Public Draft

Montana Fish, Wildlife & Parks

Lone Pine State Park Forest Management Project

DRAFT ENVIRONMENTAL ANALYSIS

MEPA/NEPA Checklist

MISSION. **Montana Fish, Wildlife & Parks, through its employees and citizen commission, provides for the stewardship of the fish, wildlife, parks, and recreational resources of Montana, while contributing to the quality of life for present and future generations.**

All Montanans have the right to live in a clean and healthful environment. This environmental analysis is intended to provide an evaluation of the likely impacts to the human environment from proposed actions of the project cited below. This analysis will help Montana Fish, Wildlife & Parks to fulfill its oversight obligations and satisfy rules and regulations of both the Montana Environmental Policy Act (MEPA) and the National Environmental Policy Act (NEPA). Please provide a discussion for each section. If no impacts are likely, be sure to discuss the reasoning that led to your determination.

PART I. PROPOSED ACTION DESCRIPTION

1. Type of proposed action:

Development _____

Renovation _____

Maintenance _____

Land acquisition _____

Equipment acquisition _____

Other: Forest management __X__

2. If appropriate, agency responsible for the proposed action:
Montana Fish, Wildlife & Parks

3. Name, address phone number and e-mail address of project sponsor:
Montana Fish, Wildlife & Parks, 490 N. Meridian Road, Kalispell, MT 59901, (406) 751-4574

4. Name of project:
Lone Pine State Park Forest Management Project

5. If applicable:
Estimated construction/commencement date:
Winter 2005/2006

Estimated completion date:
Winter 2005/2006

Current status of project design:
Design Phase

6. Location affected by proposed action (county, range and township):
Flathead County, T28N, R22W, Section 24

7. Project size: Estimate the numbers of acres that would be directly affected that are currently:

(a) Developed:
residential ..... 0 acres
industrial..... 0 acres

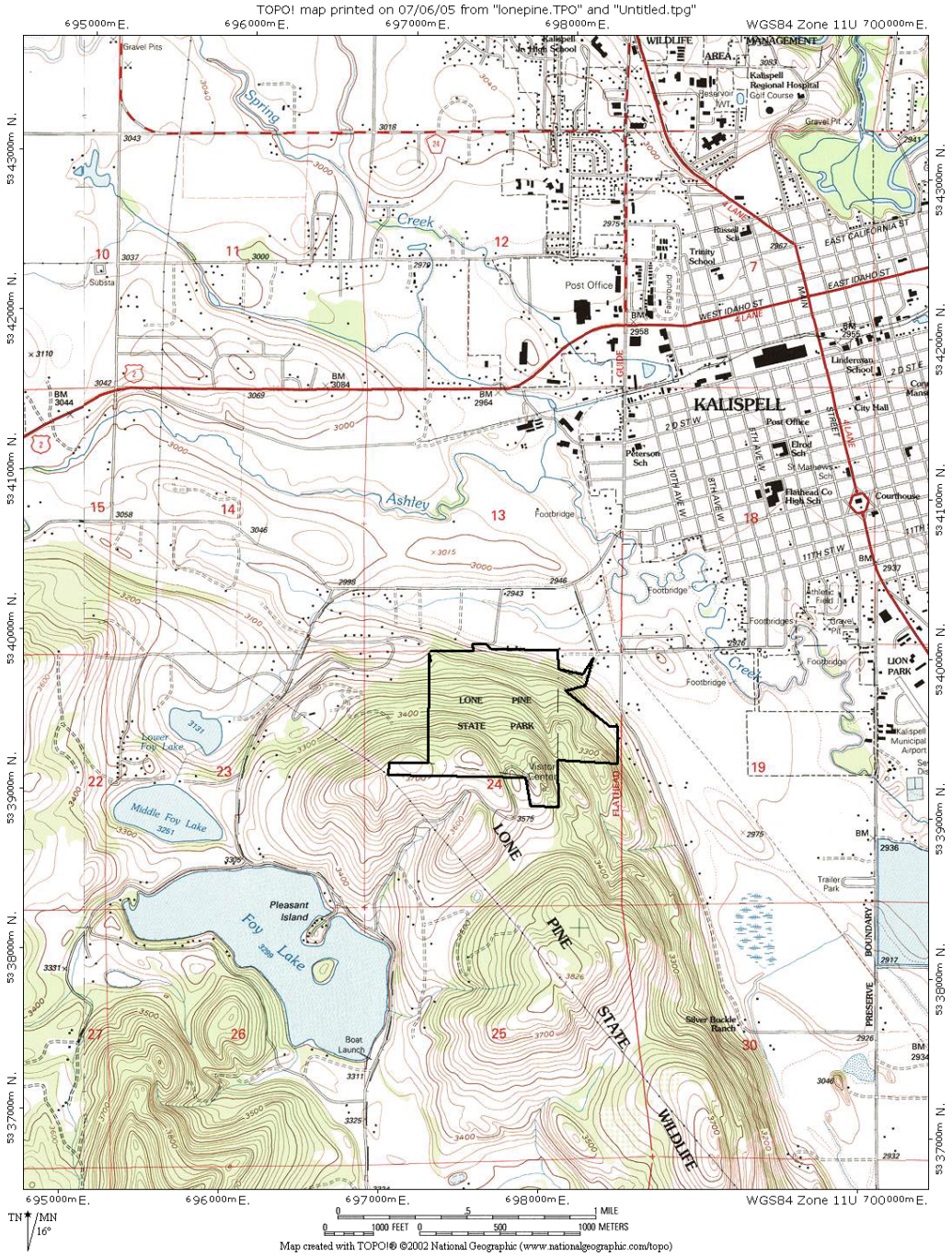
(b) Open Space/Woodlands/
Recreation ..... 185 acres

(c) Wetlands/Riparian
Areas ..... 0 acres

(d) Floodplain ..... 0 acres

(e) Productive:
irrigated cropland .... 0 acres
dry cropland..... 0 acres
forestry..... 0 acres
rangeland..... 0 acres
other ..... 0 acres

8. **Map/site plan: Attach an original 8½" x 11" or larger section of the most recent USGS 7.5' series topographic map showing the location and boundaries of the area that would be affected by the proposed action. A different map scale may be substituted if more appropriate or if required by agency rule. If available, a site plan should also be attached.** Please see attached map.



Lone Pine State Park (229.44 acres)

9. Narrative summary of the proposed action or project including the benefits and purpose of the proposed action:

This project would provide a strategy to mitigate the effects of dwarf mistletoe and Douglas fir bark beetle on the long-term condition of the Lone Pine State Park forest by offering prescriptive alternatives for mechanical tree harvesting that are consistent with the goals and objectives listed in the Lone Pine State Park Management Plan. (Please see Appendix A.)

In 2000, Contract Forester Jim Cancroft was hired to survey and assess the condition of the Lone Pine State Park forest. His survey measured species composition and age, insect and disease infestations, and understory conditions. In 2004, Cancroft replicated his 2000 survey and concluded the following: In the four years since his first survey, the percentage of standing dead Douglas fir and western larch has risen from 7% to nearly 20%. This is attributed to severe Douglas fir bark beetles and dwarf mistletoe. At this rate of mortality, it is possible that over half of Lone Pine's forest could be dead by 2010. Over 60% of the park's Douglas fir trees have some level of infestation by dwarf mistletoe and/or Douglas fir beetles. (Please see Appendix C.)

Western larch stands show evidence of being suppressed and unhealthy, with narrow, sparse crowns and the presence of heart rot. There is evidence of Flathead woodborers in recently killed western larch. Overall, conifer regeneration is low. The majority of seedlings in the park are suppressed Douglas fir. (Please see Appendix B for details of Cancroft's report.)

This proposal would result in treatment of up to 170 acres, and the majority of the park's 229 acres would be affected temporarily by this project. In these thinned areas, only trees that are stressed from mistletoe, susceptible to bark beetles, and stressed from drought would be removed. Standing dead snags would be left throughout the project area to benefit cavity nesters and other wildlife. Park aesthetics are considered in all aspects of this project. Areas of dense forest along trails would be left to provide visual screening to and from neighboring residential property. Additionally, wildlife habitat areas that provide security and thermal protection for wildlife would be identified and left intact. The majority of the 41-acre parcel added to Lone Pine in 2001 would be left intact due to the logistical difficulties of removing trees and debris. The project as a whole would decrease wildfire potential within the park, thus providing less threat to surrounding properties.

Small forest openings (under one acre) would be created in correlation with severe insect and mistletoe infestations. They would be intended to reduce the spread of mistletoe, create conditions less favorable to bark beetles, promote understory diversity, and enhance regeneration of conifers. When feasible, these openings would be utilized to enhance scenic vistas from points within the park.

This project would address fuel reduction and defensible space around the caretaker's residence, park entrance, and along portions of the park's boundaries.

This project would treat the native grassland along the parks southwestern boundary by cutting encroaching Douglas fir seedling and saplings.

This project is in accordance with the terms of donation as stated on the property deed for Lone Pine State Park. In 1941 Kalispell area residents Ernest and Hazel White donated to the state of Montana 162 acres of what is today the core of Lone Pine State Park. The property was donated with instructions that the property be "managed and developed in accordance with approved forestry practices of the state, and to the same degree and extent that other state forest lands are protected, developed and managed, but with special emphasis on the recreational use of this area by the public."

In 2002 Contract Forester Fred D. Hodgeboom also conducted a brief survey of Lone Pine's forest conditions and reached some of the same conclusions as Cancroft. Hodgeboom noted the prevalence of dwarf mistletoe, suppressed fir and larch stands, and declining ponderosa pine stands.

This project would designate 5 management area types with specific management objectives:

Management Area 1 – Sensitive Area

These areas would be retained in their current condition for the benefit of wildlife and visitors. These areas would include, but are not limited to, areas of critical wildlife habitat, wildlife travel corridors, areas within rocky soils, or native moss and lichen populations. Sensitive areas would be located within thinned areas and adjacent to small clearings. They would also be located on steep, unstable slopes where severe erosion could result.

It is estimated that a minimum of one quarter of the park's forested acreage, or approximately 45-50 acres, would be managed as a sensitive area, with little or no disturbance.

Management Area 2 – Fuel Mitigation

The creation of a defensible space around the caretaker's residence, park facilities, and the park entrance is a project priority. Both sides of the main park entrance to 150 feet past the caretaker's residence would be treated. Healthy trees would be left at a spacing of 15-25 feet between crowns. All nonharvested trees would be pruned to a height of 10-15 feet. All ladder fuels, dead and downed trees, and trees with a moderate-to-severe mistletoe rating will be removed. All nonmerchantable timber and slash will be chipped and removed from the area. Any salvageable material will be processed with a cut-to-length system and decked and sold with other forest products.

In conjunction with defensible space work being done on adjacent private lands, fuel reduction work on parkland bordering private homes would take place at staggered locations along the north and west boundaries. The total area within the park treated for fuel mitigation priority would be approximately 25 acres.

Management Area 3 – Grassland Restoration

The goal in Management 3 areas would be to encourage healthy and vigorous native grasslands. Encroaching Douglas fir seedlings and saplings would be cut by hand and piled and chipped.

Along the northern perimeter of the grassland, the old growth ponderosa and Douglas fir would be conserved. A high percentage of suppressed, diseased and dying trees would be removed. Small openings would be created along this perimeter and ponderosa pine and western larch would be planted.

It is estimated that the total area treated would be approximately 40 acres.

Management Area 4 – Random Variable Density Thinning
A random variable density (RVD) retention would be utilized in Management Area 4 locations. Trees of all age classes with good crowns and potential for growth and longevity would be left. There are no spacing requirements for retention trees, with a random, patchy, structured forest being the desired outcome. A high percentage of Douglas fir that are diseased, dying, and drought-stressed would be removed. The overall goal in these areas is to reduce the spread of mistletoe, create conditions less favorable to bark beetles, and reduce forest fuels.

In these areas, individual trees would be marked to cut. The preferred method of tree removal would be a mechanical tree-length system. Designated cut trees would be mechanically cut by a feller-buncher, and the whole tree would be skidded to a central landing or to smaller landings along the park's perimeter. Existing trails and roads would be utilized for skid trails whenever possible.

Any salvageable material will be processed and sold with other forest products. It is estimated that up to 80 acres of the park would be treated with this methodology.

Management Area 5 – Canopy Openings
Within Management 5 areas, irregular openings of less than 1 acre in size would be created in areas of the park with high concentrations of dwarf mistletoe and Douglas fir bark beetle. These openings would occur within thinned and nonthinned areas. The goals in these areas would be to reduce the spread of mistletoe, create conditions less favorable to bark beetles, promote understory diversity, and enhance regeneration of conifers through natural recruitment and supplemental planting. Canopy openings would be used to increase the overall edge effect within the park, thus creating a greater diversity of wildlife habitat.

Any salvageable material will be processed and sold with other forest products.

It is estimated that there would be up to 20-30 small, irregular openings totaling 15-25 acres of treated forest.

Proposed Harvest Methods:

Feller-buncher Method
The equipment used to complete this work would be a combination of traditional and state-of-the-art logging equipment. The majority of the project would be treated with a mechanical cut-to-length system, consisting of a feller-buncher that mechanically grasps and cuts trees. A grapple skidder would skid the prebunched trees to a designated landing, where a log processor delimbs the trees and manufactures them into logs. A log loader then loads the logs onto trucks for hauling. The logging slash would be chipped for pulp, burned, or broadcast.

A main landing below the picnic area would be utilized so as to be accessible to chip trucks for removal from the park. Slash that cannot be hauled would be burned at the landing or piled into "flash piles" within the park and then burned. In more remote areas of the park or in areas of light

treatment, the "lop and scatter" or " chip and scatter" methods would be utilized to broadcast logging debris in small pieces for natural decomposition.

Cut-to-length Method
A cut to length system would be utilized in the portions of the park that are close to other access and entry points. In this system a harvester mechanically falls, delimbs, and processes a tree into logs in a single operation at the stump. Logs are sorted and placed in small piles. Slash is placed in front of the harvester, and the machine walks forward over this mat of slash to reduce disturbed soils. After the logs are processed, a forwarder follows the trail made by the harvester and loads the logs onto bunks. These logs are then carried to a landing area. In these areas the slash would then need to be hand or mechanically piled for chipping or burning.

Noxious Weed Mitigation and Project Rehabilitation
In 2005, contract botanist Melissa Waggy completed a noxious weed inventory and treatment plan in accordance with the Lone Pine State Park Management Plan. The noxious weed plan provides baseline data from which comparisons can be made following prescriptive actions. It is expected that the spread of noxious weeds will be an unavoidable outcome of this project. Of particular concern is the spread of spotted knapweed. Aggressive chemical and mechanical treatment would be incorporated into this project immediately following prescriptive actions and for at least three years afterwards. Effectiveness of treatments would be measured against the Waggy inventory, and necessary adjustments would be made. This prescription would be written to minimize disturbed soils to the greatest extent possible. Skid routes and decking locations would be selected to utilize existing hardened areas or existing roads and trails whenever possible. If skid trails are developed, they will be located in areas that facilitate rehabilitation through replanting and chemical weed treatment. In some cases, it may be possible to develop new visitor trails by modifying logging skid trails during rehabilitation.

This project would minimize slash burning, opting instead for chipping and hauling of debris when possible. Attempts will be made to provide small-diameter materials and slash to Stone Container Corporation of Missoula for container manufacturing.

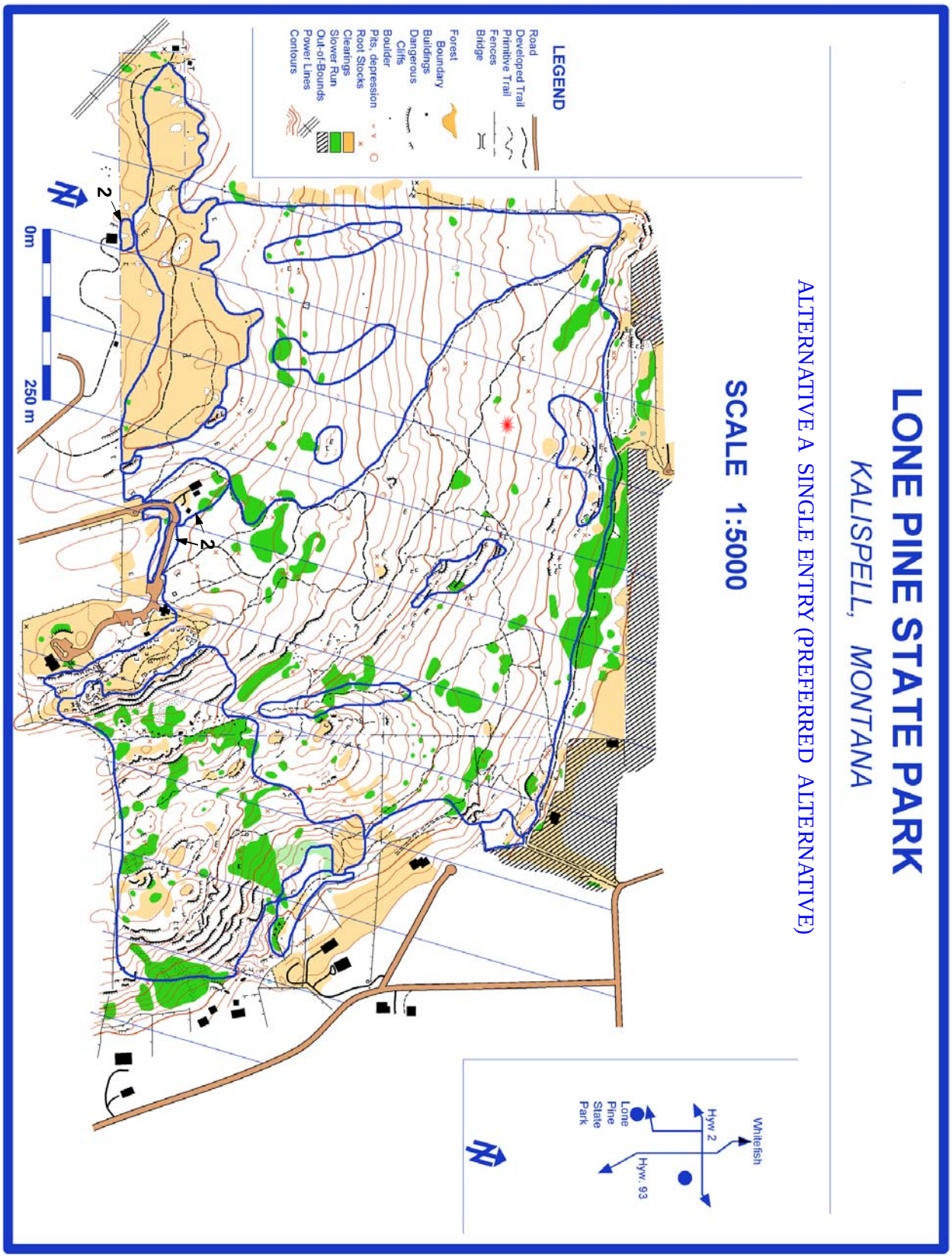
Tree removal work would be scheduled to occur during the winter months when the likelihood for frozen ground and lower visitor use is better. Rehabilitation work would begin immediately following logging activities.

10. Description and analysis of reasonable alternatives (including the MEPA-required no-action alternative) to the proposed action.

Alternative A (Preferred Alternative): Single-entry Treatment
Under this alternative, the entire park would be zoned into one of five management area types utilizing a single entry to conduct logging activities. (Please see exhibit A.) All tree removal operations would take place during the winter months in a single year, thus minimizing the impacts and restrictions on park visitors. Additionally, project cost and overhead would be substantially reduced by utilizing a single-entry alternative.

The arguments against this alternative are that any problems encountered through these prescriptive actions, such as noxious weed proliferation, would be on a larger scale and thus more difficult to mitigate. There is also concern that the visual impacts would be greater, and that a multiple-entry alternative would allow park users to gradually adjust to changes within Lone Pine State Park.

FWP believes that the project goals and objectives provide for a cautious approach to prescriptive treatments, and that single-entry alternative will create less impact on visitors than multiple entries dispersed over two or more years. FWP also believes that the ecological issues within Lone Pine's forestlands are severe enough that immediate action is warranted park-wide. These same issues are severe enough that FWP believes the added workload and costs associated with combating noxious weeds is a necessary outcome of this alternative.

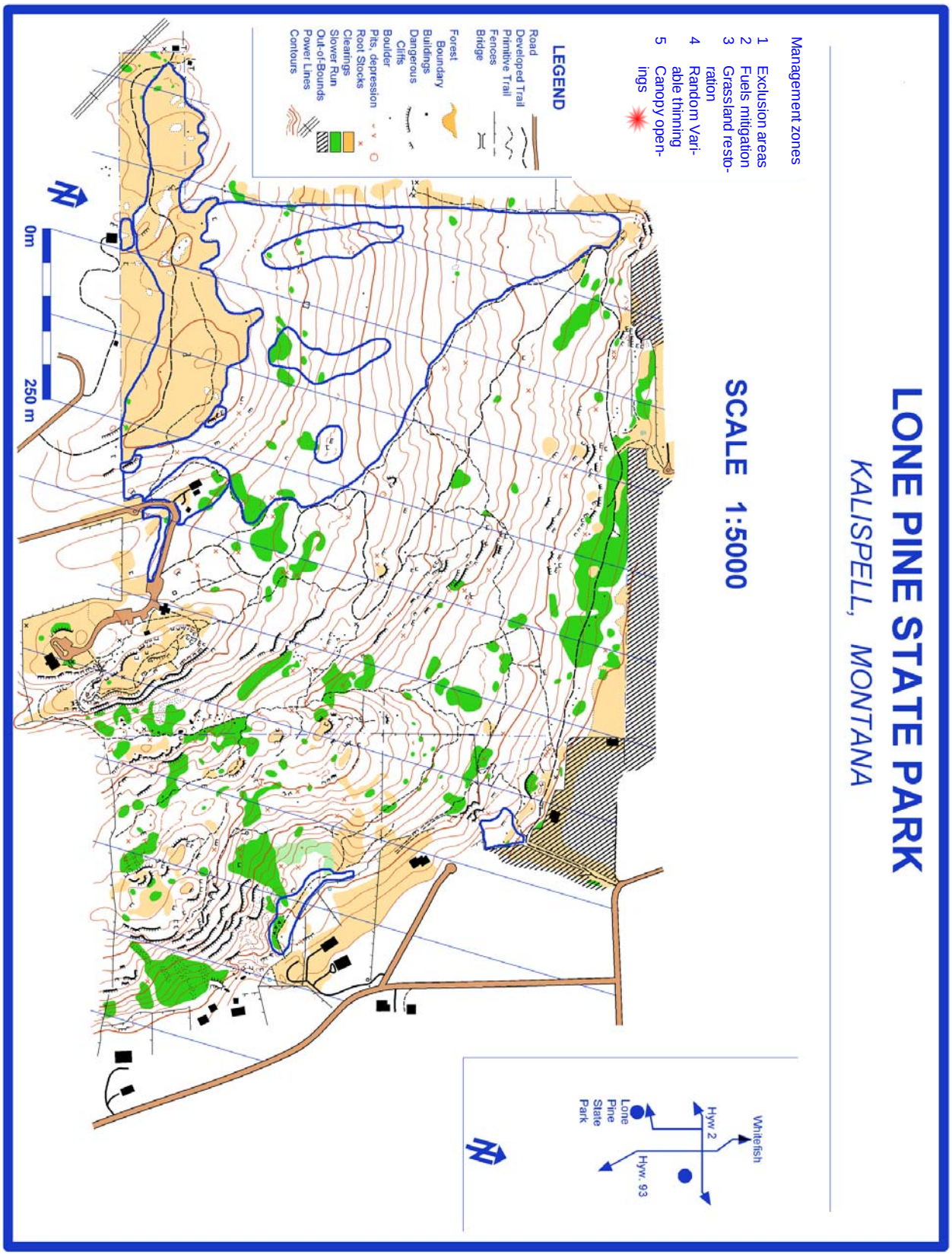

LONE PINE STATE PARK
KALISPELL, MONTANA
ALTERNATIVE A SINGLE ENTRY (PREFERRED ALTERNATIVE)
SCALE 1:5000
LEGEND
Road
Developed Trail
Primitive Trail
Fences
Bridge
Forest Boundary
Buildings
Dangerous Cliffs
Boulder
Pits, depression
Root Stocks
Clearings
Slower Run
Out-of-Bounds
Power Lines
Contours
0m
250 m
Whitefish
Hyw 2
Hyw. 93
Lone Pine State Park

Alternative B: Multiple-entry Treatment
This alternative would utilize the same zoned approach as the preferred alternative, but would adopt a phased implementation schedule, utilizing two or more entries to treat the entire park. Under this alternative, the lightly used west side of Lone Pine would be treated and monitored for a period of two to five years to assess the effectiveness of prescriptive actions and associated rehabilitation work. Subsequent treatments would follow for other regions of the park, using information gathered from monitoring. Fuels mitigation areas on the east side of the park and near the caretaker's residence would be included in this alternative to create defensible space near neighboring dwellings. (Please see Exhibit B.)

The advantage to this alternative would be a lower initial project cost and fewer impacts and restrictions on park visitors. Additionally, negative impacts would be reduced, and rehabilitation methods could be analyzed for effectiveness.

The disadvantage to this approach is that multiple entries would inflate project costs due to increased planning and mobilization costs. Impacts and restrictions on park visitors would be increased as a result of prolonged treatment activity over a period of years. It is also possible that failure to treat problem areas within the park will result in fuel loading over time, as standing dead trees begin to fall.

FWP believes that the ecological issues facing Lone Pine warrant treatment of the park as a whole. The Department also believes that local expertise with existing methods of tree harvesting and rehabilitation, combined with experience gained while conducting other recent forestry projects at state parks and fishing access sites within Region One, will provide the necessary safeguards.



Alternative C: No Action
The no-action alternative leaves the future of Lone Pine's forestlands to natural processes. Under this alternative, no prescriptive tree removal would take place, and FWP would allow the current epidemics of Douglas fir beetle and dwarf mistletoe to run their course. FWP would take a reactive role and address resulting forest conditions as they develop.

Under this alternative FWP anticipates that the volume of standing dead trees would continue to increase dramatically as infected stands succumb to infestation. Eventually, these trees would begin to fall, greatly increasing the amount of debris on the forest floor, and elevating fuel loading and potential for wildfire.

It is also anticipated that the demise of western larch and ponderosa pine would continue, and that regeneration of these conifers will be minimal. Additionally, understory plant communities would remain stagnant until natural processes such as fire or decay of fallen stands promote the proper conditions. FWP also anticipates a gradual conversion of the park's grasslands to Douglas fir forest under the no-action alternative.

The advantages to this alternative are the immediate savings in treatment costs. The negative effects of soil disruption would be avoided, and closed canopy effect would likely persist park-wide for several more years.

FWP does not believe that a no-action alternative is the best solution for the long-term management of Lone Pine State Park. Lone Pine is becoming increasingly urban as residential development surrounds the park. The aesthetic, recreational, and habitat qualities that the park provides are at risk. Unlike a designated wilderness area, FWP must manage for concentrated recreational use and coexist with residential property owners who border the park.

11. Listing of each local, state, or federal agency that has overlapping or additional jurisdiction.

(a) Permits		
Agency Name: N/A	**Permit:**	**Date Filed:**

(b) Funding	
Agency Name: Montana Fish, Wildlife & Parks	**Funding Amount:** Estimated Cost $ 143,570 Estimated Revenue $ 112,500 Estimated Net Cost $ 31,070

(c) Other Overlapping or Additional Jurisdictional Responsibilities	
Agency Name: Smith Valley Volunteer Fire Dept.	**Type of Responsibility:** Wildfire suppression

12. List of agencies consulted during preparation of this environmental checklist:
Montana Department of Natural Resources and Conservation
United States Forest Service
Northwest Management, Forestry Consulting Firm, Helena, MT

13. Name of Preparer(s) of this Environmental Checklist:
David Landstrom, FWP Region One Parks Division
Jim Cancroft, Contract Forester

14. Date submitted: November 1, 2005

PART II. ENVIRONMENTAL CHECKLIST

PHYSICAL ENVIRONMENT. **At the bottom of this "Land Resources" checklist, provide a narrative description and evaluation of the cumulative and secondary effects on land resources. Even if you checked "none" in the above table, explain how you came to that conclusion. Consider the immediate, short-term effects of the action as well as the long-term effects. Attach additional pages of narrative if needed.**

1. LAND RESOURCES Will the proposed action result in:	IMPACT				Can Impact Be Mitigated	Comment Index
	Unknown	None	Minor	Potentially Significant		
a. Soil instability or changes in geologic substructure?			x		yes	1a
b. Disruption, displacement, erosion, compaction, moisture loss, or over-covering of soil, which would reduce productivity or fertility?			x		yes	1b
c. Destruction, covering, or modification of any unique geologic or physical features?		x				
d. Changes in siltation, deposition, or erosion patterns that may modify the channel of a river or stream or the bed or shore of a lake?		x				
e. Exposure of people or property to earthquakes, landslides, ground failure, or other natural hazard?		x				
f. Other		x				

1a. A short-term effect caused by the use of mechanical equipment to thin and transport trees to landings may lead to some soil instability. Ground disturbance will be mitigated by utilizing existing trails whenever possible, working with mechanical equipment on snow-covered or frozen ground, avoiding skidding straight up and down slopes, utilizing cut-to-length logging systems, and avoiding areas with thin and sensitive soils. In the long term, all areas of exposed mineral soils would be seeded with a native grass/forb seed mix. There would be no short or long term effects on the overall geologic substrate.

1b. There is potential for short- and long-term effects on soil compaction and erosion. Landings or areas of slash accumulation are subject to soil compaction. To mitigate these effects on landings, the topsoil would be bladed and deposited along the perimeter of the landing. When operations are completed, the soil would be redeposited and even supplemented with additional soil and organic material. The area would then be planted with a native grass/forb mix, native browse species, or ponderosa pine or western larch seedlings. Existing trails would be used whenever possible to transport material. Designated skid trails would be mechanically raked and recontoured if necessary. These skid trails would also be planted.

To prevent erosion the rehabilitation of disturbed areas would commence immediately following cleanup. Water bars would be replaced on existing trails. Planting of native grasses, shrubs, and conifers would soon follow.

PHYSICAL ENVIRONMENT. **At the bottom of this "Air" checklist, provide a narrative description and evaluation of the cumulative and secondary effects on air resources. Even if you checked "none" in the above table, explain how you came to that conclusion. Consider the immediate, short-term effects of the action as well as the long-term effects. Attach additional pages of narrative if needed.**

2. AIR Will the proposed action result in:	IMPACT				Can Impact Be Mitigated	Comment Index
	Unknown	None	Minor	Potentially Significant		
a. Emission of air pollutants or deterioration of ambient air quality? (Also see 13c.)			x		yes	2a
b. Creation of objectionable odors?			x		yes	2b
c. Alteration of air movement, moisture, or temperature patterns, or any change in climate, either locally or regionally?			x		yes	2c
d. Adverse effects on vegetation, including crops, due to increased emissions of pollutants?		x				
e. Any discharge that will conflict with federal or state air quality regs?		x				
f. Other		x				

2a. There is the potential to create dust from thinning and harvesting operations and the hauling of woody biomass out of the park. To mitigate these effects, thinning and harvesting operations would occur during the winter months. Any hauling of slash, chips, pulpwood, and merchantable timber would also occur during the winter months.

2b. The burning of slash would create smoke and particulates that may be harmful to individuals. Due to the proximity to local residences, smoke could potentially infiltrate local homes. The smoke has the potential to form an inversion over parts of Kalispell or Foys Lake. These secondary effects would be mitigated by only burning when wind conditions are favorable and when slash material has dried out. All local and state laws would be followed. Local residents bordering the park would be notified prior to any burning. Burning of slash would be conducted only when other methods of disposal cannot be utilized.

2c. A secondary effect of conducting a thinning or harvesting project within the park forest is the opening up of the canopy which could lead to increases in ambient air temperature and increased wind movement. These effects can be mitigated by keeping openings to less than 1 acre in size and making them irregular in shape. Tree removal would be variable and random, with clumps of trees left within thinned areas. Spacing would be determined by the aspect, the location within the park, and presence of healthy trees. Thinning susceptible Douglas fir stands prior to beetle infestation can significantly reduce beetle-caused mortality by creating environmental conditions less favorable to beetles, which tend to avoid open stands that are warmer, brighter, and have more wind movement.

PHYSICAL ENVIRONMENT. **At the bottom of this "Water" checklist, provide a narrative description and evaluation of the cumulative and secondary effects on water resources. Even if you checked "none" in the above table, explain how you came to that conclusion. Consider the immediate, short-term effects as well as the long-term effects. Attach additional pages of narrative if needed.**

3. WATER Will the proposed action result in:	IMPACT				Can Impact Be Mitigated	Comment Index
	Unknown	None	Minor	Potentially Significant		
a. Discharge into surface water or any alteration of surface water quality including, but not limited to, temperature, dissolved oxygen, or turbidity?		x				
b. Changes in drainage patterns or the rate and amount of surface runoff?			x		yes	3a
c. Alteration of the course or magnitude of floodwater or other flows?		x				
d. Changes in the amount of surface water in any water body or creation of a new water body?		x				
e. Exposure of people or property to water-related hazards such as flooding?		x				
f. Changes in the quality of groundwater?		x				
g. Changes in the quantity of groundwater?		x				
h. Increase in risk of contamination of surface or groundwater?		x				
i. Effects on any existing water right or reservation?		x				
j. Effects on other water users as a result of any alteration in surface or groundwater quality?						
k. Effects on other users as a result of any alteration in surface or groundwater quantity?		x				
l. Effects to a designated floodplain?		x				
m. Any discharge that will affect federal or state water quality regulations?		x				
n. Other:		x				

3a. There is no running surface water in Lone Pine State Park. There are a series of small draws that retain snow longer than the surrounding area, and subsequently contain vegetation adapted to the increased soil moisture. In these draws mechanical equipment would be restricted. The cumulative effects on surface runoff would be minimal. In the short term- there may be an increase in surface runoff across existing trails that are used for skidding or transporting mechanical equipment. This would be mitigated by conducting thinning or harvesting operations when the ground is snow-covered or frozen or firm. The rehabilitation of existing trails promptly after thinning and harvesting would mitigate any effects on surface runoff. The rehabilitation would include grading and resurfacing the trail with wood chips or rock aggregate and reinstalling water bars. Designated skid trails would be located on the contours and along natural breaks, and would not go straight up and down the slope, thus minimizing the chance of overland flow of surface water.

PHYSICAL ENVIRONMENT. **At the bottom of this "Vegetation" checklist, provide a narrative description and evaluation of the cumulative and secondary effects on vegetative resources. Even if you checked "none" in the above table, explain how you came to that conclusion. Consider the immediate, short-term effects as well as the long-term effects. Attach additional pages of narrative if needed.**

4. VEGETATION **Will the proposed action result in:**	**IMPACT**				**Can Impact Be Mitigated**	**Comment Index**
	Unknown	**None**	**Minor**	**Potentially Significant**		
a. Changes in the diversity, productivity, or abundance of plant species (including trees, shrubs, grass, crops, and aquatic plants)?			**x**		**yes**	**4a**
b. Alteration of a plant community?			**x**		**yes**	**4b**
c. Adverse effects on any unique, rare, threatened, or endangered species?		**x**				
d. Reduction in acreage or productivity of any agricultural land?		**x**				
e. Establishment or spread of noxious weeds?			**x**		**yes**	**4e**
f. Effects to wetlands or prime and unique farmland?		**x**				
g. Other:		**x**				

4a & b. The cumulative effect of this project on the changes in diversity, productivity, and abundance of plant species is potentially positive. This alternative calls for the removal of approximately 60% of all diseased, dying, and drought-stressed Douglas fir within treatment areas. In order to remove and process the designated cut trees, mechanical equipment would be needed. The use of this equipment would disturb native plants and the forest floor. To mitigate these effects, the skidding or moving of trees would occur only on existing trails and designated skid trails. There would be areas where the use of mechanical equipment would be restricted to protect sensitive areas. These sensitive areas would include portions of the park with thin soils, unique plant communities, and areas with a high potential for erosion due to steep gradients. Following the cleanup and disposal of slash, all areas disturbed would be rehabilitated and planted with site-specific native vegetation.

By removing 30% of the Douglas fir overstory in some treatment areas, the competition for nutrients and soil moisture would decrease for remaining conifers and understory plant communities. The remaining park forest would be more diverse and productive.

Overall tree species diversity would increase with natural regeneration and supplemental planting of ponderosa pine and western larch in some of the newly created openings. The planting of native grasses and shrubs within some of the openings and on the designated skid trails would also increase overall species and structural diversity. The edge effect within the park would dramatically increase, benefiting wildlife. Opening portions of the forest canopy would promote the growth of native grasses, forbs, and shrubs. It would also create conditions that are less favorable for bark beetles. Bark beetles select or prefer stands that are overstocked, stressed, and have an abundance of dead and dying trees. Changing the stand conditions to ones less favored to beetles (warmer, brighter, and with more wind movement) would reduce the threat of additional beetle-caused mortality.

In and around the grassland management area, the encroaching Douglas fir seedlings and saplings would be cut and chipped in order to maintain native plant communities. Along the perimeter of the grassland ponderosa pine and western larch would be planted, helping to increase overall species diversity.

4e. The potential impact of the establishment and spread of noxious weeds can be mitigated by persistent chemical and mechanical treatment. An integrated noxious weed plan would be utilized during and after any proposed treatments.

PHYSICAL ENVIRONMENT. **At the bottom of this "Fish/Wildlife" checklist, provide a narrative description and evaluation of the cumulative and secondary effects on fish and wildlife resources. Even if you checked "none" in the above table, explain how you came to that conclusion. Consider the immediate, short-term effects as well as the long-term effects. Attach additional pages of narrative if needed**.

5. FISH/WILDLIFE **Will the proposed action result in:**	**IMPACT**				**Can Impact Be Mitigated**	**Comment Index**
	Unknown	**None**	**Minor**	**Potentially Significant**		
a. Deterioration of critical fish or wildlife habitat?		**x**				
b. Changes in the diversity or abundance of game animals or bird species?			**x**		**yes**	**5a**
c. Changes in the diversity or abundance of nongame species?			**x**		**yes**	**5b**
d. Introduction of new species into an area?		**x**				
e. Creation of a barrier to the migration or movement of animals?		**x**				
f. Adverse effects on any unique, rare, threatened, or endangered species?		**x**				
g. Increase in conditions that stress wildlife populations or limit abundance (including harassment, legal or illegal harvest, or other human activity)?			**x**		**yes**	**5g**
h. Adverse effects to threatened/endangered species or their habitat?		**x**				
i. Introduction or exportation of any species not presently or historically occurring in the affected location?		**x**				
j. Other:		**x**				

FWP anticipates that this project would have a positive long-term outcome for wildlife communities within Lone Pine State Park.

5a . Lone Pine is utilized by an abundance of white-tailed deer, and occasionally by black bears and mountain lions.

Project goals would increase wildlife forage by diversifying understory plant communities. Areas that provide significant thermal and bedding security or travel corridors would be left largely intact. The open, south-facing grasslands that are utilized during the winter and early spring months would be enhanced through removal of encroaching conifers.

5b. Lone Pine provides an abundance of habitat for cavity-nesting birds and would continue to do so. Mature snags would not be harvested, and several areas of dense canopy would remain within the park. Ground-nesting birds would benefit from grassland conservation, as would rodent populations and associated predators.

5g. Human activity associated with logging and rehabilitation would cause short-term increases in wildlife stress. Significant blocks of similar habitat on its south border lone Pine, east, and west boundaries, and temporary displacement during project operations are not expected to have a significant impact. Additionally, many wildlife species that inhabit Lone Pine are acclimated to human presence through current visitation patterns.

HUMAN ENVIRONMENT. **At the bottom of this "Noise/Electrical Effects" checklist, provide a narrative description and evaluation of the cumulative and secondary effects of noise and electrical activities. Even if you checked "none" in the above table, explain how you came to that conclusion. Consider the immediate, short-term effects as well as the long-term effects. Attach additional pages of narrative if needed.**

6. NOISE/ELECTRICAL EFFECTS **Will the proposed action result in:**	**IMPACT**				**Can Impact Be Mitigated**	**Comment Index**
	Unknown	**None**	**Minor**	**Potentially Significant**		
a. Increases in existing noise levels?			**x**		**no**	**6a**
b. Exposure of people to severe or nuisance noise levels?			**x**		**yes**	**6b**
c. Creation of electrostatic or electromagnetic effects that could be detrimental to human health or property?		**x**				
d. Interference with radio or television reception and operation?		**x**				
e. Other:		**x**				

6a. A temporary increase in noise levels associated with logging activities would be experienced during the operational phase of this project. Cutting, skidding, delimbing, and hauling would cause temporary increases in noise levels.

6b. Chipper operations would potentially create severe noise levels, and park visitors would be temporarily restricted from entering affected areas of the park.

HUMAN ENVIRONMENT. **At the bottom of this "Land Use" checklist, provide a narrative description and evaluation of the cumulative and secondary effects on land use. Even if you checked "none" in the above table, explain how you came to that conclusion. Attach additional pages of narrative if needed. Consider the immediate, short-term effects as well as the long-term effects.**

7. LAND USE **Will the proposed action result in:**	**IMPACT**				**Can Impact Be Mitigated**	**Comment Index**
	Unknown	**None**	**Minor**	**Potentially Significant**		
a. Alteration of or interference with the productivity or profitability of the existing land use of an area?		**x**				
b. A conflict with a designated natural area or area of unusual scientific or educational importance?		**x**				
c. A conflict with any existing land use the presence of which would constrain or potentially prohibit the proposed action?		**x**				
d. Adverse effects on, or relocation of, residences?		**x**				
e. Compliance with existing land policies for land use, transportation, and open space?		**x**				
f. Increased traffic hazards, traffic volume, or speed limits, or effects on existing transportation facilities or patterns of movement of people and goods?			**x**		**yes**	**7f**
g. Other:		**x**				

7f. A temporary increase in industrial traffic would be associated with this project. Equipment hauling trucks and log and chip hauling trucks would be active in the area. Appropriate traffic and hazard signing would be implemented to minimize conflict.

HUMAN ENVIRONMENT. **At the bottom of this "Risk/Health Hazards" checklist, provide a narrative description and evaluation of the cumulative and secondary effects of risks and health hazards. Even if you checked "none" in the above table, explain how you came to that conclusion. Consider the immediate, short-term effects of the action as well as the long-term effects. Attach additional pages of narrative if needed.**

8. RISK/HEALTH HAZARDS **Will the proposed action result in:**	**IMPACT**				**Can Impact Be Mitigated**	**Comment Index**
	Unknown	**None**	**Minor**	**Potentially Significant**		
a. Risk of an explosion or release of hazardous substances (including but not limited to oil, pesticides, chemicals, or radiation) in the event of an accident or other forms of disruption?		**x**				
b. Effects on existing emergency response or emergency evacuation plan or create need for a new plan?		**x**				
c. Creation of any human health hazard or potential hazard?			**x**		**yes**	**8c**
d. Disturbance to any sites with known or potential deposits of hazardous materials?		**x**				
e. The use of any chemical toxicants?			**x**		**yes**	**8e**
f. Other:			**x**		**yes**	**8f**

8c. This project would create temporary hazards associated with tree falling and equipment operation for material removal and rehabilitation. During the operational phase of this project, visitors would be restricted with signing and barricades from areas that are being treated.

8e. Herbicide application would create minor, temporary hazards during the rehabilitation phase and subsequent noxious weed treatments. Herbicide application would be conducted by state certified applicators and would follow all pertinent laws and restrictions. Temporary signing would be used following applications to warn or restrict visitors.

8f. There is potential for lessened wildfire potential to park grounds and surrounding property as a result of this project.

HUMAN ENVIRONMENT. **At the bottom of this "Community Impact" checklist, provide a narrative description and evaluation of the cumulative and secondary effects on the community. Even if you checked "none" in the above table, explain how you came to that conclusion. Consider the immediate, short-term effects as well as the long-term effects. Attach additional pages of narrative if needed.**

9. COMMUNITY IMPACT **Will the proposed action result in:**	**IMPACT**				**Can Impact Be Mitigated**	**Comment Index**
	Unknown	**None**	**Minor**	**Potentially Significant**		
a. Alteration of the location, distribution, density, or growth rate of the human population of an area?		**x**				
b. Alteration of the social structure of a community?		**x**				
c. Alteration of the level or distribution of employment or community or personal income?		**x**				
d. Changes in industrial or commercial activity?		**x**				
e. Increased traffic hazards or effects on existing transportation facilities or patterns of movement of people and goods?			**x**		**yes**	**9e**
f. Other:		**x**				

9e. A temporary increase in industrial traffic would be associated with this project. Equipment hauling trucks and log and chip hauling trucks would be active in the area. Appropriate traffic and hazard signing would be implemented to minimize conflict.

HUMAN ENVIRONMENT. **At the bottom of this "Public Services/Taxes/Utilities" checklist, provide a narrative description and evaluation of the cumulative and secondary effects on public services, taxes and utilities. Even if you checked "none" in the above table, explain how you came to that conclusion. Consider the immediate, short-term effects as well as the long-term effects. Attach additional pages of narrative if needed.**

10. PUBLIC SERVICES/TAXES/UTILITIES **Will the proposed action result in:**	**IMPACT**				**Can Impact Be Mitigated**	**Comment Index**
	Unknown	**None**	**Minor**	**Potentially Significant**		
a. An effect upon, or result in a need for new or altered, governmental services in any of the following areas: fire or police protection, schools, parks/recreational facilities, roads, or other public maintenance, water supply, sewer or septic systems, solid waste disposal, health, or other governmental services? If so, specify:		**x**				
b. Effects on the local or state tax base and revenues?		**x**				
c. A need for new facilities or substantial alterations of any of the following utilities: electric power, natural gas, other fuel supply or distribution systems, or communications?		**x**				
d. Increased used of any energy source?		**x**				
e. Other.		**x**				
Additional information requested:						
f. Define projected revenue sources.	***Please see revenue/cost table on page 22**					
g. Define projected maintenance costs.	***Please see revenue/cost table on page 22**					

*ESTIMATED WOOD PRODUCTS VALUE FOR PREFERRED ALTERNATIVE

Species	Total Net Volume (MBF)	Delivered Log Price ($/MBF)	Total Delivered Log Value
Douglas fir/western larch	300	$375.00	$112,500.00
Total Value Estimate			**$112,500.00**

**ESTIMATED PROJECT COSTS FOR PREFERRED ALTERNATIVE

Activity	Total Net Volume	$ Cost/MBF	Total Cost
Contract Administration	300	$20.50	$6,150.00
Layout and Design	300	$10.50	$3,150.00
Logging	300	$230.00	$69,000.00
Hauling	300	$40.00	$12,000.00
Chipping Costs	250	$14.00	$3,500.00
Slash Cleanup	300	$50.00	$15,000.00
	Acres	**Cost/acre**	
Tree And Shrub Planting	80	$80.00	$6,400.00
[1]Noxious Weed Control	175	$113.00	$19,775.00
Landing and Skid Trail Restoration	25	$150.00	$3,750.00
Grassland Restoration	40	$18.00	$720.00
	Miles	**Cost/Mile**	
Trail Rehabilitation	275	$15.00	$4,125.00
Total Project Cost Estimate			**$143,570.00**

*****
Wood Products volumes are estimates. They are based on extraction of approximately 1/3 of the timber volume available within the areas affected by this proposal. If this project is implemented, estimates may be adjusted after layout and design has been completed. Additionally, project revenues may change as a result of fluctuating markets, and the continued decline in the condition of Lone Pine's Douglas fir and western larch stands.

******
Project cost estimates are based on current rates for service. Board footage and acres of treatment are estimates. If this project is implemented, estimates may be adjusted after layout and design has been completed. Additionally, project costs may increase if fuel prices continue to increase.

NOTE: All estimates are based on the Alternative A. Costs and revenues would be substantially lower for Alternatives B & C.

HUMAN ENVIRONMENT. **At the bottom of this "Aesthetics/Recreation" checklist, provide a narrative description and evaluation of the cumulative and secondary effects on aesthetics & recreation. Even if you checked "none" in the above table, explain how you came to that conclusion. Consider the immediate, short-term effects as well as the long-term effects. Attach additional pages of narrative if needed.**

[1] Noxious weed costs are based on intensive treatment for three years following project completion.

11. AESTHETICS/RECREATION **Will the proposed action result in:**	**IMPACT**				**Can Impact Be Mitigated**	**Comment Index**
	Unknown	**None**	**Minor**	**Potentially Significant**		
a. Alteration of any scenic vista or creation of an aesthetically offensive site or effect that is open to public view?			**x**		**yes**	**11a**
b. Alteration of the aesthetic character of a community or neighborhood?			**x**		**yes**	**11b**
c. Alteration of the quality or quantity of recreational/tourism opportunities and settings? (Attach tourism report.)			**x**		**yes**	**11c**
d. Adverse effects to any designated or proposed wild or scenic rivers, trails, or wilderness areas?		**x**				
e. Other:		**z**				

11a. This project could affect scenic vistas from within Lone Pine State Park as a result of tree harvest and debris disposal. Temporary slash piles, disturbed ground, and fresh stumps would be inevitable outcomes of this project. Additionally, areas of the park would change in appearance as openings are created or crown spacing is increased. The view of Lone Pine State Park from the valley floor would also be impacted for similar reasons. FWP anticipates that most of these aesthetic impacts would be mitigated by rehabilitation and vegetative regeneration. It is also anticipated that scenic vistas from within the park would be improved as openings are created. The long-term goal of this project is to enhance and conserve the aesthetic qualities of Lone Pine State Park.

11b. This project would avoid significant alterations of vegetative and forest canopy conditions along trail corridors and sensitive areas within the park. This project would leave vegetative areas that provide visual barriers to and from surrounding residential properties where fuel reduction work does not have priority.

11c. Recreational opportunities would be temporarily diminished do to closures while project work is being completed. Work would be completed during the winter months, which are traditionally low visitation months. No net loss of recreational trails would be experienced, and the project could potentially increase trail opportunities following rehabilitation.

HUMAN ENVIRONMENT. **At the bottom of this "Cultural/historical Resources" checklist, provide a narrative description and evaluation of the cumulative and secondary effects on cultural/historical resources. Even if you checked "none" in the above table, explain how you came to that conclusion. Consider the immediate, short-term effects as well as the long-term effects. Attach additional pages of narrative if needed.**

12. CULTURAL/HISTORICAL RESOURCES **Will the proposed action result in:**	**IMPACT**				**Can Impact Be Mitigated**	**Comment Index**
	Unknown	**None**	**Minor**	**Potentially Significant**		
a. Destruction or alteration of any site, structure, or object of prehistoric, historic, or paleontological importance?		**x**				
b. Physical changes that would affect unique cultural values?		**x**				
c. Effects on existing religious or sacred uses of a site or area?		**x**				
d. Adverse effects to historic or cultural resources?		**x**				
e. Other:		**x**				

Lone Pine State Park, prior to being donated to the state of Montana, was utilized for timber harvest and livestock grazing. These activities do not deviate from local cultural values or practices. The project goals for this proposal are for the conservation of recreational and aesthetic values at Lone Pine.

HUMAN ENVIRONMENT. **At the bottom of this "Summary Evaluation of Significance" checklist, provide a narrative description and evaluation of the cumulative and secondary effects. Even if you have checked "none" in the above table, explain how you came to that conclusion. Consider the immediate, short-term effects as well as the long-term effects. Attach additional pages of narrative if needed.**

13. SUMMARY EVALUATION OF SIGNIFICANCE **Will the proposed action, considered as a whole,:**	**IMPACT**				**Can Impact Be Mitigated**	**Comment Index**
	Unknown	**None**	**Minor**	**Potentially Significant**		
a. Have impacts that are individually limited, but cumulatively considerable? (A project or program may result in impacts on two or more separate resources, which create a significant effect when considered together or in total.)		**x**				
b. Involve potential risks or adverse effects, which are uncertain but extremely hazardous if they were to occur?		**x**				
c. Potentially conflict with the substantive requirements of any local, state, or federal law, regulation, standard, or formal plan?		**x**				
d. Establish a precedent or likelihood that future actions with significant environmental impacts will be proposed?		**x**				
e. Generate substantial debate or controversy about the nature of the impacts that would be created?			**x**		**no**	**13e**
f. Have organized opposition or generate substantial public controversy?			**x**		**no**	**13f**
Additional information requested:						
g. List any federal or state permits required.						

13e & f. This project may generate debate and controversy about the nature of impacts due to the controversial nature of forest management in the Flathead Valley. This proposal has been designed to address as many different viewpoints and concerns as possible, while still meeting management goals and objectives. FWP will provide extensive project information and continue to seek public input to lessen controversy.

PART III. ENVIRONMENTAL CHECKLIST CONCLUSION SECTION

1. Discuss the cumulative and secondary effects of this project as a whole (see glossary for definition of cumulative effects).

This project has been designed as a stewardship program, aimed at conserving dispersed outdoor recreation opportunities and wildlife habitat. The intended outcomes are as follows:

- Conifer age class and species diversification.
- Understory diversity.
- Promotion of wildlife habitats.
- Improvement of scenic vistas from within Lone Pine State Park.
- Grasslands conservation.
- Long-range conservation of park aesthetics.
- Diminished fuel loading potential.
- Diminished parasite and disease infestation of Lone Pine's conifers.

FWP will incur expenses if this project is implemented. It is the desire of FWP to offset these costs by selling any merchantable wood byproducts that result from these actions. FWP would also incur additional expenses associated with long-term noxious weed monitoring and treatment.

Visitors to Lone Pine State Park would experience a change of landscape within treated areas, including forest openings, thinning, temporary loss of trails, ground disturbance, and temporary closures or restrictions related to operational or rehabilitation projects.

Surrounding property owners would benefit from reduced fuel loading potential and defensive space projects aimed at lessening the chance of wild fires.

2. Based on the significance criteria evaluated in this environmental checklist (Part II), is an EIS required?

YES _____

NO __X__

If an EIS is not required, explain why the current checklist level of review is appropriate.
Due to the previously completed Region One programmatic environmental assessment, and the level of activity expected from this action, an environmental assessment is the correct level of analysis. No significant impacts are present that cannot be mitigated.

3. Public Comment: At minimum, an advertisement must be placed in the legal ad section of the nearest daily newspaper with widest circulation in the community. The ad should briefly describe the project being proposed and the deadline for the public comment period. The public comment period should be a minimum of one month. The ad should describe a simple means for interested people to review and comment on the proposal. The public comment period for this project must have occurred within 24 months (2 years) of the grant submission deadline.

a) Please include a photocopy of the legal advertisement, showing the date on which it ran in the newspaper.

b) Describe the total public involvement for this project beyond the legal ad. Projects may not be planned in isolation. The general public, adjacent landowners, and other interested parties should be involved from the onset. Promotion of public participation may be through newspaper articles and any other means available, such as public meetings, federal quarterly newsletters, TV programs, radio announcements, etc.

- On January 27, 2005, FWP and Contract Forester Jim Cancroft met with representatives of DNRC and park advocates to discuss this project and formulate solutions.
- On May 17, 2005, FWP hosted an open house at Lone Pine State Park to share Jim Cancroft's forest survey findings and scope for solutions. Questionairs were distributed to gauge public opinion on Lone Pine forestry issues. These questionairs have been distributed to visitors since May 17.
- On July 26, 2005, FWP hosted a walking tour of Lone Pine's forest to view problem areas, present possible solutions, and gather suggestions and input.
- An open house will be held Tuesday, November 8, 2005, from 6:00 to 8:00 p.m. at the Montana Fish, Wildlife & Parks headquarters public meeting room at 490 N. Meridian Road in Kalispell to discuss the proposal and alternatives.
- The draft is out for public review from November 2 through December 5, 2005.
- Please direct questions/comments to Dave Landstrom, 751-4574 or e-mail to dlandstrom@mt.gov.

GLOSSARY OF TERMS

Affected Environment **– The aspects of the human environment that may change as a result of an agency action.**

Alternative **– A different approach to achieve the same objective or result as the proposed action.**

Categorical Exclusion **– A level of environmental review for agency action that does not individually, collectively, or cumulatively cause significant impacts to the human environment, as determined by rulemaking or programmatic review, and for which an EA or EIS is not required.**

Cumulative Impacts **– Impacts to the human environment that, individually, may be minor for a specific project, but when considered in relation to other actions, may result in significant impacts.**

Direct Impacts **– Primary impacts that have a direct cause and effect relationship with a specific action, i.e., they occur at the same time and place as the action that causes the impact.**

Environmental Assessment (EA) **– The appropriate level of environmental review for actions**

that either do not significantly affect the human environment or for which the agency is uncertain whether an environmental impact statement (EIS) is required.

Environmental Assessment Checklist – **An EA checklist is a standard form of an EA, developed by an agency for actions that generally produce minimal impacts.**

Environmental Impact Statement (EIS) – **A comprehensive evaluation of the impacts to the human environment that likely would result from an agency action or reasonable alternatives to that action. An EIS also serves a public disclosure of agency decision-making. Typically, an EIS is prepared in two steps. The draft EIS is a preliminary detailed written statement that facilitates public review and comment. The final EIS is a completed written statement that includes a summary of major conclusions and supporting information from the draft EIS, responses to substantive comments received on the draft EIS, a list of all comments on the draft EIS, and any revisions made to the draft EIS and an explanation of the agency's reasons for its decision.**

Environmental Review – **An evaluation, prepared in compliance with the provisions of MEPA and the MEPA Model Rules, of the impacts to the human environment that may result as a consequence of an agency action.**

Human Environment – **Those attributes, including but not limited to biological, physical, social, economic, cultural, and aesthetic factors, that interrelate to form the environment.**

Long-term Impact – **An impact that lasts well beyond the period of the initial project.**

Mitigated Environmental Assessment – **The appropriate level of environmental review for actions that normally would require an EIS, except that the state agency can impose designs, enforceable controls, or stipulations to reduce the otherwise significant impacts to below the level of significance. A mitigated EA must demonstrate that: 1) all impacts have been identified, 2) all impacts can be mitigated below the level of significance, and 3) no significant impact is likely to occur.**

Mitigation – **An enforceable measure(s), designed to reduce or prevent undesirable effects or impacts of the proposed action.**

National Environmental Policy Act (NEPA) – **The federal counterpart of MEPA that applies only to federal actions.**

No-action Alternative – **An alternative, required by the MEPA Model Rules for purposes of analysis, that describes the agency action that would result in the least change to the human environment.**

Public Participation – **The process by which an agency includes interested and affected individuals, organizations, and agencies in decision-making.**

Record of Decision – **Concise public notice that announces the agency's decision, explains the reason for that decision, and describes any special conditions related to implementation of the decision.**
Scoping – **The process, including public participation, that an agency uses to define the scope of the environmental review.**

Secondary Impacts – **Impacts to the human environment that are indirectly related to the agency action, i.e., they are induced by a direct impact and occur at a later time or distance from the triggering action.**

Short-term Impact – **An impact directly associated with a project that is of relatively short duration.**

Significance – **The process of determining whether the impacts of a proposed action are serious enough to warrant the preparation of an EIS. An impact may be adverse, beneficial, or both. If none of the adverse impacts are significant, an EIS is not required.**

Supplemental Review – **A modification of a previous environmental review document (EA or EIS) based on changes in the proposed action, the discovery of new information, or the need for additional evaluation.**

Tiering – **Preparing an environmental review by focusing specifically on narrow scope of issues because the broader scope of issues was adequately addressed in previous environmental review document(s) that may be incorporated by reference.**

Appendix A: Forestry-related issues, goals, and objectives from the Lone Pine State Park Management Plan, 2003.

In 2003, a citizen-based ad hoc committee of Flathead Valley residents and Montana Fish, Wildlife & Parks (FWP) employees developed a management plan to guide Lone Pine State Park through 2013. One of the primary issues addressed in this plan is the current condition of Lone Pine's forested areas. The following excerpts from the plan highlight this issue and the associated mitigative goals and action items:

2. ISSUE: ECOLOGY

Issue Statement: Currently, FWP treats noxious weeds throughout Lone Pine's grounds; however, ecological management at the park is not comprehensive. The park does not have a forest management plan or a thorough weed management program. In addition, trail degradation from visitor use and erosion is negatively impacting park ecology. The park suffers from a severe dwarf mistletoe infection in Douglas fir and larch stands, and ponderosa pine stands are gradually disappearing due to interspecies competition, fire suppression, and disease.

Discussion: Contract Forester Jim Cancroft conducted an evaluation of Lone Pine's forest conditions in 2000. This evaluation quantified habitat types and forest plant species, fuel loading, and the general health of Lone Pine's forest ecosystem. The analysis concludes that Lone Pine's forests are in a general state of decline due to dwarf mistletoe infestations, interspecies competition, fire suppression, and prolonged drought. This is in contrast to presettlement forest conditions at Lone Pine, which, according to Steve Barrett, a fire ecologist and planning committee member, were significantly impacted by frequent wild fires. Barrett believes that a mature ponderosa pine forest type was prevalent on much of the park, and that mature ponderosa pines are in danger of disappearing altogether. In addition, fire suppression is believed to have resulted in forest encroachment on Lone Pine's grasslands. In 2002 Contract Forester Fred D. Hodgeboom also conducted a brief survey of Lone Pine's forest conditions and reached some of the same conclusions as Cancroft. Hodgeboom noted the prevalence of dwarf mistletoe, suppressed fir and larch stands, and declining ponderosa pine stands.

A survey of Lone Pine visitors conducted in 2000 revealed that 77% of respondents prefer that Lone Pine's forests continue to be managed for the existing closed canopy, which is partially due to fire suppression. In the same survey, respondents expressed concern about fire management in the park. Some of this concern arises from conditions caused by years of fire suppression, resulting in fuel loading, and the associated danger to properties neighboring the park.

Committee members were unanimous in agreeing that management actions are needed to address these issues. There was general agreement that controlled burning was not a feasible management tool at Lone Pine due to the park's topography and proximity to residential property.

Invasive plant species are of significant ecological concern in Lone Pine's forest and grassland habitats. Dwarf mistletoe, a common parasitic ailment that causes the eventual death of the host tree, affects over 50% of the park's forest.

GOAL: Manage Lone Pine State Park for ecological diversity, including a wide range of wildlife habitat (forest and grassland), as well as for nonmotorized, dispersed public use.

OBJECTIVES:

1. *Implement comprehensive forest management.*

Action Items:

- *Address trees in liability situations with attention to other ecological issues.*

Implementation:
Identify and remove hazardous trees located in developed or heavily used areas within the park. Hazardous trees that are located in regions of the park that are natural, low development areas will be left to enhance ecological diversity. Hazardous trees are typically identified through a combination of crown inspection and core sampling. Regional staff will receive training in hazardous tree identification, thus reducing the need to contract for this service.

Timeline for Completion: Continuously revise hazardous tree inventory at least annually.

- *Develop prescriptive action plans to address forest management goals identified during the planning process.*

Implementation:
FWP will seek the assistance of the Flathead Forest staff, the Department of Natural Resources and Conservation, and citizens to develop prescriptive actions based on recommendations from Contract Foresters Jim Cancroft and Fred D. Hodgeboom, as well as Fire Ecologist Steve Barrett and the Lone Pine Planning Team, the following goals will guide prescriptive action plans:
  - *Reduction of dwarf mistletoe infestations.*
  - *Creation of canopy openings to promote conifer regeneration and promote understory diversity.*
  - *Fuels reduction.*
  - *Restoration of a historic, fire-resistant forest comprised largely of ponderosa pine in designated regions of the park.*
  - *Utilization of self-supporting forest health treatments when appropriate (e.g., sale of commercially useable timber during thinning projects).*
  - *Encourage native grasses, forbs and shrubs through reduction of invasive conifers in the grasslands and noxious weed treatments.*

Timeline for Completion: Five years after plan approval.

2. *Develop a comprehensive weed management program.*

Action Items:

- *Develop a systematic weed control regime that emphasizes integrated weed management.*

Implementation:
Initiate a Request for Proposal (RFP) process with either the private sector or other government land management agencies to conduct a noxious weed inventory and write a long-range, integrated weed management plan. The integrated plan will coordinate biological, chemical, and mechanical methods for combating noxious weeds within the park, based on level of human use, neighboring properties, and targeted plant species. Region One park staff will communicate with neighboring property owners to coordinate and enhance efforts to control noxious weeds. The plan will be implemented through a combination of regional maintenance staff, Flathead County Weeds and Parks staff, volunteer labor, and private contractors. The Region One Noxious Weed and Exotic Vegetation Management Plan will be updated in January of 2003, and this plan will set general guidelines for noxious weed treatment at all Region One state parks. The Lone Pine long-range, integrated weed management plan will be specific to Lone Pine and will define seasonal, scheduled actions to combat noxious weeds.

Timeline for Completion: Within two years of plan approval.

Appendix B: Lone Pine State Park Forest Inventory Comparison from 2000 and 2004

Lone Pine State Park is unique among Montana State Parks because of its close proximity to the city of Kalispell. The park serves as a green space, provides important wildlife habitat, and provides recreational opportunities for local residents and visitors. Unfortunately, the forested portion of the park is threatened by a combination of drought, dwarf mistletoe (Arceuthobium douglasii Engelm.), and Douglas fir bark beetle (Dendroctonus pseudotsugae Hopkins). The combination of all three and the lack of fire have created a forest that is dying.

The forested portion of the park is severely infested with dwarf mistletoe while Douglas fir bark beetles have reached almost epidemic levels. In the past four years DF mortality has tripled and western larch mortality has doubled. In 2000 seven percent of the trees were dead; four years later close to twenty percent of the trees are dead. At the current rate over half the trees could die within five years.

The overall goal of this project is to create a healthier and more diverse forest that attempts to mimic historical forest conditions. This plan calls for immediate changes to the "look" and structure of the park's forest. By taking action now, the stumpage from the cut trees could pay for the entire project.

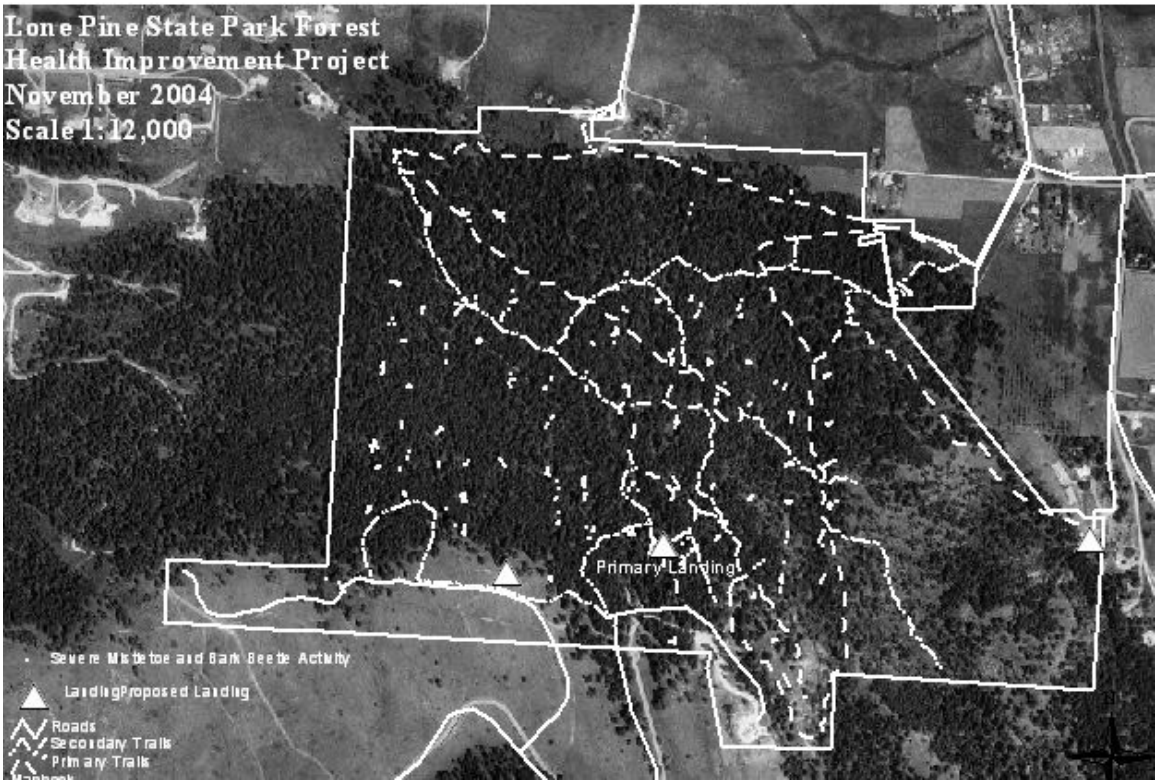
Overview of the Park's Forest

Historically, because of reoccurring understory fires the forest was primarily park-like, with large diameter Douglas fir (DF), western larch (WL), and ponderosa pine (PP) interspersed amongst openings dominated by shrubs, grasses, and patches of conifers.

Lone Pine State Park is comprised of 86% Douglas fir, 13% western larch, and 1% ponderosa pine. Overall the Douglas fir averaged 11.5 inches in diameter, 60-70 feet tall, and 100 years old. The larch averaged 10 inches in diameter, 60-80 feet tall, and 96 years old. On average the radial growth (last 10 years) for Douglas fir was almost double that of the larch.

Dwarf mistletoe is present throughout all age classes of the DF: 39% have little or no visible mistletoe infestation, 16% with moderate mistletoe infestation, 11% with severe mistletoe infestation, 11% recently dead (red needles), 3% older dead, and 6% with thin crowns. Douglas fir bark beetles have killed almost all of the recently dead DF.

The enclosed digital orthophoto illustrates how prevalent dwarf mistletoe and Douglas fir bark beetles are within the park. The GPS coordinates were only taken at plots where dwarf mistletoe was severe and where bark-beetle-induced mortality occurred. All plots were located 200 feet apart. There would have been more locations documented if there had been better satellite reception.



The larch shows evidence of being suppressed and unhealthy, with narrow, sparse crowns, the presence of heart rot, and very little recent growth. In walking through the park with U.S.F.S. Entomologist Ken Gibson, we found recent evidence of flatheaded woodborers in the recently killed WL.

Overall conifer regeneration is low. Almost all the seedlings and trees less then 4 feet tall are suppressed DF. There are some clumps of healthy DF seedlings and saplings in some of the small draws and swells. The lack of disturbance from fire and grazing and the relatively closed forest canopy have created a thick mat of perennial grasses, moss, and duff that have inhibited conifer regeneration. Where there are openings in the forest canopy from mistletoe-induced mortality, there is often more conifer regeneration. In some of these openings there are some young, healthy larch.

The Douglas fir/snowberry habitat type is common throughout the park. This habitat type has 3 phases, with the pine grass phase being the most prevalent. Slight changes in aspect produce different habitat types. On some ridges with westerly aspects there is no snowberry and the habitat type is Douglas fir/pine grass. In the SW and NW corners of the park the habitat type changes to Douglas fir/rough fescue.

Along the southern border of the park is a pristine community of native bunch grasses. Common native grasses include blue bunch wheat grass, Idaho fescue, and rough fescue. Due to fire suppression, this area of native grasses is being encroached by Douglas fir seedlings and saplings. This is an area where thinning out the encroaching Douglas fir is appropriate.

The forest floor is predominately a uniform layer of snowberry, Oregon grape, spirea, rose, and native grasses and forbs. Shrubs present include chokecherry, serviceberry, blackberry, hawthorn, raspberry, maple, mountain ash, ninebark, and oceanspray. Local noxious weeds observed include leafy spurge, knapweed, Canadian thistle, and toadflax and sulphur cinquefoil.

Forest Inventory

In the fall of 2000 and again in the fall of 2004, a forest inventory was conducted. Data was collected on tree, shrub, grass, and forb composition. Forest habitat types were also determined. For comparison purposes only, data collected from the old forested portion of the park (148 acres) is being utilized.

In the 2000 forest inventory, two additional categories were listed: Douglas fir with a severe mistletoe rating and Douglas fir with a moderate mistletoe rating. These ratings were determined by utilizing the dwarf mistletoe rating system (DMR or Hawksworth). In the 2004 forest inventory, two additional categories (Red needled DF (recently dead) and a thin-crowned DF) were included. This is DF with crowns less than 10% that show evidence of recent defoliation.

Summary of 2004 Forest Inventory

Species	DBH	Bole Height	Trees per acre	MBF
DF	13.0	42	45.8	524
WL	11.4	39	6.0	55
PP	16.6	64	0.2	6
Dead DF	12.8	31	4.0	2
Red Needle DF	11.9	33	13.3	73
Dead WL	9.6	32	9.7	26
M mistletoe DF	11.9	36	13.2	140
S mistletoe DF	12.0	33	13.3	118
Thin crown DF	10.4	32	8.2	49

In the fall of 2000 there was an average of 5.9 dead Douglas fir trees per acre. On that inventory there was no distinction made between older dead DF (no needles) and recently dead DF (red needles). The 2004 inventory determined there is an average of 17.3 dead DF trees per acre. Older dead DF averaged 4 trees per acre, while recently dead DF averages 13.3 trees per acre. The amount of standing dead DF has almost tripled in 4 years due primarily to a combination of drought, dwarf mistletoe, and bark beetles.

The forest inventory of 2000 indicated an average of 4.1 standing dead WL per acre. The 2004 inventory determined there was an average of 9.7 standing dead WL per acre. The larch mortality has doubled in the past 4 years. In 2000 seven percent of the trees in the park were dead; 4 years later over 20% of the trees in the park are dead.

APPENDIX C: INFORMATION COMPILED BY JIM CANCROFT, NORTHWEST MANAGEMENT, HELENA, MT

Dwarf Mistletoe

Mistletoe in Ponderosa Pine

Dwarf mistletoes are small, leafless, parasitic plants that grow on branches and stems of conifers. They are usually 1-to-5 inches tall and mostly green, yellow, brown, or orange in color. A host tree is typically infected by only one species of mistletoe. Bunched growths of branches (witches' brooms) and swollen branches are frequently caused by mistletoe so they are good places to look for mistletoe shoots.

Female plants produce seeds that spread the disease. Both sexes damage trees. Seeds are produced in small berries. During late summer, berries burst and seeds can travel horizontal distances of 10-to-35 feet. The sticky seeds attach to branches and infect them. Birds also carry seeds, but most infection is from nearby infected trees.

The time it takes mistletoe to kill a tree depends on several factors. Damage tends to develop slowly until the tree is heavily infected. Trees are usually killed within about 10 to 15 years once they become heavily infected throughout the crown.

Control of dwarf mistletoe involves reducing the amount of mistletoe to a low level. Heavily infected trees are cut. Lightly infected trees can have branches pruned. All live branches up to the highest infected branch should be cut off. Infected trees can be retained if they are isolated from healthy trees or surrounded by resistant tree species within 40 feet.

If the disease is so advanced that most trees need to be cut, planting mistletoe-resistant trees is a good alternative. Douglas fir, for example, can be replaced with ponderosa pine.

Life History of Mistletoe in Ponderosa Pine

Mistletoe control is generally a long-term process with activities usually focused around harvest or thinning operations to reduce cost. The first step is to select heavily infected trees for removal during current or future harvests. Second, remove infected young trees during noncommercial thinning operations. Third, prune infected branches off of trees that are left behind but have light infections. Lastly, monitor for mistletoe outbreaks every three to five years.

Pine Bark Beetles

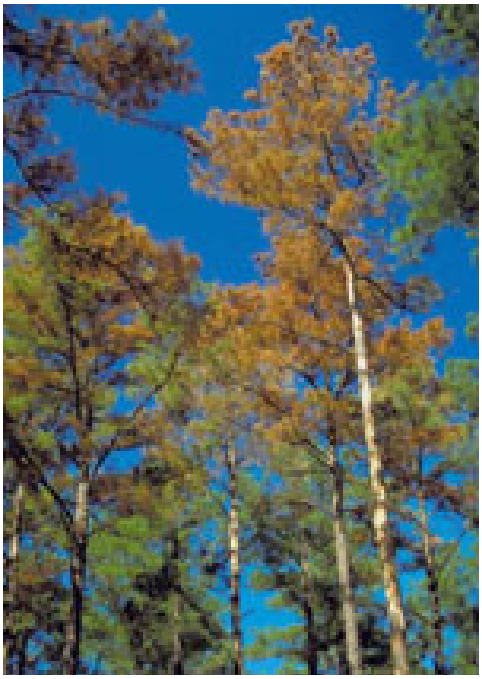
Four common bark beetles affect the conifer trees in this area. The four beetles are western pine beetle, mountain pine beetle, red turpentine beetle, and pine engraver beetle. The most important bark beetle enemy of Douglas fir is the Douglas fir beetle. The beetles generally favor trees that are water stressed. Trees can become water stressed during a drought or by having too many trees in an area (over-stocked). The bark beetle bores through the bark and lays its eggs in the cambium layer between the bark and the wood; the cambium is full of sugar and nutrients that feed the larvae.

Trees killed by bark beetles can often times be recognized as red trees in the stand that appear suddenly. A tree can turn from green to red within weeks. However, other indicators would have been present for months. These indicators are things such as pitch tubes, boring dust, or frass on the bark of the tree.

Pitch Tube from Douglas-fir Beetle

Red trees themselves are usually not a forest health risk, they are just an indicator of what has happened in the stand and what may happen in the future. The western and mountain pine beetles are considered major tree killers in Montana. Both prefer trees greater than 6 inches in diameter. Trees that they attack usually die.

Douglas fir beetle outbreaks are usually initiated by catastrophic events such as blowdown or winter breakage. Downed or weakened trees are attacked, and beetles build up large populations. The next year, new generations emerge and attack susceptible trees in surrounding stands. Damage in standing trees is greatest in dense stands containing a high percentage of large, mature Douglas fir.



Pine Bark Beetle Attack

Salvage of down or weakened Douglas fir is a primary tool in preventing Douglas fir bark beetle outbreaks. When attacks have already occurred, removing standing green or faded, infested trees will help reduce or prevent further damage in the area. The risk of Douglas fir beetle damage is reduced when dense mature stands are commercially thinned.

Spruce Budworm

Spruce budworm is a widely distributed and very destructive defoliator common in much of the western United States. Currently, spruce budworm is not a management issue on the Barton property. However, there is minor potential for future damage from this insect. This insect kills the tops of the trees causing loss in tree growth and sometimes mortality of a tree. Most outbreaks of this insect are cyclic in nature and last a few to several years, then subside naturally.

Spruce Budworm

In early May the hibernating larvae emerges to search for food. They first mine into the year-old needles, closed buds, and newly developed buds. As new shoots flush, the larvae begin to focus on the new growth, often resulting in total defoliation of the newly formed branches.

The most common host-tree species of the spruce bud worm in Montana are:

1) Douglas fir
2) Subalpine fir
3) Engelmann spruce

Spruce Budworm on Subalpine Fir

In addition to foliage, budworm larvae feed heavily on flowers and developing cones, resulting in a significant decrease in seed production. Budworm larvae do not restrict their feeding to a single cone; often larva will feed on newly developing cones as well. As these cones dry out and become unsuitable for food, larvae continue feeding on other cones and foliage.

During outbreaks, Douglas fir stands will have nearly all cones damaged or destroyed. This along with top killing of host trees results in poor cone production for several years following defoliation. In some mature stands, trees severely defoliated by the spruce budworm are predisposed to one or more species of bark beetles.

In mature stands of Douglas fir, growth is reduced and trees are often severely damaged. The loss in growth can be as high as 25% of annual growth per year for several years following the attack.

Most management practice for controlling budworm infestations are focused on encouraging a mixture of nonhost tree species in a stand, thus avoiding pure monocultures of Douglas fir. Several insecticides are available for treating areas with high populations. Treating large areas by aerial application is possible, providing short-term protection from this insect**.**