

## **APPENDIX B**

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### **I. Project Design Features**

The following project design features are associated with the implementation of the Holland Pierce Fuels Reduction and Forest Health Project.

#### **A. Timing of Activities**

1. Implementation (site layout and preparation) of the project would begin in late winter of 2005/2006. The contract(s) would be awarded beginning in late summer / early fall 2006. Operations are expected to commence in late fall / early winter 2006, and be completed by December 2008, a period of approximately 2 ½ years.
2. All BMP's (drainage corrections and sediment sources) on haul routes are to be in place and functioning before hauling commences, with the possible exception of frozen ground conditions existing that would preclude construction operations, and kept functioning throughout the duration of hauling activities, and left in proper functioning condition when the project is complete (Project File Exhibit G-12).

#### **B. Public Safety**

1. Contracts will require the contractor to clearly post signs warning the public of nearby activities and truck hauling traffic associated with the treatments.
2. Fuels specialist or designated liaison will notify nearby landowners prior to fuel reduction activities commencing on NFS lands that are adjacent to their properties.
3. Trailhead areas for the East Holland Trailhead, and Holland/Gordon Trail #35, and Owl Packer Trailhead) will be clearly posted warning users of activities taking place along trail systems in the area. Temporary trail closure orders may be in effect and posted at trailhead areas. Any activities in designated campgrounds, Owl Packer Camp, or Holland Lake Lodge will be post or pre-season.

4. Public announcements will be made to notify the public that portions of trails would be closed for periods of time while activities take place.

### **C. Special Use Permits**

All permitted improvements, including recreation residences, water transmission lines, irrigation water ditches, and irrigation water pipe lines (authorized by special use permits) will be clearly marked and protected during project implementation.

### **D. Soil Productivity**

1. All fuel reduction treatments are designed to meet Regional Soil Quality Standards that restrict detrimental soil disturbance to less than 15 percent of an activity area.
2. Excavators disturb relatively small amounts of soil compared to dozers; therefore, any mechanized piling or other site preparation work would be accomplished with excavators.
3. Any pre-existing skid trails, temporary roads, and landings will be re-used to the extent practicable for entry to previously harvested treatment areas to minimize additional impacts.
4. For dispersed skidding, ground-based skidding equipment will be restricted to conditions when soil moisture levels are low (determined using the “hand squeeze method”), or during winter conditions, when the ground is frozen or snow covered. The hand squeeze method is described in Exhibit H-5 of the Project File.
5. When operating during summer or on dry soil conditions, dispersed skidding must not remove organic matter from more than 15 percent of the activity area (cutting unit). When bare soils exceed 15 percent of the unit, the risk of soil erosion becomes high and the risk of nutrient losses increases. When operating during winter conditions, any snow on the approved skid trail locations will be compacted. Equipment will operate only on 6 inches or more of compacted snow and/or frozen ground. Skidding can commence and continue as long as the depth of compacted snow and frozen soil is at least 6 inches thick. Skid trails can be spaced closer than 75 feet when these winter conditions exist.

6. Outside of winter conditions on dry soils, ground-based skidding equipment will be restricted to designated skid trails obligated to this use, or where slash mats are specifically created and designed for soil protection due to sensitive soils (typically created only in a harvester-forwarder system operation). Where designated skid trails are required, main skid trails would be spaced 75 to 100 feet apart except where converging at junctions or landings.
7. To reduce the risk of cumulative effects where existing soil disturbances cover more than 5 percent of the proposed treatment area, operation of mechanized harvest equipment would only occur where “winter conditions” exist as described above. These conditions apply to units 19, 25, and 29 south of FDR #79.
8. All or a portion of the following actions will be used to restore soil quality on detrimentally disturbed ground such as designated ski trails and landings, where monitoring results determine a need to do so:
  - a. Rip heavily used skid trails and landings with an excavator to lessen compaction;
  - b. Plant Montana-certified weed free seed mix, as specified, which would add organic matter to the soil and mulch to the surface (as determined by the Forest Soil Scientist), and
  - c. Plant native shrubs that will lessen compaction as they grow, where needed to augment natural vegetation.

The combination of these actions will be based on the condition of the site being restored. These actions do not result in instant restoration; rather they begin the restoration process. The overall goal is to reduce the amount of detrimental soil disturbance through implementation of the design features.

9. All temporary roads on NFS lands will be reclaimed after use, as soon as logistically practicable. Temporary roads will be reclaimed using a combination of the following methods:
  - a. Re-contouring the entire road template to natural ground conditions,
  - b. Removing any installed culverts or temporary bridges,

- c. Placing large woody material on the template (where that material is available),
- d. Outsloping,
- e. Installation of waterbars, or
- f. Seeding with a Montana-certified weed free seed mix, as specified.

## **E. Water Resource**

1. Slash, chips, and other woody material resulting from the vegetation treatments will be kept out of stream courses in accordance with Montana Best Management Practices (BMPs) and the Streamside Management Zone (SMZ) law. If material inadvertently enters the stream, it will be removed. All mechanized equipment will be kept a minimum of 50 feet from scoured stream channels and wet, seepy areas to protect water quality and stream bank stability. This “buffer,” which is also required by the above mentioned regulations, will provide filtration for sediment that may be transportable during intense rain events or snow melt.
2. All activities will meet BMP guidelines and SMZs to comply with the State of Montana water quality standards. A site-specific list of BMP practices is included as Exhibit G-12 in the Project File.
3. All culverts will be marked before winter snow, so they can be located and cleared of debris as needed to keep them functioning. This will aid equipment operators from crushing the inlet and outlet of culverts.
4. All wet areas within treatment areas will be clearly marked with flagging and paint before vegetation is treated in any unit so equipment operators know where they are and can avoid them during winter logging or if conditions get wet.

## **F. Fisheries Resource**

1. No mechanized treatment or prescribed burning will take place in Riparian Habitat Conservation Areas (RHCA's). Hand work, including the use of chainsaws, may take place adjacent to structures and administrative sites near Holland Lake and Pierce Lake (such as limbing branches, clearing undergrowth, etc). Work may take place within the road right of way (30 feet

each side of center line) to brush and clear roads (FDR #44 and #9558) needed for emergency egress, with no equipment leaving the road in these areas.

2. In the Holland Creek bull trout priority watershed, the RHCAs will be at least the recommended width (from INFISH) or greater. Other watersheds may have minor adjustments up or down based on site-specific needs. All modifications are reviewed in Project File. The following table displays the recommended RHCAs. Detailed maps showing exact limits are in the Project File.

<b>TABLE B-1. RECOMMENDED RIPARIAN HABITAT CONSERVATION AREAS</b>	
<b>Fish-bearing Streams</b>	
Swan River, Holland Creek above and below lake, Owl Creek and certain tributaries, Pierce Lake outlet, Beaver Creek, Barber Creek, North Fork Barber Creek, Buck Creek and one of its tributaries, South Fork Rumble Creek, North Fork Rumble Creek	300-foot slope distance from either side of the active stream channel or to the top of the gorge or to the outer edges of 100-year floodplain or outer edges of riparian vegetation or twice the average height of site potential trees, whichever is greatest. Note: 300 feet is usually the greatest width.
<b>Perennial Streams (without fish)</b>	
Inlet to Pierce Lake, unnamed tributary to Beaver Creek, several tributaries to Owl Creek, Holland Creek upstream of waterfall, several unnamed tributaries to Holland Lake, South Fork Barber Creek, several tributaries to Buck Creek	150-foot slope distance from either side of the active stream channel or to the top of the gorge or to the outer edges of 100 year floodplain or outer edges of riparian vegetation or the average height of site-potential trees, whichever is greatest. Note: 150 feet is usually the greatest width.
<b>Intermittent Streams not in Priority Watersheds</b>	
Several unnamed tributaries to Buck and Barber Creek.	50-foot slope distance from either side of the channel, wetland, landslide or landslide-prone area to a distance one half of average height of site-potential tree, whichever is greatest. Note: 50 feet is usually the greatest width.
<b>Intermittent Streams in Priority Watersheds</b>	
Several tributaries to Owl Creek and Holland Creek	100-foot slope distance from either side of the channel, wetland, landslide or landslide-prone area to a distance of average height of site-potential tree, whichever is greatest. Note: 100 feet is usually the greatest width.
<b>Lakes, Ponds and Wetlands Greater than 1 Acre</b>	
Holland Lake, Pierce Lake, wetland in old Barber gravel pit, and numerous unnamed wetlands	150-foot slope distance from the edge of water (ordinary high water mark) or outer edges of riparian vegetation to extent of seasonally saturated soils or extent of moderately or highly unstable areas or distance equal to height of one site-potential tree, whichever is greatest. Note: 150' is usually the

TABLE B-1. RECOMMENDED RIPARIAN HABITAT CONSERVATION AREAS	
	greatest width but Pierce Lake has a wide band of riparian vegetation.
<b>Wetlands less than 1 acre</b>	
Numerous unnamed wetlands. Not all are shown on maps and may be discovered during sale prep.	50-foot slope distance from edges of wetland (ordinary high water mark) or outer edges of riparian vegetation or distance of half of a site-potential tree. Note: 50 feet is usually the greatest width.

3. The access road to Unit 26 consists of a poorly designed ford that is a sedimentation source. This ford will be replaced with a culvert prior to haul.

### **G. WUI - Vegetation and Hazardous Fuels Reduction Treatments**

Mechanized and non-mechanized vegetation treatments methods will be used to reduce the hazardous fuel loading and improve forest health conditions within approximately 1,367 and 107 acres of NFS lands, respectively. The mechanized treatments would include the removal of approximately 3.5 MMBF of forest products. The mechanized vegetation treatments would provide approximately 253 acres (6.7 miles) of DFPZs and approximately 1,114 acres of FRZs on NFS lands that are adjacent to private lands. The non-mechanized vegetation treatments would reduce hazardous fuels on approximately 107 acres of NFS lands adjacent to private lands and along portions of egress routes from private lands holdings.

1. In general, the treatment applied to all areas is a “modified low thinning”, where the objective is to reduce hazardous fuels and tree crown density, while improving residual tree health and growth across the treatment areas. This style of thinning removes trees primarily in the lower tree crown classes or position. That is, overtopped, intermediate, and some codominant trees would be removed. Most dominant and codominant trees would be reserved from cutting.

By definition, tree crown classes or position are defined as follows: 1) Dominant trees have crowns extending above the general level of the crown cover (or canopy) and receiving full light from above and partly from the side. Codominant trees

have crowns forming the general level of the crown canopy and receiving full light from above but comparatively little from the sides. Intermediate trees are shorter than the two preceding classes but have crowns extending into the crown canopy formed by codominant and dominant trees, and receiving little direct light from above and none from the sides. Overtopped (or suppressed) trees are entirely below the general level of the crown canopy, receiving no direct light either from above or from the sides.

The “biggest and best” trees would be retained on site as overstory reserved trees.

The biggest and best trees would exhibit, relatively large diameter (i.e., largest diameters currently on-site), good tree form and condition (i.e., straight bole and full crown appearance), and are generally free of insect and disease damage. Species priority would vary by site availability. A mix of the biggest and best species is desired for biological diversity. Focus overall will be on leaving the more vigorous, healthy trees, and the more wind-firm, fire-resistant and longer-lived species.

2. **Defensible Fuel Profile Zone (DFPZ)** – This treatment will provide defensible space on NFS lands adjacent to private property boundaries. The DFPZs will consist of a strip approximately 100 to 500 feet wide, where surface ladder and aerial hazardous forest fuels loading (both live and dead) are reduced. The mature tree overstory (trees greater than 30 feet in height) would generally be thinned to a 20 to 40 percent crown closure. In areas where adjacent landowners have done some fire reduction on their lands, or windthrow species such as lodgepole pine are present, residual crown closure will be left at a higher levels (similar to FRZs), since a more intense treatment is not necessary. The immature tree understory (“ladder fuel” trees less than 30 feet in height) would be reduced to less than 50 trees per acre (or about 5 percent of original stocking), and be composed mainly of desirable shade-intolerant species retained in openings, either individually or in clumps. The immature tree understory would be slashed where NOT in clumps and where acting as ladder fuels beneath desirable mature leave trees. Slashing of tall shrubs that do not meet the leave criteria would occur within some areas.
  - a. The above description applies to mechanized equipment operating areas.

- b. In hand operation limited areas, only manageable live or dead standing stems less than 5 inches diameter at breast high (DBH) would be treated.

To increase the effectiveness of DFPZs, all snags would be removed to reduce their hazard as potential firebrand sources. Coarse down woody material (>3 inches in diameter) would be reduced (on the average) to less than 5 tons per acre. Fine down woody material (< 3 inches in diameter) would be reduced (on the average) to less than 3 tons per acre.

**Special Treatment Zones (STZs).** In addition, where structures (houses and outbuildings) are located within 100 feet of NFS/private land boundaries, the following additional activities would take place within these STZs. Live limbs on reserved trees would be limbed with a chainsaw up to head height or comfortable, safe reach of the operator. Hazardous existing ground and activity-generated fuels would be removed from the STZ and treated along with other fuels within the general DFPZ. Machine or hand piles would not be created within the STZ for burning, nor would burning of scattered ground fuels take place within this zone.

- 3. **Within the Fuel Reduction Zone (FRZ),** the mature tree overstory (trees greater than 30 feet in height) would generally be thinned, on average, to a 40 to 60 percent crown closure. This is similar to the DFPZ treatment, except residual tree stocking is heavier in the FRZ, thus the higher crown closure percents. Post-treatment crown closure conditions in several of the proposed FRZs would be 30 to 50 percent when existing crown closures are below 60 percent as a result of blowdown or increasing mountain pine beetle populations.

The immature tree understory (“ladder fuel” trees less than 30 feet in height) would be reduced to less than 100 trees per acre (or about 10 percent of original stocking), and be composed mainly of desirable shade-intolerant species retained in openings, either individually or in clumps.

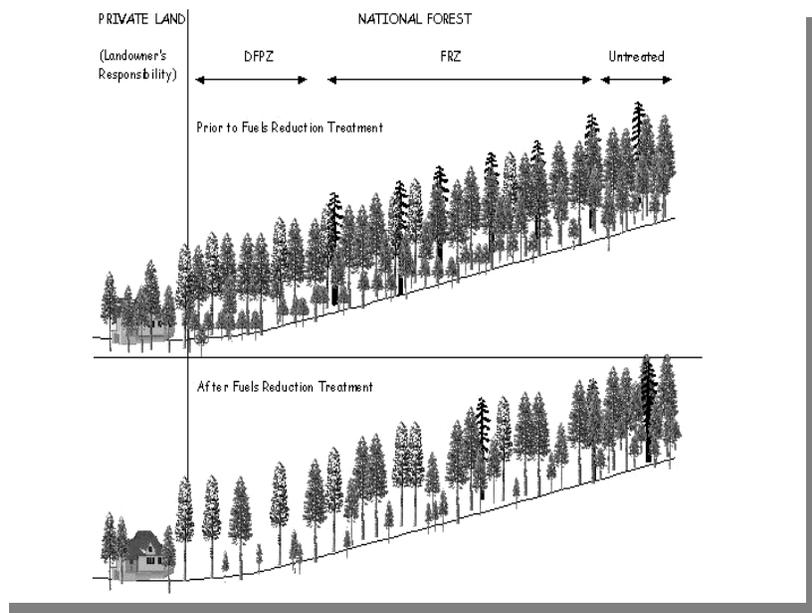
The immature tree understory would be slashed where NOT in clumps and where acting as ladder fuels beneath desirable mature leave trees. Slashing of tall shrubs that do not meet the leave criteria will occur within some areas.

Suitable snags would be retained at the Forest Plan standards (see wildlife design features on page 12). Since, by prescription,

it is desired to leave the largest live tree diameters of suitable species, the Forest Plan standards would be met or exceeded.

To increase the effectiveness of the FRZ, coarse down woody material (> 3 inches in diameter) would be reduced (on the average) to less than 10 tons per acre. Fine down woody material (< 3 inches in diameter) would be reduced (on the average) to less than 5 tons per acre.

The following illustration provides a visual concept of the fuel reduction (DRPZ and FRZ) fuel reduction treatments.



The following tables provide summaries of the mechanized and hand/mechanical treatments. Note that unit numbers are not consecutive; the missing unit numbers indicate units that were dropped from the initial proposed action described in the project scoping notices because of natural resources concerns or because of feasibility and/or economic reasons.

<b>TABLE B-2. HOLLAND PIERCE FUELS REDUCTION AND FOREST HEALTH PROPOSAL</b>				
<b>MECHANIZED TREATMENT MATRIX</b>				
<b>Summary of treatment units by treatment acres and management area (MA)</b>				
<b>UNIT NUMBER</b>	<b>Treatment Acres</b>			<b>MA<sup>2</sup></b>
	<b>DFPZ</b>	<b>FRZ</b>	<b>TOTAL</b>	
6	--	52	52	13
7	14	28	42	13
8	25	52	77	9 <sup>3</sup>
9	9	24	33	9
11	25	62	87	9
12	15	40	55	9
13	32	--	32	9
16	20	69	89	5
19	21	--	21	15
20	5	--	5	15
23	24	12	36	15
24	30	58	88	15
24A	--	25	25	5
25	10	44	54	15
27	--	27	27	15
29	23	100	123	5
34	5	30	35	5
35	--	72	72	11C
38	--	26	26	11C
39	--	18 <sup>1</sup>	18	11C
40	--	92	92	11C
42	--	166	166	11C
43	--	81	81	11C
43A	--	36	36	11C
<b>Totals</b>	<b>253</b>	<b>1,114</b>	<b>1,367</b>	

1. As discussed in the preceding description of the mechanized fuel treatments, the post-treatment objectives are to achieve, on average, canopy crown closures between 20 to 40 percent within the DFPZs and 40 to 60 percent within the FRZs. It is important to note that the existing (pre-treatment) canopy closure conditions within the proposed treatment are not uniform. For example, within small natural open areas, the existing canopy closure may be 0 percent; and, in contrast, there are areas where the existing canopy closure is at 100 percent. The findings from field observations show that on average, the existing canopy closure within the proposed treatments units ranges from 50 to 70 percent. More detail on the unit specific conditions and prescriptions can be found in the vegetation analysis (Project File Exhibit G-12).

2. Table 1 in the EA provides a summary of Forest Plan MA direction.

3. The Proposed Action analyzes potential fuel treatments within 569 acres within white-tailed deer winter range habitat (MA 9). To comply with Forest Plan direction for the management of white-tailed deer, the implementation of the Proposed Action would not include more than 284 acres of treatment within the areas analyzed for treatment within MA 9. More rationale for this reduction of treatment within MA 9 is contained in the wildlife analysis (Project File Exhibit G-6). Total acres shown reflect the acres to be treated, within the larger pool of acres analyzed within MA 9.

<b>TABLE B-3. HOLLAND PIERCE FUELS REDUCTION AND FOREST HEALTH PROPOSAL</b>			
<b>HAND AND/OR MECHANICAL TREATMENTS</b>			
<b>Summary of treatment units by treatment acres and management area (MA)</b>			
<b>UNIT NUMBER</b>	<b>TREATMENT ACRES</b>	<b>MA<sup>1</sup></b>	<b>TREATMENT DESCRIPTION</b>
44	8	15C	Hand piling and burning and removal of 5-inch understory - within Section 6
45	47	11C	Hand piling and burning and removal of 5-inch understory - Within Sections 10, 11, 14
46	20	15	Hand/ mechanical piling and burning and/or removal of vegetation within specified 'right-of-way' widths along FDR #9558 – to provide egress route (Sections 10, 11)
47	14	15	Hand/ mechanical piling and burning and/or removal of vegetation within specified 'right-of-way' widths along FDR #9558– to provide egress route (Sections 11, 12, 1)
48	4	15	Hand/ mechanical piling and burning and/or removal of vegetation within specified 'right-of-way' widths along FDR #9558– to provide egress route (Sections 1, 2)
49	2	15	Hand/ mechanical piling and burning and/or removal of e vegetation within specified 'right-of-way' widths along FDR #9558– to provide egress route (Sections 2, 35)
50	12	5	Hand/ mechanical piling and burning and/or removal of vegetation within specified 'right-of-way' widths along FDR #44a– to provide egress route (Section 35, 36)
<b>Total</b>	<b>107</b>		

4. Low density inter-planting (approximately 50 trees or shrubs per acre) of a native mix of tree seedlings or shrubs would be planted in disturbed ground areas or other openings created by harvest operations, as conditions warrant. The purpose is to revegetate disturbed sites and maintain site productivity. This work is not required for project mitigation, but would be a beneficial project enhancement.

**5. Prescribed Burning.**

a. Burn plans would be prepared for all prescribed burning activities. All burning would comply with the Smoke Management Plan prepared by the Montana Air Quality Bureau and administered by the Montana State Airshed Group, and fuel treatments will comply with the Montana State Law, Sections 76-13-401 through 76-13-414 MCA.

<sup>1</sup> Table 1 of the EA provides a summary of Forest Plan MA direction.

- b. Prescribed understory burning, jackpot burning, and pile burning would be methods employed to reduce slash and fuel loadings within mechanized and non-mechanized treatment areas, in addition to other mechanical methods of fuels treatment previously described.
  - c. Burning would occur during low fire danger (spring or fall timeframes, when surrounding fuel conditions are moist).
6. Protection of Reserved Trees – Standard Contract Operating Procedures (SCOPs) employed to minimize visual impacts and damage to the residual stand, and to minimize ground/soil impacts.
- a. Trees will be felled, insofar as safety permits, to angle in the direction of skidding or yarding.
  - b. Tractor skid roads will be located and approved in advance of felling.
  - c. Tractors will be restricted to approved skid trails.
  - d. Tractor skid trails will be no less than 75 feet apart, except where converging.
  - e. Trees designated for cutting and/or logs will be left as rub trees along tractor skid trails as needed to protect young growth and leave trees.
  - f. Bucking of windfalls and down material across skid trails will be required (where needed) in advance of their use.
7. Mechanized (machinery or equipment) and Mechanical (chainsaw) Operations

Both private contractors and Forest Service crews would be used to accomplish the treatments. The work would involve the use of a combination of hand tools, chain saws, and mechanized machinery to remove, chip, shred, mulch, masticate, pile, yard, and/or burn material to accomplish the treatment work. The following types of treatments would be applied:

- a. All cut non-utilized material would either be moved or yarded off-site for disposal, or treated on-site by any combination of piling/burning, chipping, shredding, mulching, or masticating.

The method ultimately performed would vary by the method the “awarded” contractor develops in their bid proposal, which the FS approves during the contract award phase. The accepted bid proposal would meet all FS land management objectives for site and resource protection. Best management practices (BMPs) and standard contract operating procedures (SCOPs), both integrated into stewardship contracts, are two examples used to achieve the objectives of site protection.

- b. Cutting, piling or removing trees may be accomplished by hand (in areas with primarily small understory trees or very light treatments), or by the use of ground-based mechanized equipment, such as feller-bunchers, single-grip harvesters, grapple or bucket excavators/thumb, rubber tired skidders, crawler tractors, and log forwarder systems.
- c. Fuelbreaks, used to control prescribed burning operations, may be constructed using mechanized equipment for cutting and piling, or by using hand labor for chainsaw cutting and piling, depending on site conditions and access limitations.

## **H. Sensitive or Threatened Plants**

- 1. Sensitive plant surveys were completed during the 2005 field season. The implementation of the Holland Pierce Fuels Reduction Project will follow guidelines established in the sensitive plant analysis (Project File Exhibit G-13) to protect any plants found during survey..
- 2. If sensitive or threatened plant species were discovered during activities, contractual requirements provide for modification of the contract to avoid impacts and protect their habitat.
- 3. In accordance with Forest Plan Amendment 20 (Conservation Measures for the Threatened Plant, Water *Howellia*) and the Conservation Strategy for *Howellia aquatilis*, wet areas identified as “potential howellia habitat” within the treatment units would be protected by:
  - a. Establishing a 300-foot buffer around occupied howellia ponds, where no ground disturbance would occur, regardless of activity. The 300-foot buffer begins where facultative wet plants persist.

- b. Establishment of a buffer zone for potentially occupied howellia ponds from 150 feet out to 300 feet from the wet area, where only dead trees would be harvested. All live trees would be retained on site; and salvage harvest activities would only occur on frozen ground or when there is more than 10 inches of snow cover on the ground (Project File Exhibit G-13). If sensitive or threatened plant species were to be discovered during activities, steps would be taken to minimize impact and protect their habitat.
4. All ground-disturbing activities will avoid wetlands, including lakes, ponds, marshes, fens, and streams. Buffers around wetlands will be 150 feet for areas greater than 1 acre and 50 feet for areas less than 1 acre. Buffers should begin where wetland plants (facultative wet) end.

## **I. Noxious Weeds**

- 1. All contractors and others implementing the project to comply with the following project design criteria:
  - a. Where possible, smaller slash piles will be favored over very large ones, because of concerns for the effects on the soil under these piles with burning;
  - b. Equipment use associated with fuels reduction treatments and temporary road construction (excluding pickups and trucks used to remove forest products) will be power scrubbed or steam cleaned on the undercarriage and chassis before transport to the Project Area.
  - c. Skid trails, landings, burn piles, temporary roads, and roadsides with soil disturbance will be seeded with a Montana-certified grass ground cover (seed mix of native plants and non-native annual will be specified by the Forest Botanist) as soon as practicable after disturbance to provide for site protection until native species are established. During construction of temporary roads, the topsoil (A Horizon) will be left to the side and replaced on the temporary road when use of the temporary road is no longer needed for the project. Seeding of temporary roads will occur after topsoil is replaced.
  - d. In all treated areas and other disturbed ground (such as constructed temporary roads and log landings) and along all system roads used to transport forest products, annual

surveys will be conducted following disturbance and while the sale is active, and for two years following sale closure to determine any invasion of noxious weeds. Should weeds be discovered, treatment will be consistent with the strategy outlined in the NIWC EA (Project File Exhibit H-8).

- e. Spraying of weeds along designated Forest roads will be conducted by the stewardship contractor. Existing roads and their associated right-of-ways within the project boundary identified for noxious weed treatment are listed in Table B-4. The Flathead National Forest will work with Missoula County for weed maintenance on County roads. Road right-of-ways are defined as 33 feet from centerline on each side of the road. However, when a contiguous patch of weeds extends beyond 33 feet from the road, it shall be treated. Spraying of an appropriate herbicide will occur once in the spring before flowers bloom. Herbicides shall be applied over 3 consecutive years, once each spring, as described above and in the manufacturer's recommended quantity. The total amount of noxious weed spraying within the project area is dependent on the value received from the harvest of forest products associated with the fuel reduction treatments.
- f. Treatment of invasive plants will be consistent with the strategy outlined in the NIWC EA (March 2001).

<b>TABLE B-4. MILES OF ROADS WITHIN THE HOLLAND PIERCE FUELS REDUCTION AND FOREST HEALTH PROJECT DESIGNATED FOR WEED ABATEMENT</b>			
<b>ROAD NUMBER / NAME</b>	<b>MILES OF ROAD TREATED</b>	<b>ROAD NUMBER / NAME</b>	<b>MILES OF ROAD TREATED</b>
905 Barber Creek	0.79	10572 Big Pine	0.56
9540 Lower Buck Creek	0.57	10718 Holland Sewage Lagoon	0.09
9542 Middle Barber Creek	1.11	41538 0.31	0.31
9543 Lower Barber Creek	0.82	5017	1.15
9545 Buck Creek	5.00	90284	0.29
10563 Barber Pit	0.47	1030 Pierce Lake	1.99
44 Holland Lake	1.31	1030A Pierce Lake West	0.39
9558 Owl Cr. Loop	4.09	9569 Upper Pierce Lake	1.12
9561 Upper Owl	0.55	10560 Owl Headwaters	0.07
10121 Hopkins	0.09	Temporary Roads	3.80
10121A Holland Packer Camp	0.40	Roadways closed to vehicle travel	4.10
10561 Holland Boot	0.93	<b>TOTAL</b>	<b>Up to 30 miles</b>

## **J. Wildlife**

1. The contract will include provisions to cease activity or otherwise protect populations and individuals of threatened, endangered, or sensitive species. This allows for modification of the project, should an unforeseen issue(s) be identified during operations.
2. Within FRZ treatment units, Forest Plan snag management guidelines will be met for maintaining a density of snags of at least 6 snags average per acre between 12 and 20 inches DBH

and 2 snags >20 inches DBH. If snags are not available at this density, then 5 live replacement trees per acre greater than 12 inches DBH will be retained for snag recruitment.

- a. To avoid potential disturbance of spring grizzly bear in important spring habitat, fuel reduction treatments will not occur from April 1 through June 15.
- b. Public access will be restricted on roads normally closed to use and on temporary roads. Contractors working under contract will be prohibited from carrying firearms while on duty.
- c. All temporary roads constructed on NFS lands will be reclaimed after use.
- d. Fuel reduction treatments will be designed to meet Forest Plan standards for MA 9, winter habitat for white-tailed deer. The MA 9 standards include “achieve at least 50 percent of the area in winter thermal cover.”

#### **K. Scenic (Visuals)**

All landings will be rehabilitated to natural appearing landscape. Rehabilitation would include slash and debris disposal, re-contouring, where necessary, and re-vegetated.

#### **L. Heritage Resources**

- a. Heritage resource surveys were conducted during the 2005 field season; none were found.
- b. If cultural resources are discovered during ground disturbing activities, contractual requirements provide for protection of heritage resources and modification of the contract to avoid impacts to heritage resources.

#### **M. Recreation / Scenic Values**

- a. Fuel reduction treatment activities will be coordinated to minimize the period of trail closures.
- b. The project design and layout will protect recreation trailhead facilities, trails structures, and other improvements (trail

tread). Disturbance or impacts to these features will be restored to their pre-activity condition.

- c. Activities will not occur within or adjacent to the Holland Lake Campground and Lodge Recreation Complex from May 1 thru September 30.
- d. All landings will be rehabilitated to a near-natural appearing landscape. Rehabilitation will include slash and debris disposal, re-contouring (where necessary), and re-vegetation. Where practicable, use of forwarding equipment will be encouraged to reduce visual impacts. Recontouring, if necessary, can be required when approving landing locations.
- e. Disposal of down woody material adjacent to recreation facilities and/or sites will be in areas agreed upon by the District Resource Forester.

## II. Monitoring Activities

The following monitoring matrix describes monitoring associated with the proposed action and summarizes the purpose, methods, and expected results and uses of the proposed monitoring activities. The Forest Service is currently seeking opportunities for multi-party monitoring of post treatment conditions.

TABLE B-4. SUMMARY OF MONITORING ACTIVITIES					
WHAT	WHERE	WHEN / DURATION	WHY	WHO	EXPECTED RESULTS AND USE
<b>WILDLIFE</b>					
Monitor to determine if ATV use increases as a result of opening up the timber stands.	Project area	For 2 years following fuel reduction implementation. Frequency would be twice per week, during the May to November timeframe.	To see if the area is receiving increased ATV use and to detect illegal ATV use.	Wildlife Biologist and/or Recreation Technician	The information will be used to determine if grizzly bear security has decreased in the area and to ascertain if mitigation is needed. Observations of illegal ATV use would be reported to FS law enforcement personnel. This monitoring and coordination with law enforcement is expected to

HOLLAND PIERCE FUEL REDUCTION & FOREST HEALTH PROJECT DECISION NOTICE –  
APPENDIX B – DESIGN FEATURES / MONITORING

<b>TABLE B-4. SUMMARY OF MONITORING ACTIVITIES</b>					
<b>WHAT</b>	<b>WHERE</b>	<b>WHEN / DURATION</b>	<b>WHY</b>	<b>WHO</b>	<b>EXPECTED RESULTS AND USE</b>
					minimize potential illegal ATV use within the project area.
Monitor to determine if snowmobile use increases as a result of opening up the timber stands	DFPZs and FRZs that are easily accessible	For 2 years following fuel reduction implementation. Frequency would be twice per week.	To see if the area is receiving increased human disturbance	Wildlife Biologist	The information will be used to determine if security for Canada lynx has decreased in the area and to ascertain if mitigation is needed.
<b>FOREST ROADS</b>					
Monitor and oversee temporary road construction.	Temporary roads.	Throughout duration of project implementation.	Insure road construction activities comply with contract specifications.	Contracting Officer, Forest Service Representative, and/or Timber Sale Administrator.	Routinely determine compliance with contract specifications.
Monitor and oversee condition of permanent roads	Permanent roads	Throughout duration of project implementation	Insure activities are not negatively affecting road condition and adjoining resources	Contracting Officer's Representative, Engineering Representative, and/or Timber Sale Administrator	Routinely determine road integrity and BMP compliance
<b>SOIL QUALITY</b>					
Monitor the amount of detrimental soil disturbance	Within activity areas (fuel reduction zones and defensible fuel profile zones)	After all phases of the project are implemented	Determine if the design features are effective at maintaining soil productivity	Forest Soil Scientist or representative	Result: The percent of the activity area with detrimental soil disturbance. Use: Refine design features and determine the need for restoration activities.
<b>FOREST VEGETATION</b>					
Pre contract (work) review. Review contract.	All treatment units.	Prior to implementation.	Insure treatment activities comply with the NEPA decision.	IDT Members, Line Officer, Contracting Officer's Representative, and/or Timber Sale Administrator.	Assure project implementation complies with the NEPA decision.
Monitor and	All	Throughout	Insure	Contracting	Determine /

HOLLAND PIERCE FUEL REDUCTION & FOREST HEALTH PROJECT DECISION NOTICE –  
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<b>WHAT</b>	<b>WHERE</b>	<b>WHEN / DURATION</b>	<b>WHY</b>	<b>WHO</b>	<b>EXPECTED RESULTS AND USE</b>
oversee vegetation treatments (commercial and noncommercial).	treatment units.	duration of project implementation.	treatment activities comply with contract specifications.	Officer's Representative and/or Timber Sale Administrator.	assure compliance with contract specifications.
Conduct post treatment surveys. Monitor the changes in cover, structure, insect, and disease components.	All treatment units.	Third year after treatment	Determine how well treatment objectives were met and to gather data as needed for possible follow-up treatment.	Silviculturist or designated representative	Determine the effectiveness of the treatments. This information will be used in making future recommendations for similar fuel reduction projects
Monitor and oversee vegetation treatments (commercial / pre-commercial thinning, and slash disposal.	All treatment units.	Throughout duration of project implementation.	Insure treatments activities comply with contract specifications.	Contracting Officer's Representative and/or Timber Sale Administrator.	Determine / assure compliance with contract specifications.
<b>FOREST VEGETATION AND FUELS</b>					
Conduct pre-treatment sampling prior to implementation	Selected treatment units.	Prior to implementation	Establish existing conditions in proposed treatment units.	Fuels Manager or designated representative	Establish baseline for fuels treatment proposals.
Conduct post treatment surveys. Monitor the reduction in fuel loads, including changes in canopy cover, structure, ladder fuels, and down woody material.	All treatment units.	First year after treatment.	Determine how well treatment objectives were met and to gather data as needed for possible follow-up treatment	Silviculturist and Fuels Manager or designated representative.	Determine the effectiveness of the treatments. This information will be used in making future recommendations for similar fuel reduction projects.
Conduct post treatment surveys. Monitor the reduction in fuel loads, including changes in canopy structure and ladder fuels.	All DFPZ treatment units.	First year after treatment; then every 10-years.	Determine how well treatment objectives were met and to gather data as needed for possible follow-up treatment.	Fuels Manager or designated representative.	Determine the effectiveness of the treatments. This information will be used in making possible future follow-up treatments
<b>BOTANY</b>					

HOLLAND PIERCE FUEL REDUCTION & FOREST HEALTH PROJECT DECISION NOTICE –  
 APPENDIX B – DESIGN FEATURES / MONITORING

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Monitor for Howell's gumweed	EO #01	For a 5 year period following implementation of the project	Monitor weed establishment	Forest Botany personnel	Determine if potential weed establishment threatens existence of Howell's gumweed at EO #01
<b>WATER QUALITY</b>					
Establish and monitor permanent sites and photo points to survey and document stream channel stability (i.e. Pfankuch surveys).	Selected streams within the proposed vegetation treatment units and control site(s).	Every 5 years	Document trends	Trained personnel	Continue to confirm predictions of model results and detect unacceptable changes should they occur
<b>INVASIVE PLANTS</b>					
Monitor the presence and spread of noxious weeds.	All (ground Disturbed areas) treatment units and lands affected by activities; slash pile burns; and all existing and temporary system roads used for the project.	Annually, starting at year one through 3 years following harvest / haul activities.	To determine the presence and/or spread of noxious weeds and needed containment or eradication measures, and to future direct treatment activities.	Botanist, Noxious Weed Specialist, or Weed Crew	Determine recovery rates of native plants in harvested units; determine if weed control measures should be considered.
<b>FISHERIES</b>					
Monitor effectiveness of fish passage through culverts	At one selected, new culvert. Final selection depends on which culverts get funded	Est. new, permanent fish population monitoring reach above selected culvert. Electrofish reach once every 3 years to determine long-term trend. Also, install a 2-	Determine fish migration patterns through the culvert and long-term population changes as a result of new passage.	District fisheries biologist and technicians	Verify culvert design adequately passes fish. Use lessons to design future culvert passage projects. Help build monitoring database of long-term population trends.

HOLLAND PIERCE FUEL REDUCTION & FOREST HEALTH PROJECT DECISION NOTICE –  
 APPENDIX B – DESIGN FEATURES / MONITORING

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		way fish trap above culvert and monitor daily for 1 week prior to project and 2 weekends post project.			
Monitor cattle use of Units 4 and 5 and their impact to Buck Creek	Units 4 and 5 and along 2 sections of Buck Creek on NFS lands in Section 16	A single effort, 3 years after units are implemented. Assess cattle use and conduct two separate 500 foot stream bank stability measurements. If cattle use is insignificant, cease monitoring. If use is significant, develop mitigation measures and new monitoring plan.	Determine if cattle in range allotment begin to impact Buck Creek and recommend mitigation measures as needed.	Range Technician	Expected brief report on cattle use and distribution in Units 4 and 5. Expected stream bank stability data in Buck Creek. Following report, the District can determine there is no impact and cease monitoring or determine that further work is warranted. Possible mitigation measures may be temporary fence near Buck Creek.