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# **Checklist Environmental Assessment for Middle Bench Timber Sale**

Prepared by:

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Northeastern Land Office - DNRC  
April 1998

# CHECKLIST ENVIRONMENTAL ASSESSMENT

Project Name: **Middle Bench  
Timber Sale**

Proposed Implementation Date: **Summer 1998**

Proponent: **Montana Dept. of Natural Resources and Conservation's  
Northeastern Land Office**

Type and Purpose of Action: 1) Harvest up to 2,000 MBF of Ponderosa pine sawlogs on up to 470 acres of forest land to produce revenue for the Public School Trust. 2) Improve forest health and increase timber productivity to provide a consistent source of marketable forest products. 3) Reduce the potential threats from wildfire through appropriate fuels management. (See attachment #1 - Vicinity & Sale Area Map and Attachment #2 - Proposal Purpose and Objectives for more detail).

Location: **Parts of Section 36,  
T13N, R21E**

County: **Fergus County, Montana**

## PROJECT DEVELOPMENT

1. PUBLIC INVOLVEMENT, AGENCIES, GROUPS OR INDIVIDUALS CONTACTED: Provide a brief chronology of the scoping and ongoing involvement for this project.

Public Involvement, Agencies, Groups or Individuals Contacted: On July 27, 1997 through August 3, 1997, a public notice was listed in the Lewistown News-Argus, a newspaper of general circulation printed and published in Lewistown, Montana. Letters describing the proposed project and requesting public input were mailed on July 22, 1997 through August 22, 1997.

State of Montana: Agriculture and Grazing Management Bureau; Minerals Management Bureau; Fish, Wildlife & Parks

Neighboring Landowners: David J. Murnion, Jacqueline Mercenier, Tim Murnion, Larry Gearhart, Pat Tomich, Tom Elliott, Mr. & Mrs. Jim Best, Joseph Parsetich, Charles Demeyer

Others: Central Montana Conservation Association, Montana Wood Products Association, Fergus County Conservation District, F.H. Stoltze Land & Lumber, Fergus County Commissioners

<p>2. OTHER GOVERNMENTAL AGENCIES WITH JURISDICTION, LIST OF PERMITS NEEDED:</p>	<ul style="list-style-type: none"> <li>◆ N-Bar Land and Cattle Company temporary ROW agreement (reference project file)</li> <li>◆ MT State Airshed Coordination Group</li> <li>◆ BLM, Judith Resource Area, Road Use and Maintenance Agreement #M84351.2</li> </ul>
<p>3. ALTERNATIVES CONSIDERED:</p>	<p><u>No-Action Alternative:</u> This alternative would postpone any timber harvest activity at this time, but would continue current grazing and outfitting utilization. Potential effects of the "No Action Alternative" include reduced tree growth rates, declining forage and grazing potential, increased susceptibility to insect and disease, and increased risk of stand replacement wildlife. Additionally, revenue opportunity may be lost as dead and dying timber is lost to decay.</p> <p><u>Action Alternative:</u> The proposed commercial harvest of up to 2000 MBF over 470 acres, requiring up to two (2) miles of new spur road construction to produce revenue for the Public School Trust Fund from the sale of forest products, while ensuring the long-term productivity and revenue generating capacity. The sale would utilize commercial thinning to reduce competition and improve stand and forage productivity while mitigating potential adverse impacts and maintaining desirable stand structural and habitat elements.</p> <p><u>Alternatives considered but dismissed:</u> A neighboring landowner suggested five alternative means to generate income from the project area. These proposals were evaluated and dismissed from further consideration in this analysis due to limited income generating potential as well as limited accomplishment of forest management objectives. However, the proposed Action Alternative does not preclude these alternative revenue sources and they remain options when interest is expressed by potential bidders. (See Attachment #3 - Alternative Proposals)</p>

## IMPACTS ON THE PHYSICAL ENVIRONMENT

<p>4. GEOLOGY AND SOIL QUALITY, STABILITY AND MOISTURE: Are fragile, compactible or unstable soils present? Are there unusual geological features? Are there special reclamation considerations?</p>	<p>[Y] Forestry soils are described as Hughesville-Tibs-Whitecow complex with moderate erosion hazard and equipment limitations (reference project file, Soil Survey of Fergus County, MT, 1979, Soil Conservation Service). To minimize potential adverse soil impacts, this proposal would: retain about 5-10 tons of downed woody debris, restrict heavy equipment operations to dry, frozen, or snow-covered conditions between July 1 and April 1; if soils are wet during the operational period, all logging equipment operation would be restricted by forest officer; existing trails and roads would be utilized, and extended skid routes would be designed to minimize spur road development; design harvest units to exclude areas of steep topography, major drainages and designate equipment exclusion areas within treatment units; incorporate erosion control measures (grass seeding, water bars, etc.) on utilized roads, skid trails, and disturbed areas (see Attachment #4 - DNRC Soil Scientist's recommendations). Montana's Forestry Best Management Practices would be implemented (reference project file, forestry BMPs, MSU Extension Service, 1991) and SLFMP Resource Management Standards would be implemented (reference, SLFMP ROD May 1996). Additional mitigation measures to be incorporated by contract stipulations. No unusual geological features or special reclamation considerations are located within the project area.</p>
<p>5. WATER QUALITY, QUANTITY AND DISTRIBUTION: Are important surface or groundwater resources present? Is there potential for violation of ambient water quality standards, drinking water maximum contaminant levels, or degradation of water quality?</p>	<p>[Y] Proposed harvest area drained ephemerally, no important surface or ground water resources present, no Streamside Management Zones are required. The sale area lies in the North Fork Flatwillow Creek drainage. The sale is drained by five ephemeral draws with discontinuous drainage to N.F. Flatwillow Creek. A spring is located in the draw bottom near the center of the section, creating a short section of stream channel. Due to ephemeral nature of the draws and lack of connectivity to N.F. Flatwillow Creek, the potential for offsite impacts is extremely low. Mitigation of potential adverse impacts to water quality will include erosion control measures on roads and skid trails, grass seeding disturbed areas, compliance with SMZ laws (reference project file, Montana Streamside Management Law and Rules, 1994) and BMPs, development of equipment exclusion zones, limiting operations to favorable conditions,</p>

**IMPACTS ON THE PHYSICAL ENVIRONMENT**

	<p>seasonal restrictions, incorporating specialists and MT DNRC staff recommendations (see Attachment #5 - DNRC Hydrologist's report), SLFMP Resource Management Standards (reference, SLFMP ROD May 1996) and enforcement of additional contract stipulations.</p>
<p>6. AIR QUALITY: Will pollutants or particulate be produced? Is the project influenced by air quality regulations or zones (Class I airshed)?</p>	<p>[Y] Potential adverse air quality impacts would be mitigated by initiating slash disposal during seasonal burning periods and conditions in accordance with procedures established by the Montana State Airshed Coordination Group.</p>
<p>7. VEGETATION COVER, QUANTITY AND QUALITY: Will vegetative communities be permanently altered? Are any rare plants or cover types present?</p>	<p>[Y] A historic vegetation study was conducted for the Little Snowies Vegetative Management Final EIS by the U.S. Forest Service in 1993. This study was conducted on neighboring forest lands (within 3 miles of Section 36) sharing the same physical and ecological environment. This study indicates that approximately 20% of the Little Snowy Mountains were grassland; 39% grassland with scattered pine; 2% grassland and pine mosaic, and 34% in a grassland savannah Ponderosa pine. The remaining area was approximately 3% aspen and 2% in actual ponderosa pine forest. Other historic vegetation studies conducted in Ponderosa pine cover types reveal that trees were aggregated in groups of 2 or 3 to 30 or even 40 trees ranging from .02 to .3 hectares with an average size of .06 hectares (Yazvenko and Rapport 1997). Prior to the early 1900s, ponderosa pine forest types were characterized by frequent low to moderate intensity fires, mostly underburns that killed few overstory pines. Historically, fires at intervals averaging 5 to 30 years in most areas thinned small trees and helped produce open, parklike, fire-resistant stands (Arno 1988). The current forest condition consists of highly variable structures of densely forested single-storied, two-storied, and multi-storied stands. Abundant ponderosa pine and Douglas-fir seedlings, saplings, and poles occupy much of the forest floor and growing space. In addition to young growth, there are scattered groups and groves of ponderosa pine ranging from 10-25" DBH ranging in age from 50 to 150 years depending on available growing space and stand densities. The current multi-layered dense stand conditions are at high risk to severe wildfires and insect and disease epidemics. Large stand destroying wildfires, formerly rare in the open ponderosa pine forest, have become common in the dense stands that have developed as a result of fire exclusions (Fiedler, Arno,</p>

## IMPACTS ON THE PHYSICAL ENVIRONMENT

Harrington, Carlson 1995.) High fuel loads have made attempts to prevent fires expensive and ineffective and caused a shift from frequent low to moderate intensity understory fires toward occasional but high intensity crown fires. Other accumulated negative affects associated with overcrowded ponderosa pine forests include: slower tree growth, increased mortality (particularly among the older trees), lower decomposition rates, stagnated nutrient cycles, lower quality and quantity of understory herbs and shrubs, and less diverse wildlife habitat for species dependent on open ecotopes and ecotones (Vazenko and Rapport 1997). The action alternative would approximate the amounts and types of vegetation cover which occurred prior to European settlement. (See DNRC Wildlife Biologist's Report.) Silvicultural prescriptions would perpetrate the existence of old stands and increase growing space within young growth and older stands of small trees. The action alternative would emulate a low to moderate intensity underburn by removing encroaching Douglas-fir and reducing the density of small and medium sized trees from dense ponderosa pine stands. Initiating a prescribed fire treatment at this time is unfeasible due to heavy fuel loads and multiple layered canopy structure. The action alternative would reduce fuel loads, protect and maintain old and young stands (consistent with historic vegetation data) and decrease the risk of catastrophic fire, and insect and disease outbreaks. Additionally, tree growth rates would be expected to increase, and understory vegetation such as grasses, forbs, and shrubs would potentially increase. (Reference silvicultural prescriptions.)

References: Arno, S.F.; Carlson, C.E., Harrington, M.G.; Fiedler, C.E., 1995 Restoring Fire-Dependent Ponderosa pine Forests in Western Montana - *Restoration and Management Notes* 13:1, page 32.

USDA, USFS 1993 Final EIS - Little Snowies Vegetative Management and Public Access Musselshell Ranger District Lewis and Clark National Forest.

Rapport D. and Vazenko S. The History, Implications for Management, December 1997, *Journal of Forestry*, page 16.

<p>8. TERRESTRIAL, AVIAN AND AQUATIC LIFE AND HABITATS: Is there substantial use of the area by important wildlife, birds or fish?</p>	<p>[Y] The project area is utilized by wildlife species common to the region. Notable game species include mule deer, whitetail deer, Merriam's wild turkey, elk, and black bear. Additionally, it is estimated the project area has favorable habitat elements utilized by mountain lion. Hunting in and around the proposed area is extremely limited (# 15 people annually) and controlled (full-time patrol) by the N-Bar Land and Cattle Company adjacent to the State tract (see project file and N-Bar Special Recreational Use License for outfitting NELO-98-013). A great blue heron rookery comprised of about 32 nests was identified in the proposed area. An eight-acre activity exclusion zone will be established to protect the rookery environment and provide for potential expansion (see Attachment #6 - DNRC Wildlife Biologist's report). Potential adverse wildlife impacts include displacement and disturbance to affected species during active harvest operations. Secondary impacts include a reduction of security and thermal cover. Through sale layout, silvicultural prescriptions, seasonal restriction, harvest methods and DNRC Wildlife Biologist recommendations, this proposal would attempt to reduce the potential or degree of adverse impacts. These mitigating factors include, but are not limited to: maintenance of old and young stands consistent with historic vegetation patterns; restricting all operations from March 15 to August 1 within a half mile area of the great blue heron rookery avoiding nesting and fledgling seasons; retention and recruitment of selected snags for excavator and cavity nesting dependent species, retention and residual selection of suitable or identified turkey roost trees and perch trees; retention of designated forested buffer strips and travel corridors maintaining connected security cover and wind protection (see Attachment #6 - Wildlife Biologist's report).</p>
<p>9. UNIQUE, ENDANGERED, FRAGILE OR LIMITED ENVIRONMENTAL RESOURCES: Are any federally listed threatened or endangered species or identified habitat present? Any wetlands? Sensitive Species or Species of special concern?</p>	<p>[N] No federally listed threatened or endangered species, species of special concern or habitat were identified in the proposal area. MT Natural Heritage Program data base utilized. No record of sensitive species, or species of special concern in project area (reference Attachment #7 - MT Natural Heritage Comment, and Attachment #6 - Wildlife Biologist report)</p>
<p>10. HISTORICAL AND ARCHAEOLOGICAL SITES: Are any historical, archeological, or paleontological resources present?</p>	<p>[N] No historical or archaeological sites identified in the proposal area, although contract stipulations provide for protection and further analysis of these</p>

	resources if discovered on site. (See Attachment #8 - DNRC Archaeologist's report.)
11. AESTHETICS: Is the project on a prominent topographical feature? Will it be visible from populated or scenic areas? Will there be excessive noise or light?	[N] Project area has common topographical features that are not visible from populated areas or near visited sites. No excessive noise or light anticipated. Noise levels associated with a typical logging operation would be anticipated.
12. DEMANDS ON ENVIRONMENTAL RESOURCES OF LAND, WATER, AIR OR ENERGY: Will the project use resources that are limited in the area? Are there other activities nearby that will affect the project?	[N]
13. OTHER ENVIRONMENTAL DOCUMENTS PERTINENT TO THE AREA: Are there other studies, plans or projects on this tract?	[Y] The N-Bar Land and Cattle Company utilizes the proposal area in their forest, rangeland, and wildlife management plan (reference project file N-Bar Management Plan). Through coordinated scoping and initial analysis with the N-Bar Forest Manager, this proposal will not conflict with, but augment N-Bar operations while achieving DNRC's short and long-term objectives.

<b>III. IMPACTS ON THE HUMAN POPULATION</b>	
RESOURCE	[Y/N] POTENTIAL IMPACTS AND MITIGATION MEASURES
14. HUMAN HEALTH AND SAFETY: Will this project add to health and safety risk in the area?	[Y] Human health and safety may be increased for those actively involved in "on-site" harvest operations due to common hazards of logging operations. However, no more than other similar logging locations.
15. INDUSTRIAL, COMMERCIAL AND AGRICULTURAL ACTIVITIES AND PRODUCTION: Will the project add to or alter these activities?	[Y] Project area is classified grazing land utilized for summer grazing operations (reference project file, State Grazing Lease 5667) and exclusive hunting/outfitting (reference project file, SRUL NELO-98-013). Potential for noxious weed spread (leafy spurge) to be mitigated by power washing equipment prior to entry, season of use, grass seeding disturbed sites, and cooperation and control efforts by N-Bar and DNRC personnel through monitoring, and chemical, biological, and livestock control measures.
16. QUANTITY AND DISTRIBUTION OF EMPLOYMENT: Will the project create, move or eliminate jobs? If so, estimated number.	[Y] This project is anticipated to provide temporary employment to the successful bidder, employees and associated contractors. This project is expected to provide jobs to people presently involved in logging and associated industries in Montana.



17. LOCAL AND STATE TAX BASE AND TAX REVENUES: Will the project create or eliminate tax revenue?	[Y] This project may potentially increase federal, state, and county tax revenues.
18. DEMAND FOR GOVERNMENT SERVICES: Will substantial traffic be added to existing roads? Will other services (fire protection, police, schools, etc.) be needed?	[N] During active harvest operations, logging truck traffic will be moderately increased on the rural county road (S.F. Flatwillow Road) accessing the proposed area. Estimated loads per day of similar sites and operations is between 3-6 loads per day. No government services will be needed.
19. LOCALLY ADOPTED ENVIRONMENTAL PLANS AND GOALS: Are there State, County, City, USFS, BLM, Tribal, etc., zoning or management plans in effect?	[Y] This proposal utilizes approximately 1.3 miles of existing road located on three separate Bureau of Land Management tracts. Temporary right-of-way has been granted to cross these tracts and BMP road improvements shall be implemented. A BLM Road Use Maintenance Agreement is in effect and will be adhered to (reference project file, BLM Road Use Agreement #M84351.2). No other governmental management plans in effect.
20. ACCESS TO AND QUALITY OF RECREATIONAL AND WILDERNESS ACTIVITIES: Are wilderness or recreational areas nearby or accessed through this tract? Is there recreational potential within the tract?	[N] No wilderness or recreational areas nearby or accessed through the proposal area. Limited recreational potential within the state section.
21. DENSITY AND DISTRIBUTION OF POPULATION AND HOUSING: Will the project add to the population and require additional housing?	[N]
22. SOCIAL STRUCTURES AND MORES: Is some disruption of native or traditional lifestyles or communities possible?	[N]
23. CULTURAL UNIQUENESS AND DIVERSITY: Will the action cause a shift in some unique quality of the area?	[N]
24. OTHER APPROPRIATE SOCIAL AND ECONOMICAL CIRCUMSTANCES:	[N] If up to 2000 MBF is harvested and, if approximately \$130 per MBF is bid (based on local average stumpage values), \$260,000 would be earned for the trust institutions. DNRC does not track project level costs; however, the State Forest Management Program has a history of generating income at an average ratio of 2/1 for all land offices during the years 1994-1997.

EA Checklist Prepared By:

JASON MOGILEFSKY, Timber Sale Specialist, Northeastern Land Office - DNRC

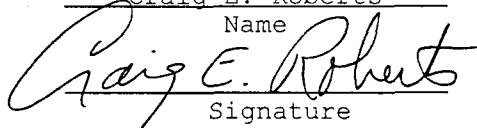
*Jason Mogilefsky*  
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 Signature

Date: April 3, 1998

IV. FINDING

25. ALTERNATIVE SELECTED:	I conclude the Action Alternative meets the project objectives, the resource management standards of the State Forest Land Management Plan, and other applicable state and federal laws.
26. SIGNIFICANCE OF POTENTIAL IMPACTS:	Impacts from implementing the Action Alternative are not significant and an EIS is not necessary.

EA Checklist Approved By:

Craig E. Roberts  
Name  
  
Signature

Area Manager  
Title  
4/6/98  
Date

# Appendix

## Checklist Environmental Assessment

- Attachment 1 ..... Vicinity and Sale Area Map
- Attachment 2 ..... Proposal Purpose and Objectives
- Attachment 3 ..... Alternative Proposals
- Attachment 4 ..... DNRC Soil Scientist's Recommendations
- Attachment 5 ..... DNRC Hydrologist's Report
- Attachment 6 ..... DNRC Wildlife Biologist's Report
- Attachment 7 ..... Montana Natural Heritage Comment
- Attachment 8 ..... DNRC Archaeologist's Report

Attachment #1

MIDDLE BENCH TIMBER SALE

Twn 13N Rng 21E Sec 36

EXISTING ROAD = = = =

NEW ROAD ●●●●

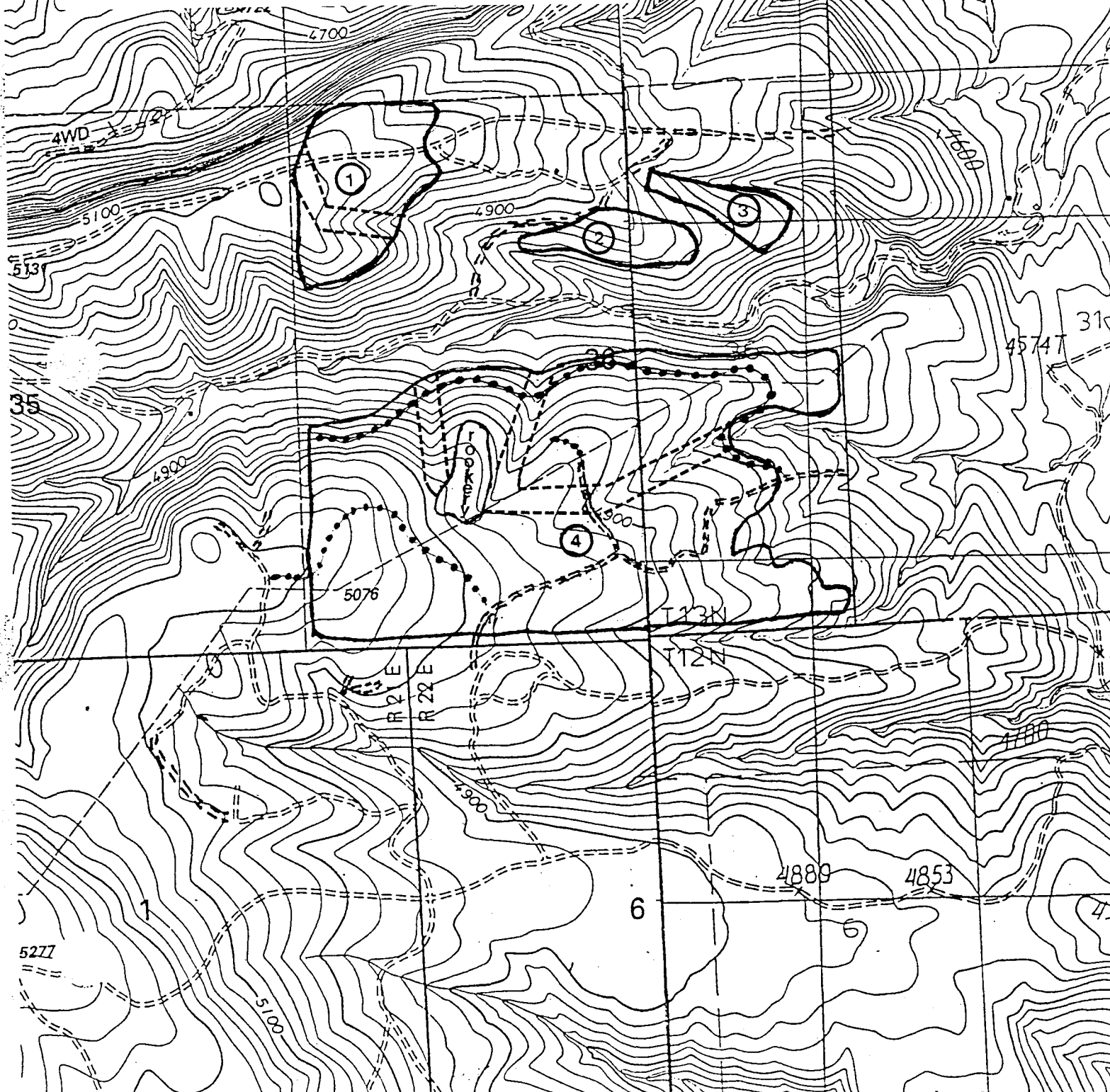
26 HARVEST BOUNDARY ———

FENCE - - - - -

DESIGNATED HAUL ROUTES

EQUIPMENT EXCLUSION ZONE - - - - -

WILDLIFE CORRIDOR - - - - -



PROPOSALMIDDLE BENCH TIMBER SALE  
SECTION 36, TOWNSHIP 13 NORTH, RANGE 21 EAST  
FERGUS COUNTYPURPOSE AND NEED

The Department of Natural Resources and Conservation's Northeastern Land Office is proposing a timber harvest on state trust land in Section 36, Township 13 North, Range 21 East of Fergus County. The department proposes to harvest up to 2.0 MMBF (million board feet) on approximately 470 acres of forested land and to construct up to 0.8 miles of new road, construct up to 1.2 miles of low grade spur road, and reconstruct up to 2.5 miles of existing road to access these areas. In addition, erosion control and road maintenance of approximately 3.25 miles of private road will be necessary in order to access state trust land. Pre-sale work is scheduled to begin in the fall of 1997 with sale activities completed in the fall of 2001.

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 and 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 Department of Natural Resources and Conservation are required by law to administer these trust lands to produce the largest measure of reasonable and legitimate return over the long run for these beneficiary institutions (Sections 77-1-202, MCA). On May 30, 1996, the department released the Record of decision on the State Forest Land Management Plan (the Plan). The Land Board approved the Plan's implementation on June 17, 1996. The Plan outlines the management Philosophy of DNRC in the management of state forested trust lands, as well as sets out specific Resource Management Standards for ten resource categories. The Department will manage the lands involved in this project according to the philosophy and standards in the Plan, which states:

*Our premise is that the best way to produce long-term income for the trust is to manage intensively for healthy and biological diverse forests. Our understanding is that a diverse forest is a stable forest that will produce the most reliable and highest long-term revenue stream...In the foreseeable future, timber management will continue to be our primary source of revenue and our primary tool for achieving biodiversity objectives.*

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

1. Harvest up to 2.0 MMBF (million board feet) of sawlogs to produce revenue for immediate return into the school trust fund.

2. Improve forest health and increase timber productivity to provide a consistent source of marketable forest products.
3. Reduce potential threats from wildfire through appropriate fuels management.

## AFFECTED ENVIRONMENT

### Site Description

LOCATION: Location of the proposed project area in Section 36, Township 13 North, Range 21 East is approximately 22 miles southwest of Grass Range in Fergus County, Montana. All adjacent lands to the school trust land are of private ownership.

TERRAIN: The terrain of Section 36, Township 13 North, Range 21 East, and adjacent lands is typical of ponderosa pine/Douglas Fir forest grassland interfaces encountered today in the eastern foothills of the Little Snowy Mountains. This consists of dissecting to mountainous terrain formed by centuries of hydrological activity. This activity has resulted in the formation of three major benches with adjacent narrow canyons containing North Fork and South Fork of Flatwillow Creek. Some of the geological features found in this area are bluffs, buttes, and small canyons formed by ephemeral draws and intermittent streams. The proposed project area is located on the lower toe of one of the major benches named Middle Bench. The project area is bisected by a small canyon formed by an intermittent tributary contributing to North Fork Flatwillow Creek. Average elevation of the project area is 4860 feet above sea level and range from 5100 to 4620 feet above sea level. Slopes associated with the proposed project area are  $\leq 25\%$ .

HYDROLOGY: The primary drainage features are North Fork and South Fork of Flatwillow Creek which flows east and empties into Petrolia Reservoir. Both forks of Flatwillow Creek are class 1 streams. With respect to the proposed project area, a narrow canyon containing an intermittent stream bisects the school trust land and flows east to northeast contributing to North Fork Flatwillow Creek. During seasonal flow, water is intercepted by a stock pond located east of the school trust land before it contributes to North Fork Flatwillow Creek. Adjacent ephemeral draws may contribute surface flow to this intermittent stream during high water years. Activities from this proposed project are not expected to impact water quality within this drainage. No water developments exist on the school trust land. With respect to the proposed project area, NRCS data indicates this area receives 20 inches precipitation annually, average annual 90 frost free days and average annual temperature of 42 degrees.

SOILS: Project area soils that dominate the forested areas of the state trust land are the Hughesville-Tibs-Whitccow complex, 2 to 25 percent slopes and Tibs-Whitccow cobbly clay loams, 25 to 60 percent slopes. These soils will be impacted primarily by timber harvest and road construction activities. Tree species associated with these soils are predominantly

ponderosa pine with some codominant Douglas Fir. An occasional pocket of Quaking Aspen is present in the overstory.

Soils located along and adjacent to the right-of-way access to the school trust land are Tibs-Whitcow cobbly clay loams, Raynesford-Hanson complex soils, Sheege-Skaggs very stony loams, and Windham very stony loams soils. These soils will primarily be impacted from erosion control and road maintenance operations.

WILDLIFE: Wildlife species associated with forestland environment have been observed utilizing this state trust land and the surrounding vicinity. Most frequent game species observed are Whitetail and Mule Deer, and the least frequent game species observed are Elk and Merriam Turkey. Predatory species observed utilizing the general vicinity of the state trust land and adjacent lands are Coyote, Red-tailed Hawk, Mountain Lion and Black Bear. With respect to Mountain Lion and Black Bear, dens have yet to be observed within the state trust land. A viable Rainbow trout fishery currently exists in North Fork Flatwillow Creek. A rookery of Great Blue Heron has been located in the southwest quarter of the school trust land.

ADJACENT LAND MANAGEMENT AND ACCESS: Four separate landowners occupy lands adjacent to the state trust land. Ownership of portions of Sections 25, and 34, Township 13 North, Range 21 East, portions of Section 6, Township 12 North, Range 22 East and portions of Section 1, Township 12 North, Range 21 East is by the N-Bar Land & Cattle Company of Grass Range, Montana. Current land management activities by this company consist of livestock management (summer pasture/cattle grazing), timber management and Hunting/Outfitting. N-Bar Land & Cattle company is the current lessee of Section 36. This company has two leases on this section. One lease is for summer grazing at an amount of 64 AUMs (NELO State Surface Lease # 5667). The second lease is a special recreational use license for conducting commercial outfitting/hunting activities during September through December (SRUL NELO-93-034). With respect to timber management, N-Bar Land & Cattle Company will be conducting a commercial timber harvest of 500 MBF (thousand board feet) on adjacent lands bordering the west boundary of the school trust land. As of this date, harvest activities have yet to begin (DNRC HRA file 14B25824).

The second landowner of lands adjacent to the school trust section is Larry Gearhart of Hillsgrove, Pennsylvania and soon-to-be resident of Grass Range, Montana. His ownership consists of portions of Sections 30 and 31, Township 13 North, Range 22 East. Land management of these lands consists of livestock management (summer pasture/cattle grazing) and recreation.

The third and fourth landowners of lands adjacent to the school trust section are David Murnion of Forest Grove, Montana and Pat Tomich of Grass Range, Montana. Mr. Murnion's and Mrs. Tomich's ownerships are located adjacent to the southwestern boundary of the school trust land. Their respective land management activities are residential.

There exists no public access to the school trust land. Access to the proposed project area will be provided by two private roads located in portions of Sections, 30 and 31, Township 13 North, Range 22 East and portions of Section 5, Township 12 North, Range 22 East. Use of these roads is controlled by N-Bar Land & Cattle Company of Grass Range, Montana and Larry Gearhart of Hillsgrove, Pennsylvania. Both roads have been utilized for previous

timber harvest operations. Proposed use of these roads will require erosion control and road maintenance operations of approximately 3.25 miles.

### Stand Description

Stands involved in this project would encompass up to 470 acres of the school trust land. These stands consist of ponderosa pine, single-story, even-age, two-storied, multi-storied, and uneven-age stands that will be treated as a result of this project.

The dominant structural characteristics found in stands in this section are multi-storied. These stands display a multi-age and multi-strata appearance and occupy the majority of the slopes throughout the section. These stands may have historically occupied the immediate slopes adjacent to the intermittent stream and associated ephemeral draws. This structure has expanded through encroachment to their present distribution of occupying portions of ridges and benches. Seventy years of fire suppression has probably contributed to the development and expansion of this structure.

Many stands retain structural characteristics representative of single-storied stands in an understory reinitiation phase. Stands with these structural characteristics are composed of a single overstory strata, are even aged, and are approaching full canopy closure. These stands occupy drier sites of ridges and benches and display evidence of interaction with fire. However, stands with understory reinitiation characteristics are moving toward successional climax. This is evident by the presence of Douglas fir saplings in portions of the understory where portions of canopy cover has been reduced. Thus, contributing to the development of a new strata.

Four stands retain the structural characteristics representative of old stands. Stands with these characteristics are composed of dominant single stratum overstory of large mature and overmature trees, with open canopy, and little or no regeneration present in the understory.

STAND HISTORY: Little documentation exists on pre-settlement era in reference to the specific structure of these stands. After conducting an on-site evaluation of these stands and reviewing literature applicable to the forest types found, evidence would indicate that an old stand structure representative of ponderosa pine savannah previously existed dominating the ridges and benches of this section while multi-storied structures of Douglas fir/ ponderosa pine successional climax forests occupied the immediate slopes adjacent to the intermittent stream and its associated ephemeral draws. These structures were attained and maintained primarily through their respective interactions with frequent wildfires of low to moderate severity. Since pre-settlement, fire regimes have changed substantially over time due to 70 years of fire suppression. Douglas Fir cohorts are evident in portions of the understory of these stands and occupy more intermediate strata in the understory. This increases the potential for a stand replacement fire to occur in the future. Given the current structure of these stands, presence of fire scarred mature trees and charred stumps suggest a moderate wildfire has occurred in the last 40 - 50 years.

Portions of these stands display evidence of previous harvest entries. Presence of old stumps and increment core data indicate that portions of these stands were harvested in the early 1950s. More recent entries have occurred in the past 15 years. These harvests consisted



of overstory removal treatments to stabilize future wood production and reduce risk of infestation from Mountain Pine Beetle activity (refer to DNRC Timber Sale file 1056), and timber trespass (refer to DNRC Daily Transmittal 84-629).

EXISTING STAND PROBLEMS: Growth has slowed in these stands primarily due to overstocking. This could cause stress and increase susceptibility to insect and disease attacks. This stress is caused by increasing competition among individual trees for adequate growing space, essential water and nutrients. Proposed treatment will provide adequate growing space and stabilize wood production for future harvests. Some stands are declining in growth primarily due to age and, in some cases, inadequate growing space. Treatments will release growth, increase vigor, reduce risk of insect and disease infestation, and introduce new stands while manipulating present stand structures of residual stands.

### SUMMARY

Benefits resulting from this harvest are:

- Substantial revenue produced for the school trust fund
- Improved forest health and site productivity for marketable forest products
- Increased domestic livestock and wildlife forage/habitat
- Reduced fire hazard potential from remaining stands
- Maintain existing biodiversity through stand structure manipulation

## Alternative Proposals

Mr. Dave Murnion, adjacent landowner, suggested five alternative proposals to the state timber harvest proposal. These proposals were dismissed in the analysis stage of issue development. These proposals did not generate enough income to warrant inclusion as a new action alternative for this project. Even though the alternate proposals were dismissed as part of this project, the proposed action alternative does not preclude these alternate revenue sources in the future and they remain as options when and if interest is expressed by potential bidders. These five options and reasons for dismissal are listed below:

### A) MARKETING POSTS AND POLES <6" DIAMETER AT THE BASE:

This alternative proposal is to harvest by hand, ponderosa pine sapling, pole size and suppressed trees less than 6 inches at the base. This proposal requires all operations to be conducted by hand; felling, skidding, loading and brush disposal (slashing, lopping and hand piling). The proposal also restricts operations to winter or snow-covered conditions and limits equipment to pickups with trailers.

This proposal, although always a potential option, was dismissed as a part of the project. The Northeastern Land Office has experienced limited success with post and pole sales. Because ponderosa pine is not a preferred species for post and pole material, the size limitation (<6 inch diameter at base), and equipment restrictions, it is projected that the revenue generated from this proposal could not offset the costs associated with implementation. Considerations affecting feasibility include:

- ◆ Operational costs associated with hand operations and other equipment limitations
- ◆ Transportation costs
- ◆ Winter operations will require snowplowing to access sites
- ◆ Right-of-way costs and stipulations to access the section for this proposal are unknown
- ◆ Road maintenance costs associated with maintaining BMPs
- ◆ Reconstruction of existing roads to access sites
- ◆ New road construction to access sites
- ◆ Brush disposal costs (hand piling, burning, etc.)

- ◆ Administrative costs
- ◆ This proposal does not meet silvicultural objectives
- ◆ Would not significantly reduce severe wildfire potential at a 5' x 5' spacing
- ◆ Weed control costs may be prohibitive

B) HOLIDAY SEASON BOUGH HARVEST FOR CHRISTMAS WREATHS, DOOR CHARMS, SWAGS, AND EVERGREEN GARLANDS.

Proposal dismissed. Evaluation of limited market demand, low quality resources, remote location, and administrative duties associated with this proposal, as well as other factors such as limited access, projected that this proposal would provide negative revenues.

C) ASSESS FEES TO ORGANIZATIONS TO OBSERVE BIRD SPECIES ON THE SECTION:

Proposal dismissed. This activity is currently available through State Recreational Use Policy as well as allowed on most nearby federal lands (i.e. BLM, U.S. Forest Service).

D) ASSESS FEES TO SCHOOLS (GRADE SCHOOL THROUGH COLLEGE) INTERESTED IN EDUCATIONAL TOURS:

Proposal dismissed. Typically no fees are assessed by the Northeastern Land Office for on-site inspections and tours by any schools, organizations, or individuals interested in touring a state project or viewing state land management activities.

E) MARKET PINE AND FIR SEEDLINGS

This proposal is to be accomplished by hand transplanting pine and fir seedlings to pots with shovel and "spud" bar, and then subsequently filling in the holes with leftover dirt and organic matter at the site. Seedlings are then marketed at various locations. Proposal dismissed due to limited market demand, commercially remote location, and excessive administrative duties that would be required. Also, limited access and operational (operators, bidders) interest. This proposal is estimated to provide a negative revenue.

F) HARVEST AND SALE OF WILD CHRISTMAS TREES; MARKET TREES AT THE NORTHEASTERN LAND OFFICE:

Alternative dismissed. Although potential revenue could be as high as \$8-\$12 per tree, it is estimated that a few trees would be available on this site that could warrant this amount. Few ponderosa pine trees are utilized for Christmas trees in this region. It is estimated that due to location, resource quality, and limited access potential, this proposal's revenue potential would be below the collective costs of implementation.

SUMMARY

These suggested proposals are not estimated to have the potential economic merit to stand alone, or in combination with one another and, therefore, were dismissed individually and cumulatively prior to alternative development. Importantly, these proposals do not significantly contribute or accomplish key departmental forest health, forest structure, wildlife habitat, and wildfire risk objectives. However, implementation of selected proposals (a, b, e and f) may potentially be economically feasible (and/or silviculturally desirably) when in conjunction and concurrent with significant forest management activities such as timber harvest, and are generally open to any interested parties.

February 23, 1998

TO: JASON MOGILEFSKY, Forester, Lewistown Unit, NELO  
CC: CRAIG ROBERTS, Manager, NELO  
BRIAN TOWNSEND, Lead Forester, NELO

FROM: JEFF COLLINS, Soil Scientist

RE: LOTTA PINE TIMBER SALE GRASS SEED MIX

I reviewed the revised road and harvest map and have only a few comments. Considering this sale will include pulp removal, I would like to add a provision for retaining about 5-10 tons of downed woody debris (DWD) for the PSME/SYAL habitats, to maintain long term soil productivity. During our field review I estimated that Unit 4 and 5 appeared to have roughly 2-4 tons of existing DWD so it would not be difficult to leve some cull to accomplish this target.

I would also add to the map, the obvious ERZ's for draw protection.

The Lotta Pine project area has several soil types with moist North and dry South aspects, so I have a broad range seed mix. I considered erosion and weed control as primary objectives and selected grasses adapted to: 1) some of the higher carbonate subsoils on the footslopes and 2) dry south slopes and 3) incorporate some native types to meet resource standards in the SFLMP .

Slender Wheatgrass is a native grass type that provides quick cover and dies out after a few years allowing local native plants to move in. Streambank Wheatgrass is a good erosion control grass and lower palatability that won't encourage forage.

#### RECOMMENDED SEED MIX for BROADCAST APPLICATION

"Revenue or Primar" Slender Wheatgrass	5#
"Alta" Tall Fescue	5#
"Tegmar" Intermediate Wheatgrass	4#
Smooth Brome	4#
<hr/>	
TOTAL	LBS./ACRE
	18#
PURE LIVE SEED	

You could substitute Western Wheatgrass or "Sodar" Streambank Wheatgrass for Intermediate.

#### FERTILIZER

For the most part these soils are fairly fertile and should not require extensive fertilizer. I would recommend fertilizer for road cuts over 4 feet depth of cut, where I would apply about 200#/acre 16-16-16 NPK fertilizer or equivalent. Call if you have questions or modifications.

ZIP!Office Release 1.25

Printed by: DNRC NELO Lewistown at 03/26/98 8:19a

From: Muhlfield, John

Date: March 25, 1998 5:09p

Subject: Revised Middle Bench Watershed Assessment

Jason= Attached is the revised Middle Bench watershed assessment....a few minor changes. Thanks, JOHN

ZIP!Office Release 1.25

Printed by: DNRC NELO Lewistown at 03/26/98 8:20a

From: Muhlfield, John

Date: March 25, 1998 5:37p

Subject: (Attachment 1) Revised Middle Bench Watershed Assessment

--- Attachment: ANALYSIS.WPD (WordPerfect 6.0) -----

TO: Brian Townsend, Area Forest Management Supervisor: NELO  
Jason Mogilefsky, Forester: NELO

CC: Gary Frank, Hydrologist: Forest Management Bureau  
George Mathieus, Hydrologist: Forest Management Bureau  
Jeff Collins, Soil Scientist: Forest Management Bureau  
Bill Schultz, Supervisor: State Land Management Section

FROM: John Muhlfield, Hydrologist: NWLO

SUBJECT: Watershed Assessment: Hydrology and Fisheries  
NELO Middle Bench Timber Sale

DATE: February 20, 1998

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#### Analysis Area

The proposed Middle Bench Timber Sale is located on state trust land in Section 36, Township 13 North, Range 21 East of Fergus County. The analysis area is within the North Fork of Flatwillow Creek drainage, a Class I tributary to Petrolia Reservoir, which feeds the Musselshell River of the Missouri River watershed. Elevations within Section 36 range from 4,620' at the eastern section boundary to 5,100' at the western section boundary. On average, the analysis area receives approximately 15" of annual precipitation.

#### Potential Issues

Land management activities such as timber harvest and road construction can potentially impact water quality and aquatic dependent resources. The primary impacts are direct sediment delivery to streamcourses and the resulting effects to water quality and fisheries, a reduction in long-term woody debris recruitment, and increased water yield which may adversely affect stream channel morphology and sediment transport processes. These impacts are caused by erosion from road surfaces, skid trails, fire lines, log landings, by reduction in recruitable tree numbers near streams, and by removal of vegetation which alters the water balance on site.

#### Cumulative Watershed Effects

The Cumulative Watershed Effects boundary incorporates Section 36 within the North Fork of Flatwillow Creek drainage. As described under the Existing Condition section of this analysis, streams within the analysis area are considered transport-limited and are Class III intermittent and ephemeral drainages. Sediment produced within the analysis area has an extremely low potential for mobilization due to the intermittent streamflow regimes associated with these channels. As a result, the effects of the proposed activities are confined to the project area.

#### Water Uses / Regulatory Framework

The North Fork of Flatwillow Creek drainage is classified a B-2 waterway by the State of Montana Department of Environmental Quality, as stated in the Montana Water Quality Standards. The water quality criteria for protection of beneficial uses, specific to B-2 waters appear in Section 16.20.618 of the Administrative Rules of Montana (ARM). Uses specific to B-2 waters include: suitable for drinking, culinary and food processing, after conventional treatment; bathing, swimming and recreation; growth and marginal propagation of salmonid fishes and associated aquatic life, waterfowl and furbearers; and agricultural and industrial water supply.

The Clean Water Act (CWA) and EPA Water Quality Planning Regulations require each state to identify watersheds that contain water quality limited segments (WQLS). A WQLS is a waterbody that is not fully meeting state water quality standards or have intended uses that are being threatened. In 1996, the State of Montana published a list of WQLS in a document titled the Montana 305(b) report. The North Fork of Flatwillow Creek watershed was not included in this list and does not contain Water Quality Limited Segments.

#### -EXISTING CONDITIONS-

#### Hydrology

The analysis area is within the North Fork of Flatwillow Creek drainage, a Class I tributary to Petrolia Reservoir, which feeds the Musselshell River of the Missouri River watershed. Five ephemeral, discontinuous drainages occur within Section 36 of the North Fork Flatwillow Creek (labeled A-E on attached map). Ephemeral streams are influent, having channels which are above the water table year-long. They transport water only during and immediately after rainstorms. All draws are well vegetated, non-scoured features with sideslopes ranging from 2-8%. Sediment delivery potential is considered extremely low as these draws are non-scoured throughout the project area. Downstream of the project area, these ephemeral features join to form two main ephemeral tributaries to the North Fork Flatwillow Creek. At the time of field review, these tributaries were absent of surface flow.

An intermittent spring is located in the valley bottom of Draw D.



Flow is discontinuous in nature and non-scoured. A two-track road is located in the draw bottom. This road will not be used to access timber sale units or for hauling forest products.

#### Fisheries

Due to the ephemeral nature of draws and disconnectivity to North Fork Flatwillow Creek, no fish species are present within the analysis area (non-fish bearing).

### - WATERSHED EFFECTS ANALYSIS-

**Water Quality and Fisheries: Cumulative Watershed Effects**  
Cumulative watershed impacts can be characterized as impacts on water quality and quantity that result from the interaction of disturbances, both human-caused and natural. Timber harvest and wildfire can affect the timing of runoff, increase peak flows, and increase the total, annual water yield of a drainage. The amount of water yield increase is proportional to the percentage of the forest canopy removed from the watershed. In some cases, increased water yield results in increased peak flows which may result in physical damage to stream channels, causing instability, loss of fish habitat, and downstream water quality impacts. The degree to which these effects occur depends on the interaction of many variables including: soils, bedrock geology, the size and timing of storm events, logging techniques, project design, and operator performance.

The potential risk of cumulative watershed effects and direct impacts to water quality from the proposed alternative in Section 36 is considered low for the following reasons:

- Silvicultural treatments will focus on individual tree and group selection type harvests, with a maximum canopy reduction of 40% from existing conditions. The sale area is in a low precipitation, Ponderosa pine / Douglas fir habitat type. Due to seventy years of fire suppression, existing stands are considered above their natural stocking levels due to Douglas fir encroachment. A canopy reduction of 40% from existing levels over 470 treated acres will not generate a detectable increase in water yield.

- The proposed sale area is comprised of ephemeral draws with no discernable stream channels. Although draws within the sale area are non-scoured, there is evidence of concentrated flow during peak runoff events. The potential risk of downstream delivery to the North Fork Flatwillow Creek is considered extremely low due to the hydrologic function and nature of these draws (refer to Existing Condition description).

- All proposed ephemeral draw spur road crossings will be rehabilitated upon termination of the timber sale. Road fill will be removed from draw bottoms and approaches seeded and slashed. Road drainage features will be maintained following timber sale activities to ensure short-term relief to ephemeral draw features.

- Equipment restriction zones (ERZs) will be incorporated into the sale layout for Draws B, C and E. This will ensure minimization of soil disturbance within the vicinity of the ephemeral draws. All draw crossings will be designated and incorporate surface drainage features and slash filter windrows to reduce off-site sediment delivery (as discussed and located during field review).

-RECOMMENDED MITIGATION MEASURES-

SITE SPECIFIC

Equipment Restriction Zones (ERZs)

Incorporate ERZs along draws C, B and E (as noted on attached map). Implement a minimum distance of 25' or allow topography to dictate adequate ERZ width. An ERZ is not required for the north side of Draw E.

Ephemeral Draw Crossings

Crossing #1: Spur road construction and crossing designated during field review in September. No CMP required to cross dry, ephemeral swale. Install slash filter windrows on both approaches with drive thru drainage dips. Soils in this vicinity contain a higher % of coarse fragments.

Crossing #2: New road construction crosses dry, ephemeral draw. Install drive thru drainage dip and slash filter windrows @ 8% grade break.

Crossing #3: As agreed to during field review, the existing road will not be used to cross draw. Implement ERZ @ topographic break.

Crossing #4: Incorporate drainage features on both approach grades. It is recommended that a maximum fill depth of 1' be maintained in the draw to allow ephemeral flow to overtop road; although surface discharge is highly unlikely.

\*Upon termination of the timber sale, pull fill from all draw bottoms, seed and slash approach

grades and ensure installed road drainage is functioning properly.

#### STANDARD

The following are standard, recommended water quality and soils mitigation measures to be implemented concurrently with project activities.

- Implement Forestry BMPs as the minimum standard for all operations associated with the proposed timber sale.
- Plan, design and improve existing road systems to meet long term access needs where necessary and to fully comply with BMPs.
- Refrain from slash burning in or near areas of concentrated ephemeral flow, springs and wet areas.
- Plan, design and install all road surface drainage concurrent with project activities. Prior to hauling, road drainage features must be completed.
- Relocate or abandon roads that are located immediately adjacent to streams, ephemeral draws and wet areas. Reclaim abandoned roads to prevent sediment delivery to streams, draws and wet areas.
- Restrict equipment operation in the vicinity of stream, draws and wet areas.
- Rehabilitate drive-thru crossing sites upon termination of sale. Remove fill from draw, recontour sideslopes to natural profile, seed exposed soil.
- Provide for adequate road surface drainage on all temporary or abandoned roads that will not require periodic maintenance.
- Any harvest activities adjacent to stream channels will fully comply with the Streamside Management Zone Law and Rules and the State Forest Land Management Plan Watershed, Fisheries and Soils Resource Management Standards.

## WILDLIFE HABITAT EVALUATION

**Date:** March 30, 1998 (Review Dates October 15, 1997, and March 19, 1998)

**Project Name:** Middle Bench Timber Sale, Northeastern Land Office, Lewistown, Montana.

**Legals:** T 13N, R 21E, Sec. 36 (640 acres), Acreage proposed for treatment (~308).

**Reviewer:** Ross Baty, Wildlife-Biologist, Southwestern Land Office

**Existing Vegetation:** Forested stands in this section are currently dominated by ponderosa pine of varied age, density and structure. Single-storied stands (even-aged seedling /sapling, pole, and mature age classes), two storied stands, and multi-storied stands are all well-represented across this parcel. The oldest trees encountered (determined by boring) in this section are about 180 years of age. These are primarily yellow pine with diameters at breast height of about 16-25 inches, and heights of about 70 feet. Relatively limited selection-type logging activity has taken place in this section over the past 80 years. Pine regeneration tends to be abundant throughout the section, and forest encroachment has nearly overtaken this parcel during the past 80 years. Existing natural openings in this parcel are typically less than 1/4 acre in size. Seedling and sapling-sized Douglas-fir is also locally abundant within the parcel, and it appears to be expanding in abundance and distribution at a relatively rapid rate.

Coarse woody debris amounts currently vary from about 1 to 10 tons/ac and average about 3 tons/ac across the parcel (judged using guides developed by Fischer 1981). These amounts are probably fairly typical of amounts that would have been expected in forest understories in this area historically. Most pieces of charred coarse woody debris that were left following harvest that occurred in the north 1/2 of this section during the last 20 years showed evidence of feeding activity by primary cavity nesting bird species, potentially reflecting the importance of this material for feeding. Large snags are relatively rare throughout this section due to the relatively young age of the forests in this area and the historic fire ecology.

Grass cover under the forest canopy is relatively sparse across the section compared with grass cover found on grasslands observed across adjacent non-forested parcels. Creeping juniper is generally abundant throughout section 36. Native understory species encountered during field reviews included: bluebunch wheatgrass, Idaho fescue, green needlegrass, wild rye, silver sagebrush, creeping juniper, snowberry, Oregon grape, arrow-leaf balsamroot, potentilla spp., conspicuous aster, and bedstraw. Non-native species, encountered included Kentucky bluegrass, timothy, cheatgrass, and leafy spurge. Kentucky bluegrass and timothy are species commonly associated with past human activities such as livestock grazing or agricultural practices such as hay production.

**Historic Vegetation and Fire History:**

Frequent fire events played major roles in shaping stands within these forest types historically (Gruell 1983, Fisher and Bradley 1987, Losensky 1997). Some areas dominated by ponderosa pine in this area today likely represent expansion of the pine type into grasslands following years of wildfire control (Losensky 1997). Review of historic photographic comparisons of nearby landscapes (Gruell 1983), and quantified cover type information from local historic records (Losensky 1997) suggests that historically, there was likely much less dense forest on this parcel, and more grassland cover types than exist there today. The ponderosa pine/grassland savanna was also likely more abundant than at present. Mature forest in this geographic area tended to occur in small isolated patches (<10 acres) that were naturally fragmented by natural disturbance events.

Historic fire frequency in dry ponderosa pine types in this area likely fell in the range of 5-25 years (Fischer and Bradley 1987). This is a relatively frequent interval that likely resulted in low downed woody fuel accumulations and low intensity ground fires on calm days. Ponderosa pine trees in this area were typically short with limbs close to the ground, which made them susceptible to stand-replacing fires during periods with high winds. Subsequently many ponderosa pine stands in this region historically were relatively young. About 93% of them were less than 150 years of age, and about 58% were non-stocked or less than 41 years of age (Losensky 1997). Old stands tended to be located on summits of ridges, grew as small patchy inclusions growing on rocky terrain, or were scattered throughout younger pole stands (Gruell 1983, Losensky 1997). This general pattern of old "stand" distribution tends to exist on section 36 at present, which complicates the delineation of true old stand boundaries.

The exact placement and pattern of stands on section 36 at the turn of the century is unknown. However, based on the density and placement of existing old and young trees it is reasonable to believe that a high amount of forest encroachment has occurred over the past 80 years into habitats that were typically grassland. Therefore, treatments designed to thin dense stands of ponderosa pine, reduce the abundance of Douglas-fir, and increase the abundance of grassland inclusions within open pine forests are appropriate for the current vegetative conditions within this parcel.

**Existing Habitat Values:**

An existing great blue heron rookery comprised of about 32 nest trees is located in the southwest 1/4 of the section. The rookery is active and is situated on a protected bench in a mature ponderosa pine stand that lies about one mile south of a water source of adequate size for feeding by herons (North Fork of Flat Willow Creek).

This section also currently maintains cover that is important for elk, mule deer and white-tailed deer in the fall and winter. Densely stocked thickets of conifer regeneration and overstocked mature stands provide good hiding cover for elk and deer in fall, which can reduce their risk to hunting-caused mortality. Dense sapling stands in this section also provide deer with protection from exposure to cold winds in winter. Areas in the section with densely stocked mature trees are important for intercepting snow, which makes travel and foraging less stressful for elk and deer during periods with deep snow. Dense stands are currently well connected and provide for animal movements throughout the section during adverse weather conditions. Good winter forage appears to be relatively limited in abundance within the section due to the encroachment of conifers and creeping juniper. Tree lichens are likely a preferred forage species in winter. Little evidence of any current or past browsing on juniper, deciduous shrubs or conifers was observed. Increasing forest encroachment in the section is likely encouraging use by white-tailed deer in winter.

Many of the dominant pines in this parcel are good potential nest and roost sites for raptors. These trees are also important for the development of future snags. Snags of all diameters and sizes are currently found in relatively low abundance on section 36. Historically, the abundance and distribution of snags was probably very dynamic in this area. Snags were likely created on a regular basis in this area by wildfires burning through young stands, leaving an abundance of small size classes. Because large, old trees were relatively rare historically in this area, it follows that large, old snags were also inherently rare. The longevity of all snags (large and small) was probably relatively short, because of high attrition caused by reoccurring fires and frequent high wind. Snags, and especially large snags that persisted in protected locations were likely well used and in high demand by native cavity-nesting species.

This parcel presumably provides good habitat for many other species that use forested habitats such as ruby-crowned kinglets, red-breasted nuthatches, and hairy woodpeckers. However, species that prefer open forest habitats, edge habitats and grassland habitats such as mountain bluebirds, vesper sparrows, northern shrikes and house wrens will continue to avoid using section 36 over time due to encroachment of coniferous forest into grassland habitats.

DNRC uses a coarse filter approach to biodiversity by favoring an appropriate mix of stand structures and compositions on state lands. A coarse filter approach assumes that if landscape patterns and processes similar to those that native species evolved with are maintained, then the full complement of species will persist and biodiversity will be retained. Thus, wildlife diversity is maintained by managing for a variety of forest structures and compositions (approximating amounts and types expected to occur prior to European settlement), instead of focusing on habitat needs for individual selected species.

Because we cannot ensure that the coarse filter approach will adequately address the full range of biodiversity, DNRC also employs a fine filter approach for threatened endangered and sensitive

species. Through the fine filter approach reviews are conducted for such species we know or expect to inhabit a project area. These reviews normally consist of site-specific assessments of existing habitat values, assessments of potential treatments that would improve habitat conditions, assessments of potential effects of a proposed project, and development of applicable mitigations as needed. Where our ownership contains habitat components made rare on adjacent lands due to management activities of others, however, we would not necessarily maintain habitat attributes in amounts sufficient to compensate for their loss when assessed over the broader landscape. The proposed harvest activities would move the existing vegetation communities on section 36 toward appropriate conditions, and would ensure that at least 50 percent of old stands are retained in accordance with commitments stated in the State Forest Land Management Plan (SFLMP).

### **Treatment Recommendations:**

Field reviews of section 36 and review of the literature describing the fire ecology and historic vegetation in the area suggests that vegetation within the boundaries of this parcel has deviated fairly drastically over time from a typical condition that would have been represented there prior to European settlement. All stands within the section, with the exception of those comprising the harvest units more recently logged in the north 1/2 of the section, are currently at high risk to loss to stand replacement fire events and insect infestations. This also places existing large, old relic pine trees at risk, which could potentially require 150-200 years to replace. The composition of forest and grassland cover types is much different today than it was historically. The following recommendations would be implemented by DNRC to increase habitat diversity within the section, maintain critical habitat attributes that would have been represented historically, and move stands within this section back towards conditions observed there historically.

*Maintain Adequate Amounts of Old Stands-* Because of the scattered distribution of old relics in this section, we would incorporate an approach that: 1) identifies, maintains and protects easily definable and relatively extensive old stands (such as the one found in the south 1/2 of the NE 1/4), and 2) limits the removal of old relics scattered throughout the section to an average of <30% of old trees at each 20 year entry period (A characteristic clumped distribution would be retained throughout harvest units by typically removing <30% of the relics found in an individual clump i.e., an individual unit of trees examined for marking. Removal of individual trees within any clump could, however, range from 0-80% depending upon individual microsite characteristics and operating constraints, as long as the integrity of the clumped distribution of relics and <30% overall removal criteria are met.). If the entry period is 10 years, then <15% removal at each entry would be acceptable. The <30% removal guideline is an approximation of expected mortality and consumption of these old trees under natural disturbances, which would have occurred at about 20 year intervals. Such treatments would function as maintenance treatments for old pine stand inclusions (small clumps of similar age within larger homogeneous

stands). Under this type of harvest strategy it is important that a good representation of trees of all younger age classes also be retained within each harvest unit following each entry. Removal of <30% of the oldest trees (and typically the largest) as proposed, while retaining a good representation of all younger age classes, would maintain an adequate representation of old-aged cohorts (150+ yrs.) in a characteristic clumped distribution over time. An appropriate representation of structural attributes, snags and coarse woody debris expected to occur in historic old growth inclusions within the ponderosa pine type would also be retained.

*Design Treatments to Emulate Disturbance Caused by Wildfire-* Greater proportions of large, thick-barked trees would normally have survived frequent fire events than smaller, thin-barked trees. Therefore, within operational and market constraints, we would target smaller trees for removal over larger trees, and favor ponderosa pine for retention over Douglas-fir. Remove Douglas-fir seedlings, saplings and poles whenever possible. Greater proportions of smaller and younger age-classes of trees would be removed, however, younger trees are also typically much more abundant. Therefore, the expected result would be a good representation of individuals retained across all age and size classes. Expand natural openings where feasible to 1/4 to 1/2 acre in size to increase acreage of grassland inclusions within the parcel and habitat diversity. Burn small scattered slash piles in a manner that reduces the abundance of juniper and scorches the bases of nearby pines (especially those >8" dbh) to promote pitching and future snag longevity. Retain large charred material when possible to provide additional feeding sites for primary cavity nesting species.

*Retain Integrity of Unique Habitats and Attributes-* DNRC would maintain habitat attributes and the integrity of vegetation within and surrounding the great blue heron rookery that is located in the SW 1/4 of the parcel by: 1) retaining the existing structural and visual integrity of the rookery itself; 2) maintaining adequate protection of nest trees within the existing rookery to minimize their risk to loss by windthrow; and 3) maintaining conditions for some potential rookery expansion. DNRC would maintain these conditions through incorporation of a minimum 210 ft. no-harvest buffer area around the rookery. Areas along the outer edge of the buffer would be lightly treated through selective harvest. Disturbance to nesting herons during timber harvest activities would be minimized through activity restrictions during critical nesting periods (see discussion of the great blue heron rookery issue for further details).

Also, we would retain occasional overmature trees (~0.1-0.3 trees/ac) with poor growth form (especially those with flat crowns) across the parcel that could provide suitable nesting sites for species such as raptors and great blue herons. All snags would be retained within the limits of safety constraints.

*Maintain Functional Patches of Dense Forest-* Retain an interconnected mosaic of untreated and lightly treated dense patches and corridors associated with existing draw features to retain a dense forest component that allows unique ecological processes to continue within these areas.



Denser forest components where stem exclusion is active tend to have greater levels of decadence and decomposition associated with them. These dense and interconnected patches would also provide hiding cover, thermal cover, snow intercept cover and travel routes for big game and other wildlife. Dense patches and heavily forested corridors would be designed to encourage movements of wildlife across ownership boundaries (see attached harvest unit map).

### **Issues, Affected Environments, Environmental Consequences, and Mitigations**

**Old Growth:** Old growth forest that occurs within the project area could be removed, thus decreasing habitat for old growth dependant species.

Unique ecological function provided by old growth forests has been recognized by forest ecologists and land managers for many years (Harris 1984, Oliver and Larson 1990, Green et al. 1992). Over the years there has also been controversy surrounding what constitutes old growth forest, especially with regard to stand age and differences observed in old growth attributes among wet costal and drier inland forest types (Green et al. 1992).

In western Montana, old growth forests can occur on a broad diversity of moist and dry sites situated along topographic, aspect and elevational gradients. DNRC made the commitment in the State Forest Land Management Plan (SFLMP), (ROD-1996), to ..."maintain or restore old-growth forest in amounts of at least half the average proportion that would be expected to occur with natural processes on similar sites." Because there is a lack of historic data that describes old growth forests, and there is much controversy surrounding various old growth definitions, DNRC has opted to consider all potential old growth as "old stands" (all those at least 150 years old), while still considering maintenance of old growth characteristics. Ponderosa pine stands that meet this DNRC criteria for classification as "old stands" occur in this project area.

At present, State Land Inventory Data is not available for all parcels administered by the Northeastern Area Office. Therefore, estimates of old stands and assessments of compliance with the State Forest Land Management Plan were derived from the level of ownership associated with this project (in this case it was done for 640 acres, which includes all of section 36). Information on structural diversity and degree of decadence within old stands historically is relatively limited, so questions remain as to how much of various structural classes, snags and coarse woody debris were frequently present within any given stand.

Examination of historic photographs taken in the local vicinity near the turn of the century suggest that multi-storied, uneven-aged structures were common as were single-storied stands. Because of the lack of clear information on the historic structural and decadence attributes of stands found within this section, "appropriate" amounts for this project were determined through careful consideration of expected historic fire behavior and disturbance patterns, and the professional judgement of involved resource specialists with emphasis on maintaining ample amounts of multi-storied, uneven-aged and single-storied components.

Data used for this analysis were acquired from 1997 field reviews conducted specifically for this project by DNRC foresters. Estimates for treatment acreages were calculated from harvest unit maps overlaid on maps of existing old stands. Acreages of old stands by treatment type were estimated using a dot grid (Tables 1 and 2).

*Effects (No Action)*- Under this alternative ponderosa pine and Douglas-fir encroachment would continue to replace grassland and shrub land habitats. Old stands would continue to develop, and they would increase in abundance. However, habitat diversity overall within the project area would further decline and amounts of old stands would be retained in much greater amounts than would have been expected historically. Greater amounts of old stands would be retained in a condition at high risk to insect infestations and loss to lethal wildfires caused by greater fuel loadings. Wildlife species diversity would be expected to decrease dramatically over time.

*Effects (Action)*- Old stands treated under the action alternative would have tree densities and structures altered. In treated stands, varied amounts of trees within the lower, mid, and upper canopies would be removed. Less than 30% of the old relic trees across the section would be removed in any harvest unit. Structural diversity would be retained within most stands, however, the density of trees of all size classes would be reduced, thus subsequently reducing canopy density and closure. About 332 acres would remain untreated (Table 1). However, about 40 acres of this 332 acres was previously harvested within the past 20 years. Snags and coarse woody debris would be retained, and opportunities for continued recruitment would be maintained. All treated stands would have current risk of stand-replacement fire reduced. Wildlife species that favor more open stand conditions such as western and mountain bluebirds would benefit. Denser forest inclusions that would benefit species such as northern goshawks and ruby-crowned kinglets would also be retained, but in a more patchy condition. All old stands that would be treated under this proposal would retain ample old trees that would allow them to maintain their management status as "old stands" into the future, and would retain old growth characteristics that would have been typical in these stands historically. Treatment of old stands through a range of harvest intensities and prescribed burning as proposed would have expected net, positive ecological effects overall. Diversity of wildlife species associated with old stands occurring in this area would expectedly be maintained following treatments.

Table 1. Existing old stand acres and acres proposed for maintenance treatment for the Middle

## Bench Timber Sale.

<u>Cover Type</u>	<u>No Action Alt- Old Stand Total Acres</u>	<u>Action Alt- Acres by Treatment Type</u>	
		<u>&lt;30% Removal of Relics (maintenance)</u>	<u>Treated</u>
Ponderosa Pine	*0	308	*41

\* The total defineable old stand area equals 53 acres. All 53 acres will remain classified as old stands after the proposed harvest, because they retain appropriate old growth characteristics.

Table 2. Estimates of the amounts of old stands that would have typically been represented on sites similar to those occurring on section 36 at the turn of the century, and those that would be retained under the action alternative.

Cover Type	Current Total Acres in Ponderosa Pine Cover Type	Old Stand Acres Expected Historically (%)	Minimum Acres of Old Stands Required for SFLMP Compliance (% of historic)	Minimum Acres of Non-Treated Old Stands Retained Under the Action Alternative
Ponderosa Pine	640	* <45 (7)	23 (3.5)	** 12

\* This estimate was derived from historic cover type representations as described by Losensky (1997). This estimate is potentially high because historically, all 640 acres within this section were likely not all of the ponderosa pine cover type. Some acres were likely grassland.

\*\* The remaining 41 acres of existing old stands would be treated under the <30% removal treatment type, thereby retaining the classification as old stands.

**Great Blue Heron Rookery:** Activities associated with this project may disturb nesting herons that use a rookery located in the SW 1/4 of this section. Disturbance of herons could be caused

by: 1) removing existing nest site trees, 2) harvesting in a manner that causes excessive windthrow within the rookery resulting in the indirect loss of nest trees, 3) alteration of nest site characteristics that would deter future use of the site by nesting herons, and 4) creation of excessive noise and activity during project-related activities (short-term). These disturbances could subsequently cause abnormal levels of abandonment, nest failure, and or juvenile mortality over the short and/or longer term. Project-related activities could also cause a reduction in suitable nest trees that would allow for future shifting or expansion of the rookery.

A great blue heron rookery comprised of about 32 nest trees exists within the project area (NE 1/4 of SW 1/4, section 36). Great blue heron populations appear secure in Montana and they do not have sensitive, Threatened or Endangered status. Herons often nest in cottonwoods along riparian areas, and in coniferous forests on drier upland sites. Herons typically select the largest trees for nesting and they may nest singly or in rookeries. Rookeries tend to be fairly dynamic (Dr. R. Hutto, Prof. Biol. Sci., Univ. Mont., Missoula, pers. comm.), and they occasionally abandon existing nest sites, or move to nearby locations in response to unknown factors. Nest sites occur in a wide range of locations that are subject to varying degrees of human activity. Several rookeries occur in western Montana within several-hundred feet of major interstate highways. Herons normally lay 3-7 eggs and their incubation period is about 25-29 days. Young abandon the nest about 60-90 days after hatching. In Montana, there is relatively high variability among individual herons regarding when they lay eggs and fledge young (F. Prellwitz, USFWS, Wildlife Biologist, Bowdoin National Wildlife Refuge, pers. comm.). Most young fledge by the end of July during most years.

While herons do construct and inhabit rookeries at times in areas with high levels of human activity, they can be sensitive to various forms of human disturbance (Vos 1984, F. Prellwitz, USFWS, pers. comm.). Forms of disturbance that appear to influence herons most are repeated activities conducted within a several hundred feet of rookeries during the nesting season. However, herons appear to be relatively persistent in their attempts to use existing rookeries following disturbance. One rookery (located near Nelson Reservoir in northeastern Montana) that was known to have been abandoned, failed after several years of close contact by fishermen in boats traveling within 100 feet of active nest trees (F. Prellwitz, USFWS, pers. comm.).

*Effects (No Action)*- Under the No Action Alternative risks to the heron rookery would not change from their current levels. Greatest opportunities for rookery expansion would be retained, and nesting herons would be subjected to the least amount of short-term disturbance. Should a wildfire occur in this section in the future, however, the rookery would be at relatively high risk to loss.

*Effects (Action)*- Treatments proposed under this project have been designed to maintain: 1) all existing nest trees, 2) protection of existing nest trees from potential windthrow caused by typical wind events, 3) the structural and visible integrity of the rookery vicinity, and 4) an ample

amount of potential nesting trees surrounding the rookery that would provide for some, albeit limited expansion. Activity restrictions would be in place that would minimize the degree of disturbance to nesting herons during critical periods. While care has been taken to develop treatments that would not cause abandonment of the rookery, or displacement of individuals during project-related activities, some minor risk of nest tree loss to wind-throw and abandonment still exists. It is possible that herons could abandon the rookery in the near future due to project-related activities or unrelated causes, which could result in reduced recruitment. Over the short-term, some nesting herons could be displaced during harvest activities that would have otherwise been undisturbed had the activities not occurred. Stand-replacement wildfire events that would destroy the rookery would be least likely to occur following treatments proposed under this alternative.

*Mitigations-* 1) Leave a minimum 210 foot unharvested buffer around the outermost trees (perimeter) found in the rookery. 2) Retain at least 70% of the existing stems across diameter classes within 70 feet of the buffer edge (feathering treatment). 3) No project related activities would occur within 0.5 miles of the rookery from March 15 to August 1 for the duration of the project.

**Big Game Winter Range:** Timber Harvesting associated with this project could reduce cover and forage important for the survival of wintering elk, mule deer and white-tailed deer that use the project area.

This section maintains cover that is important for elk, mule deer and white-tailed deer in winter. Densely stocked thickets of conifer regeneration and overstocked mature stands provide good thermal protection for elk and deer in winter, which can reduce energy expenditures and stress associated with cold temperatures. Areas in the section with densely stocked mature trees are also important for snow interception, which makes travel and foraging less stressful for elk and deer during periods when snow is deep. Dense stands are currently well connected and provide for animal movements throughout the section during adverse weather conditions. Good winter forage appears to be relatively limited in abundance within the section due to the encroachment of conifers and creeping juniper. Tree lichens are likely a preferred forage species in winter. Little evidence of any current or past browsing on juniper, deciduous shrubs or conifers is present. Increasing forest encroachment in the section is decreasing the proportion of forested openings near cover, which could reduce available forage during portions of each winter. The presence of leafy spurge and creeping juniper in this section could also function to reduce forage availability in winter.

*Effects (No Action)-* Under this alternative existing cover would not be dramatically altered over the short-term. Existing stands would continue to provide good thermal cover for elk and deer. Stands that currently provide good cover would become increasingly susceptible to insect attacks and high attrition caused by lethal wildfires. Disturbances such as these at large scales would

have adverse effects on wintering elk and deer (especially white-tailed deer). Palatable herbaceous and browse forage found in forest understories would continue to decline in abundance. White-tailed deer would likely benefit most from selection of this alternative. However, inclusions of open space that are often usable by mule deer and elk would become increasingly limited. Creeping juniper and leafy spurge would continue to increase in abundance, thus further reducing palatable forage for elk and deer.

*Effects (Action)*- Under this alternative about 292 acres would be maintained in patches and interconnected retention corridors with heavy forest canopy. Retained patches would be large enough to intercept snow and facilitate movements of elk and deer within, and across the ownership boundaries associated with this parcel (see attached map). Existing connectivity of mature forest cover that lies along the west section boundary and across the NW corner of the section would be retained. Retention patches would have dense thickets of conifer regeneration scattered throughout them, which would maintain sites usable for thermal protection from high wind. Thermal and snow intercept properties of the 308 acres proposed for treatment would be substantially reduced, however, conditions would be improved in those treated areas for foraging. The abundance of creeping juniper would be slightly reduced in conjunction with slash burning, which could also slightly improve foraging conditions for wintering ungulates. Management activities proposed under this alternative would have positive expected effects overall on winter range habitat within section 36. The potential for spread of leafy spurge and other noxious weeds would slightly increase due to increased soil disturbance caused by log skidding and road construction.

*Mitigations*- 1) Maintain interconnected patches of well-stocked mature and over-mature forest throughout draw bottoms and across ridges and saddles to facilitate movements (see attached map). 2) Minimize new road construction and heavily seed them with appropriate native seed mixes following their use to discourage invasion of noxious weeds. 3) Jackpot burn or burn slash in small scattered piles targeting creeping juniper for removal. 4) Mark largest retention trees in a clumped distribution. 5) Monitor road systems within the project area for two years for noxious weed occurrence, and use integrated methods when necessary to control noxious weed infestations following harvest activities. 6) Minimize ground disturbance associated with harvest operations.

**Big Game Hiding Cover:** Activities associated with this project could remove trees that provide hiding cover important for elk and deer during hunting season.

Timber harvesting can remove trees that provide secure environments and visual screening cover for elk and deer during hunting season. This can cause high levels of hunting-caused mortality, which can further result in reduced hunter opportunity. Existing stands currently provide good hiding cover for elk and deer in fall. Within stand patches of young trees of varied age are scattered throughout the section and provide very good visual screening cover. In some areas,

sight distances are limited to <50 feet.

*Effects (No Action)*- Under this alternative, current levels of hiding cover would not be altered. Existing stands would continue to provide very secure environments for deer and elk. Mature stands and patches of regeneration would continue to develop over time, further reducing sight distances within the parcel, and improving the quality of hiding cover. Stands with high levels of well-developed hiding cover would be retained at high risk to lethal fire events, which would drastically reduce hiding cover until advanced regeneration could be re-established.

*Effects (Action)*- Under this alternative, current levels of hiding cover would be reduced across the 308 acres proposed for treatment by up to 60% of existing amounts. Visual screening cover would remain scattered throughout each harvest unit following treatments, however, at much reduced levels. In some areas sight distances could be increased from <50 to >300 feet. Hiding cover would be retained at its existing levels across the remaining 281 acres that would not be treated at this time. Of these 332 acres, about 292 would be retained within heavily stocked retention corridors and patches distributed across the parcel. Hunting-caused mortality for local elk and deer could slightly increase in this local area. However, because approximately 45% of the existing hiding cover would remain unaltered and no public access exists for the section, adverse impacts to elk and deer populations at the Hunting District level would not be expected. Subsequently, hunter opportunity would be minimally influenced.

*Mitigations*- 1) Maintain interconnected patches of well-stocked mature and over-mature forest throughout draw bottoms and across ridges and saddles to facilitate movements and provide visual screening cover (see attached map). 2) Minimize new road construction, and slash all new roads and those not in use to reduce foot and unauthorized motor vehicle access.

## **Threatened and Endangered Species**

**Bald Eagle:** Activities associated with timber harvesting may remove quality nesting and roosting trees, and/or disturb nesting eagles.

Bald eagles are currently considered Threatened in Montana. Nesting habitat potential for bald eagles is low for section 36. The greatest potential for any use would be along the northern section line where some stands are in view of North Fork Flat Willow Creek. It is doubtful that this creek alone would provide a suitable forage base for a nesting pair of eagles. Other good sized ponds and lakes (>40 acres) in the area are limited. Proposed treatments that retain an abundance of the largest trees within each harvest unit would not likely preclude their use by nesting or perching eagles. No impacts to bald eagles are anticipated as a result of this project. In the event that a nesting pair should show up within one mile of any harvest-related activities, activity restrictions would be placed in effect.

*Mitigations-* 1) If a nesting pair of eagles shows up within a mile of any activity associated with this timber sale, operations would immediately cease and a DNRC biologist consulted for further appropriate mitigations. 2) Retain ample amounts of the largest trees within view of the North Fork Flat Willow Creek.

**Peregrine Falcon:** Peregrines are currently classified as Threatened in Montana. There are no known pairs nesting in this area. No cliff habitat usable for nesting by peregrine falcons is present on, or within one mile of the project area. No direct or cumulative impacts to peregrine falcons are expected to occur as a result of this project.

**Gray Wolf:** Wolves are currently classified as Endangered in Montana. No known packs are present in this area, however, roaming or denning wolves could show up in the project area at any time. Primary considerations would be that habitats could be made less effective for prey needed by wolves (primarily elk and deer), and that additional roads and human activity in the area associated with this project could harm or displace the wolves themselves. Should a pair of denning wolves show up in the project area while harvest activities are taking place, activity restrictions would immediately be placed in effect. No adverse impacts to wolves are anticipated as a result of this project.

*Mitigations-* 1) Suspend operations and temporarily restrict use of roads within a 1 mile radius of any known active wolf den until the wolves have vacated the site, a DNRC Biologist has approved re-commencing project activity, or July 15, whichever occurs earlier. 2) Suspend operations and consult a DNRC Biologist if a suspected rendezvous site is observed within 0.5 miles of any ongoing project activities. 3) Retain connective corridors of heavy forest cover to maintain travel routes, visual screening and thermal protection for elk and deer. 4) Minimize additional roads, and heavily slash new roads and unneeded roads to reduce the increased potential for foot and unauthorized motor vehicle traffic.

## **Sensitive Species**

**Ferruginous Hawk:** Ferruginous hawks prefer open country habitats where they feed primarily on rodents. Frequented habitats include prairies, plains, badlands, sagebrush, and saltbush-greasewood shrub lands. Ferruginous hawks in western Montana have been found nesting in rimrock, pillars, cliffs, willows, trees (occasional) and on the ground (occasional). Nest sites tend to be most common on southerly exposures and on lower slopes. Nesting dates are from about April 1-July 30. Ferruginous hawks are sensitive to disturbance by humans during incubation and may subsequently desert the nest and/or eggs.

Nesting habitat potential within section 36 is low due to the lack of badlands, dense forest cover and gentle topographic relief. Grassland habitats that could potentially be used for foraging by



ferruginous hawks occur within one mile of the project area. However, activities associated with this project would not be expected to disturb feeding birds. Adverse impacts to ferruginous hawks as a result of this project are not anticipated. We are unaware of any ferruginous hawks currently using or nesting in the local area, however, should a pair be found nesting within 0.5 miles of the project area, activity restrictions would immediately be placed in effect.

*Mitigations-* 1) Report sightings of ferruginous hawks near, or in the project area to a DNRC Biologist immediately. 2) If an active nest is found within 0.5 mile of the proposed project area, no project-related activities would be allowed within 500 m of the nest from April 1-August 1.

**Townsend's Big-Eared Bat:** Townsend's big-eared bat is widely distributed, but often occurs at low densities. It is sensitive to disturbance and recovers slowly following population declines. In western Montana Townsend's big-eared bats commonly roost in old mines, and in cavernous habitats and rocky outcrops of sedimentary or limestone origin. Large diameter hollow trees or snags may also be used for roosting. Colonies of females with young have been found in warm areas of caves, mines and occasionally buildings. No mines, caves or caverns have been found within the project area. However, old mines occur in the Flat Willow Creek Drainage that could possibly provide roosting sites for bats. We are unaware of any documented use of the project area by Townsend's big-eared bats. However, it is possible for them to occasionally travel through and/or use the area. No impacts to Townsend's big eared bats are expected as a result of this project.

*Mitigations-* 1) Retain all snags and a high proportion of the largest trees for recruitment trees. 2) Report sightings of any bats, caves, old mines or caverns encountered on or nearby the project area to a DNRC biologist immediately.

## **Other Sensitive Species**

The following are additional sensitive species that may potentially occur on State Trust Lands administered by the Northeastern Land Office. A field review was conducted by a DNRC wildlife biologist, and habitat values for these species on the project area and local vicinity were assessed. Due to the lack of suitable habitats within or adjacent to the proposed project area, no project-related impacts would be expected for these species. Species occurrence records provided by the Montana Natural Heritage Program Database were also acquired and reviewed to document the presence or absence of these sensitive species in the project area vicinity.

*Common loon-* No suitable lake or pond habitat suitable for nesting loons is present near the proposed project area.

*Harlequin duck-* No suitable white-water streams with large boulders and cobble are present

within or near the proposed project area.

*Mountain plover*- No suitable short-grass habitat present within or near the proposed project area.

## **Cumulative Effects**

Various other human activities occur in the project area vicinity on adjacent ownerships. Primary activities include livestock grazing, timber harvesting, and agricultural development. Implementation of the Action Alternative would potentially contribute cumulatively to ongoing reductions in potential heron roosting sites and cover for big game animals that have previously been reduced by timber harvest on adjacent ownerships. Such reductions could have minor adverse consequences for these species.

Selection of the No Action Alternative would also have adverse consequences for wildlife. All of the existing heavily stocked old stands would be at high risk to loss by insect outbreaks and lethal wildfire events. Forest encroachment would continue and grassland inclusions and associated wildlife species that would have existed in this section historically would be replaced by those preferring denser forest environments. Habitat and wildlife species diversity overall, would be expected to further decline over time. Allowing forest encroachment to continue in the absence of periodic disturbances would contribute to the cumulative reduction of open pine forest, pine savannah, and grassland habitats in the region. Over time, forest encroachment could cause substantial adverse impacts for species that require these habitats.

## **State Forest Land Management Compliance**

The treatments and mitigations previously described in this document were developed to meet biodiversity objectives as stated in the State Forest Land Management Plan Standards (ROD 1996). All mitigations described herein were reviewed, and either meet or exceed forest plan interim guidance for meeting Plan Standards.

## **Individuals Contacted During Project Development**

- Kristi Dubois, Wildlife Biologist, DFWP, Great Falls.
- Mike Hillis, Wildlife Biologist, USFS, Lolo National Forest, Missoula.
- Rich Harris, Wildlife Biologist, DNRC, Forest Management Bureau, Missoula.

- Betsy Follman, Wildlife Biologist, Deerlodge National Forest, Boulder.
- Dr. Richard Hutto, Professor of Biological Sciences, University of Montana, Missoula.
- Dave McCleerey, Wildlife Biologist, BLM, Missoula.
- Fritz Prellwitz, Wildlife Biologist, USFWS, Bowdoin National Wildlife Refuge, Malta.

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MONTANA NATURAL HERITAGE PROGRAM

1515 East Sixth Avenue  
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Attachment #7  
MT Natural Heritage Comment



July 29, 1997

Kevin Benton  
Montana Department of Natural Resources & Conservation  
Northeastern Land Office  
PO Box 1021  
Lewistown, MT 59457

Dear Mr. Benton:

This is in response to your request for information on threatened, endangered, and sensitive (TES) species in the vicinity of the T13N R21E Sec. 36. A search of our database found no records of TES species occurring in the vicinity of this area.

Please keep in mind, however, the results of a data search by the Montana Natural Heritage Program are not intended as a final statement on sensitive species within a given area, or as a substitute for on-site surveys which may be required for environmental assessments or other work.

If I can be of further assistance, please don't hesitate to contact me at 444-0915 or via e-mail at [schadde@nris.mt.gov](mailto:schadde@nris.mt.gov).

Sincerely,

Scott Lee-Chadde

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Attachment #8  
Archaeologist's Report

Printed by: DNRC NELO Lewistown at 02/27/98 4:05p

From: Patrick Rennie, DNRC Archaeologist

Subject: Middle Bench (Lotta Pine) Timber Sale

I have reviewed the DNRC's sites/site leads database and have found no evidence of cultural resources being in the project area. Additionally, the terrain in the project would appear to have a limited potential for containing cultural resource sites. No additional archaeological work is recommended in order for the proposed Timber Sale to proceed.