dead or broken tops is 9 with a range of 7 to 10 in means across Forests and forest type. The average percent of trees showing decay is 5, with a range of 4 to 9. The average number of rotten down log pieces per acre greater than 9 inches DBH is low to moderate. Average litter and duff depth is 1 to 3 inches.

7.4.5 Old Growth Determination For Proposed Project:

Trees within the proposed Upper Stickney Creek timber sale area do not meet the minimum age characteristics for East Side Montana, Old Growth Type Code 1.

8. TERRESTRIAL, AVIAN AND AQUATIC LIFE AND HABITATS:

Consider substantial habitat values and use of the area by wildlife, birds or fish. Identify cumulative effects to fish and wildlife.

8.1 Fish:

The proposed timber harvest should have no adverse effect on fish habitat. Tree retention requirements as outlined in the SMZ Law will be ratified along Upper Stickney Creek.

8.2 Birds:

Large sawlog-class Douglas-fir and ponderosa pine will remain after harvest to provide nesting trees and for future snag recruitment. Implementation of the proposed alternative should have minimal, if any, effect on avian species.

8.3 Animals:

A variety of animals utilize the diverse habitat of the Upper Stickney Creek watershed basin including: deer, black bears, small mammals, and elk, among others. No direct or cumulative adverse effects are anticipated from the implementation of the proposed timber sale.

9. UNIQUE, ENDANGERED, FRAGILE OR LIMITED ENVIRONMENTAL RESOURCES:

Consider any federally listed threatened or endangered species or habitat identified in the project area. Determine effects to wetlands. Consider Sensitive Species or Species of special concern. Identify cumulative effects to these species and their habitat.

9.1 Issues Eliminated From Further Study:

Montana Natural Heritage Program was contacted to provide threatened, endangered, and sensitive species information for the project area. None have been identified.

Threatened, endangered, and sensitive species as outlined in the "Montana Administrative Rules" have been eliminated from further study for the following reasons:

9.1.1 Bald Eagle:

Some potential transient use may occur but is not anticipated. Adverse impacts to the Bald Eagle or its habitat are not expected.

9.1.2 Gray Wolf:

Potential transient use by the gray wolf may occur within the proposed timber sale area. If den sites become established within the sale area, "Administrative Rules" and contractual requirements are in place to protect this species.

9.1.3 Grizzly Bear:

The project area is not within Grizzly Bear recovery or occupied zones. Transient use may occur due to the roaming nature of this species and its wide range of habitats requirements. Adverse impacts to this species are not expected.

9.1.4 Lynx:

Suitable Canadian Lynx habitat is not found within the proposed project area. Adverse impacts to this species are not expected.

9.1.5 Flammulated Owl:

This species prefers seral ponderosa pine stands or secondarily Douglas-fir timber types where historical fire regimes occurred on the landscape. Favored stands are usually found on warm, dry slopes with basal areas of 35 to 80 $ft.^2$/acre. Proposed harvest area characteristics at present do not match the favored habitat requirements of the Flammulated Owl. Conflicts to this species are not expected.

9.1.6 Black-Backed Woodpecker:

There have been no recent burns within several miles of the project area to create suitable habitat for the Black-Backed Woodpeckers, therefore no adverse impacts are anticipated.

9.1.7 Pileated Woodpecker:

Large diameter ponderosa pine, western larch, and black cottonwood are used for nesting cavities by the Pileated Woodpecker. If nesting sites become established within the sale area, "Administrative Rules" and contractual requirements are in place to protect this species. Conflicts with this woodpecker are not expected.

9.1.8 Fisher:

Suitable Fisher habitat is not found within the project area.

9.1.9 Northern Bog Lemming:

The project area contains no suitable Lemming habitat.

9.1.10 Peregrine Falcon:

Nest sites or habitat suitable for the Peregrine Falcon are not found within the project area, therefore, negative effects are not expected.

10. HISTORICAL AND ARCHAEOLOGICAL SITES:

Identify and determine effects to historical, archaeological or paleontological resources.

No record of cultural resources has been identified for this parcel .[18]

11. AESTHETICS:

Determine if the project is located on a prominent topographic feature, or may be visible from populated or scenic areas. What level of noise, light or visual change would be produced? Identify cumulative effects to aesthetics.

11.1 Local Effects to Aesthetics:

The location of the proposed Upper Stickney Creek timber sale is somewhat isolated, accessed through Sieben Livestock property. Because the scope and nature of this project is somewhat small, long lasting negative visual effect are not expected. The existing landform is rolling with the harvest area being located at mid slope on the mountainside.

A variety in vegetation exists between Douglas-fir, ponderosa pine, lodgepole pine. The harvest unit will be irregular in shape and approximately 80 acres. Slated for harvest are disease/damaged dominant and codominant as well as suppressed and intermediate Douglas-fir and ponderosa pine. Areas in which the largest part of the timber type is lodgepole pine will be clearcut. Residual ponderosa pine and Douglas-fir should most likely be large in diameter and at a spacing that most resembles a seed tree harvest.

12. DEMANDS ON ENVIRONMENTAL RESOURCES OF LAND, WATER, AIR OR ENERGY:

Determine the amount of limited resources the project would require. Identify other activities nearby that the project would affect. Identify cumulative effects to environmental resources.

Demands on land, water, air or energy is not expected to increase in intensity as a result of timber harvesting on State Trust Lands.

13. OTHER ENVIRONMENTAL DOCUMENTS PERTINENT TO THE AREA:

List other studies, plans or projects on this tract. Determine cumulative impacts likely to occur as a result of current private, state or federal actions in the analysis area, and from future proposed state actions in the analysis area that are under MEPA review (scoped) or permitting review by any state agency.

13.1 DNRC Plans/Current Projects:

State tract includes active Forest Grazing License on 640 suitable acres, producing 26 AUM's annually and an exclusive outfitting license. These activities would remain unchanged under both alternatives. Implementation of the action alternative would initiate a noxious weed management program by the DNRC. This spot spaying would concentrate on noxious and nuisance weeds, controlling them before and after timber harvesting.

[18] Patrick Rennie, "*e-mail*", Montana DNRC Archaeologist, October 25, 2005, 1p.

IV. IMPACTS ON THE HUMAN POPULATION

- *RESOURCES potentially impacted are listed on the form, followed by common issues that would be considered.*
- *Explain POTENTIAL IMPACTS AND MITIGATIONS following each resource heading.*
- *Enter "NONE" If no impacts are identified or the resource is not present.*

14. HUMAN HEALTH AND SAFETY:
Identify any health and safety risks posed by the project.

No significant change is expected from the implementation of the project.

15. INDUSTRIAL, COMMERCIAL AND AGRICULTURE ACTIVITIES AND PRODUCTION:
Identify how the project would add to or alter these activities.

No significant change is expected from the implementation of the project.

16. QUANTITY AND DISTRIBUTION OF EMPLOYMENT:
Estimate the number of jobs the project would create, move or eliminate. Identify cumulative effects to the employment market.

People are currently employed in the wood products industry in this region of Montana. No measurable cumulative impacts are expected on employment from the execution of this alternative action due to the relatively small DNRC timber sale program.

17. LOCAL AND STATE TAX BASE AND TAX REVENUES:
Estimate tax revenue the project would create or eliminate. Identify cumulative effects to taxes and revenue.

People are currently paying taxes on monies generated from the wood products industry in this region of Montana. No measurable cumulative impacts are expected on tax revenues from the execution of this alternative action due to the relatively small DNRC timber sale program.

18. DEMAND FOR GOVERNMENT SERVICES:
Estimate increases in traffic and changes to traffic patterns. What changes would be needed to fire protection, police, schools, etc.? Identify cumulative effects of this and other projects on government services

There should be no measurable cumulative impacts related to demand for government services due to the relatively small DNRC timber sale program, short term impacts to traffic, possible temporary addition of a few people to the area, and the lack of other timber sales on adjacent lands.

19. LOCALLY ADOPTED ENVIRONMENTAL PLANS AND GOALS:
List State, County, City, USFS, BLM, Tribal, and other zoning or management plans, and identify how they would affect this project.

Refer to Section 1: "Type and Purpose of Action", Part-B, "Purpose of Action", of this document for reference to the "State Forest Land Management Plan".

20. ACCESS TO AND QUALITY OF RECREATIONAL AND WILDERNESS ACTIVITIES:
Identify any wilderness or recreational areas nearby or access routes through this tract. Determine the effects of the project on recreational potential within the tract. Identify cumulative effects to recreational and wilderness activities.

20.1 Local Effects to Recreational Opportunities:

Persons having a valid State Trust Land Recreational Use Permit are welcome to hike or perform other approved outdoor activities. Beginning in 2004, purchase of a conservation license will authorize use of accessible Trust Lands for hunting and fishing. Implementation of the proposed alternative should have minimal effect on recreational opportunities.

21. DENSITY AND DISTRIBUTION OF POPULATION AND HOUSING:
Estimate population changes and additional housing the project would require. Identify cumulative effects to population and housing.

There will be no measurable, cumulative impacts related to population and housing due to the relatively small nature of the DNRC timber sale program. Personnel required to execute this project are currently employed in this region of Montana.

22. SOCIAL STRUCTURES AND MORES:
Identify potential disruption of native or traditional lifestyles or communities.

Not Applicable.

23. CULTURAL UNIQUENESS AND DIVERSITY:
How would the action affect any unique quality of the area?

Not Applicable.

24. OTHER APPROPRIATE SOCIAL AND ECONOMIC CIRCUMSTANCES:
Estimate the return to the trust. Include appropriate economic analysis. Identify potential future uses for the analysis area other than existing management. Identify cumulative economic and social effects likely to occur as a result of the proposed action.

24.1 Economic Cost/Return Associated With Project:

The action being proposed not only takes into consideration silvicultural and biological characteristics of managing this forested stand, but the economic viability of implementing such a project.

Due to the high cost associated with helicopter logging and the extensive trucking distance that is involved, it is anticipated that the financial return would be approximately:

- 480 MBF x 50.00/MBF = $24,000.00

24.2 Future Management Options:

Implementation of this project should increase the managed forest base on State Trust Lands. This should most likely result in the production of a healthier forested stand that would bring in additional revenue to the Trust.

24.3 Current Activities:

Grazing of State Trust Lands in this area currently brings in $153.66 per year, while an exclusive outfitting license returns approximately $96.00 per year. Some revenue percentage from the General Recreational Use License as well as the newly adopted Conservation License may also be attributed to this tract, although this revenue probably is quite small.

No negative, cumulative economic or social effects are anticipated as a result of the proposed action.

EA Checklist Prepared By:	Name:	Shawn P. Morgan	Date:	10/25/2005
	Title:	Helena Unit Forester		

V. FINDING

25. ALTERNATIVE SELECTED:

I have selected Alternative B, the proposed action to conduct forest management and timber harvest activities, as described above in section 3.2.2.1.

26. SIGNIFICANCE OF POTENTIAL IMPACTS:

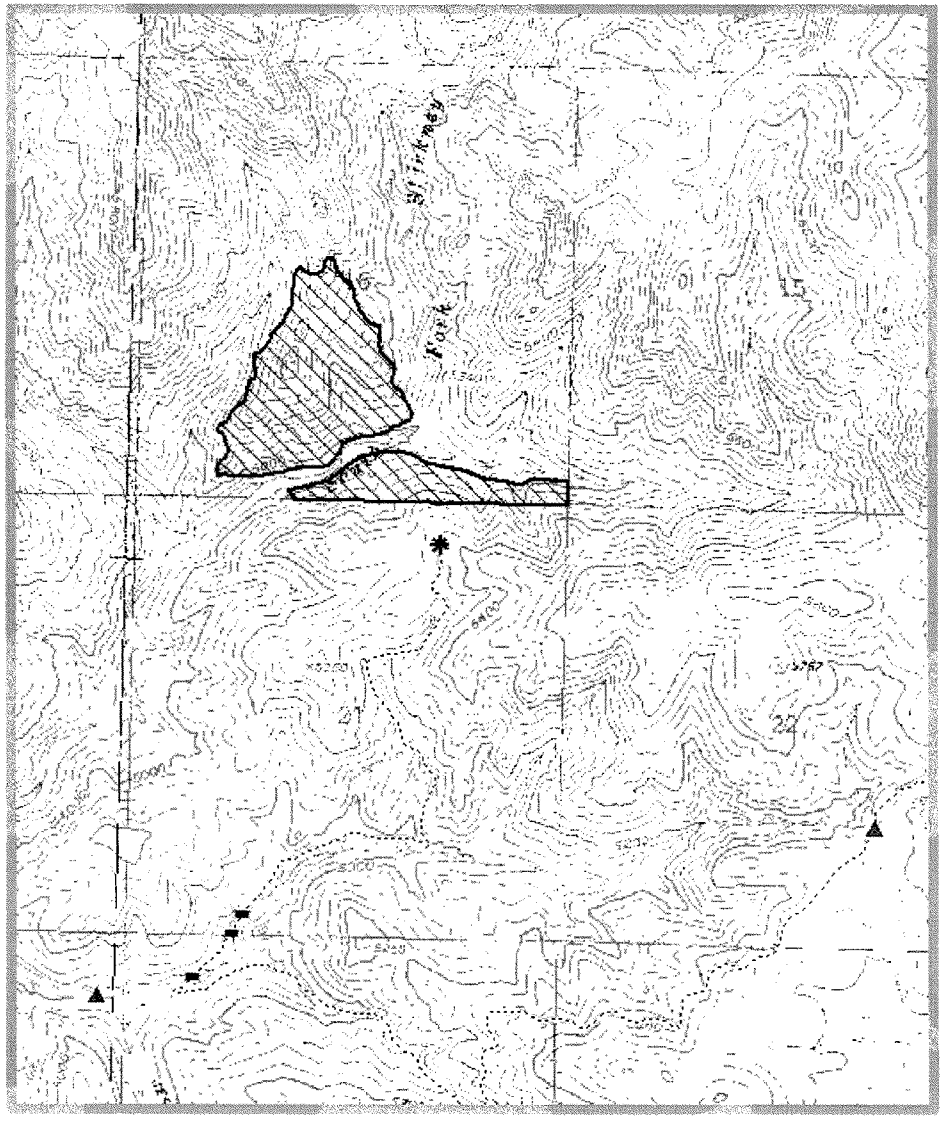
No new road construction is planned and the drainage improvements to the existing road system will reduce future road surface erosion. The planned helicopter yarding activity disturbs very little of the soil surface, and the small size of the harvest area provides little risk of any adverse direct or cumulative watershed effects. The project area does not include any stands meeting DNRC definitions for old growth, and no rare plant types are known to exist. There are no expected adverse effects to any listed Threatened, Endangered, or Sensitive species. This project is expected to produce positive returns to the School Trust, and if conducted in conjunction with adjacent similar private activities, the income should be more than if conducted independently. Harvest and regeneration of Ponderosa Pine where possible, and catering to the silvicultural needs of Douglas-fir and Lodgepole Pine where it is not, will provide a small incremental improvement in forest health conditions on the treated area.

The environmental analysis described in this EA Checklist does not indicate any potential for significant adverse effects to any parts of the natural or human environment, and is the proper level of analysis for this project.

27. NEED FOR FURTHER ENVIRONMENTAL ANALYSIS:

	EIS		More Detailed EA	X	No Further Analysis

EA Checklist Approved By:	Name:	D.J. Bakken		
	Title:	Helena Unit Manager		
Signature:	/S/ Darrel J. Bakken		Date:	11/28/2005



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Mapped By: Shawn P. Morgan

UPPER STICKNEY CREEK
Timber Sale

Township: 15 North
Range: 1 West
Section: 16

MONTANA DNRC

LEGEND

- Helicopter Log-Landing Area
- Ford Crossing
- Culvert
- Gate
- Harvest Unit -
- Access Road - 7.75 Miles