

## CHECKLIST ENVIRONMENTAL ASSESSMENT

<b>Project Name:</b>	Westside Blowdown Salvage
<b>Proposed Implementation Date:</b>	August 3, 2012
<b>Proponent:</b>	Montana Department of Natural Resources (DNRC), Northwestern Land Office
<b>Location:</b>	Swan River State Forest - Sections 2, 10, 16, 22, 26, 27, Township 23 North, Range 18 West and Sections 22, 23, 26, 28, 34, Township 24 North, Range 18 West
<b>County:</b>	Lake

### I. TYPE AND PURPOSE OF ACTION

DNRC, as manager of Swan River State Forest, proposes to harvest an estimated 1.5 million board feet (MMbf) of salvage timber that was blown down during the June 26, 2012 wind event which impacted the west side of the state forest and encompasses a gross project area of approximately 6,425 acres. Western larch, western red cedar, western white pine, Engelmann spruce, and Douglas-fir are the majority of the species being salvaged. A minor component of grand fir, subalpine fir and lodgepole pine are also selected for salvage. Harvesting these dead and dying trees as quickly as possible ensures that the most value will be captured for state trust lands. This project would produce an estimated \$99,000.00 in revenue for the Common Schools Trust.

#### PROJECT AREA

The proposed salvage is located in Sections 2, 10, 16, 22, 26, 27, Township 23 North, Range 18 West and Sections 22, 23, 26, 28, 34, Township 24 North, Range 18 West over approximately 1,930 acres. The elevations range from 3,200 to 5,600 feet. The blown down timber occurred in and near the White Porcupine project area in (1) harvest units that had already been harvested, (2) harvest units that had not yet been harvested, and (3) some isolated patches outside, but generally adjacent to and accessible from existing harvest units or roads.

The lands involved in the proposed project are held in trust by the State of Montana for the support of specific beneficiary institutions (*Enabling Act of February 22, 1889; 1972 Montana Constitution, Article X, Section 11*). The *Montana State Board of Land Commissioners* (Land Board) and DNRC are legally required to administer these trust lands to produce the largest measure of reasonable and legitimate long-term return for the trust beneficiaries (*Montana Code Annotated [MCA], Section 77-1-202*).

The State is required by law to establish a salvage timber program that provides for the timely harvesting of dead and dying timber that has been threatened by insects, diseases, wildfires, or wind on State forests. Under this requirement, DNRC shall, to the extent practicable, harvest dead and dying timber before there is substantial wood decay and value loss (*Section 77-5-207, MCA*).

This project was developed in compliance with the *State Forest Land Management Plan (SFLMP)*, the *Administrative Rules for Forest Management (Forest Management Rules; ARM 36.11.401 through 471)*, and conservation commitments contained in the *Montana DNRC Forested State Trust Lands Habitat Conservation Plan (HCP)*, as well as other applicable state and federal laws.

## II. PROJECT DEVELOPMENT

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

*Provide a brief chronology of the scoping and ongoing involvement for this project. List number of individuals contacted, number of responses received, and newspapers in which notices were placed and for how long. Briefly summarize issues received from the public.*

DNRC solicited public participation on the Westside Blowdown Salvage Project through an initial proposal and scoping notice sheet, and maps which were mailed July 19, 2012 to neighboring landowners, individuals, agency and industry representatives, and other organizations that have expressed interest in DNRC's management activities. The mailing list of parties receiving the notice, and the comments received, are located in the project file at the Swan River State Forest headquarters. Due to the time-sensitive nature associated with harvesting blowdown during the fall in a closed grizzly bear subunit, the scoping period was only open for 5 days. DNRC received 6 comments and /or inquiries from: 1) Neil Meyer, Swan Valley Ad Hoc Committee; 2) Arlene Montgomery, Friends of the Wild Swan; 3) Chris Damrow, Stoltze Land and Timber; 4) Stephen Braun; 5) Roger Marshall, Stewardship Forester, Swan Ecosystem Center; and 6) Jim Mann, reporter, Daily Interlake . Three comments were in favor of the project, 2 comments expressed concerns relating to the project, and 1 relayed questions regarding the project. The comments were reviewed by the Interdisciplinary Team (ID Team) to identify issues that were within the scope of the project, and were analyzed in individual sections to which they pertained or were addressed within *APPENDIX A –RESPONSES TO COMMENTS*.

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

*Examples: cost-share agreement with U.S. Forest Service, 124 Permit, 3A Authorization, Air Quality Major Open Burning Permit.*

#### **MONTANA DEPARTMENT OF FISH, WILDLIFE AND PARKS (DFWP)**

DFWP has jurisdiction over the management of fisheries and wildlife populations in the project area. DFWP is on the mailing list and was sent the scoping letter.

#### **MONTANA/IDAHO AIRSHED GROUP**

DNRC is a member of the Montana/Idaho Airshed Group, which regulates slash burning through air-quality and weather monitoring for all members of the group. DNRC receives an air-quality permit for burning slash through participation in this group.

**SWAN VALLEY GRIZZLY BEAR CONSERVATION AGREEMENT**

The SVGBCA, a cooperative agreement between DNRC, Plum Creek Timber Company (Plum Creek), United States Fish and Wildlife Service (USFWS), and the USFS, is currently in effect. The Nature Conservancy has acquired ownership of Plum Creek lands within Swan River State Forest and The Nature Conservancy has agreed to follow the intent of the SVGBCA. This project will define mitigation measures for operating within the SVGBCA timber-harvesting parameters.

**U.S. FISH AND WILDLIFE SERVICE**

In December 2011, the USFWS issued DNRC an *Incidental Take Permit* (Permit) under Section 10 of the *Endangered Species Act*. The Permit applies to select forest-management activities affecting the habitat of grizzly bear, Canada lynx, and 3 fish species (bull trout, westslope cutthroat trout, and Columbia redband trout) on project area lands covered under the HCP. DNRC and the USFWS will coordinate monitoring of certain aspects of the conservation commitments to ensure program compliance with the HCP.

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**3. ALTERNATIVE DEVELOPMENT:**

*Describe alternatives considered and, if applicable, provide brief description of how the alternatives were developed. List alternatives that were considered but eliminated from further analysis and why.*

The No-Action and Action alternatives are described in this section. The decision maker may select a modification or combination of these alternatives.

**Alternatives Considered**

- ***No-Action Alternative***

The No-Action Alternative is used as a baseline for comparing the effects that the Action Alternative would have on the environment and is considered a possible alternative for selection. Under this alternative, the proposed salvage would not take place and, therefore, no revenue would be generated for the Common Schools Trust. Firewood permits, recreational use, fire suppression, noxious-weed control, road and closure maintenance, and other management activities may still occur. Natural events, such as windthrow and down fuel accumulation would continue to occur.

- ***Action Alternative***

Under the Action Alternative, the proposed salvage would take place as described in this document. Approximately 1.5 MMbf of dead and dying timber would be harvested. Incidental live trees would be removed as appropriate, particularly within the White Porcupine harvest units that have not been harvested in order to achieve the cutting prescription during operations. An appropriate amount of snags and down woody debris would be maintained for wildlife needs.

### III. IMPACTS ON THE PHYSICAL ENVIRONMENT

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

#### 4. GEOLOGY AND SOIL QUALITY, STABILITY AND MOISTURE:

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

The potential impacts to geology and soil quality in the project area are addressed in APPENDIX B -SOILS ANALYSIS at the end of the document.

#### 5. WATER QUALITY, QUANTITY AND DISTRIBUTION:

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

The potential impacts to water and fisheries resources in the project area are addressed in APPENDICES C & D – HYDROLOGY & FISHERIES ANALYSES at the end of the document.

#### 6. AIR QUALITY:

What pollutants or particulate would be produced (i.e. particulate matter from road use or harvesting, slash pile burning, prescribed burning, etc)? Identify the Airshed and Impact Zone (if any) according to the Montana/Idaho Airshed Group. Identify direct, indirect, and cumulative effects to air quality.

#### BACKGROUND

The project is within Montana Airshed 2 and is not within a Class 1 Airshed. Air quality within this airshed is considered good. Temporary, local restrictions in air quality currently occur from wildfires, prescribed broadcast burning, slash burning, and road dust.

#### DIRECT, INDIRECT, AND CUMULATIVE EFFECTS

##### • **No Action Alternative**

The existing condition would not change.

##### • **Action Alternative**

Post-harvest burning would produce smoke emissions; log hauling and other project-related traffic on dirt roads during dry periods would temporarily increase road dust. Due to the relatively moderate size of the project, no increases are expected to exceed standards or impact local population centers if burning is completed within the requirements imposed by the Montana/Idaho Airshed Group.

Additional smoke produced from prescribed burning on adjacent USFS, The Nature Conservancy, private, and state trust forestland would remain within the standards for air quality, but cumulative effects during peak burning periods could affect individuals at local population centers with respiratory illnesses for short durations. All known major burners operate under the requirements of the Montana/Idaho Airshed Group, which regulates the amount of emissions produced cumulatively by major burners.

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## **7. VEGETATION COVER, QUANTITY AND QUALITY:**

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

**The direct and indirect effects analysis area** is approximately 6,425 acres in size and is located in Sections 2, 10, 16, 22, 26, 27, Township 23 North, Range 18 West and Sections 22, 23, 26, 28, 34, Township 24 North, Range 18 West.

**The cumulative effects analysis area** is approximately 41,700 acres in size and encompasses the DNRC-managed, Swan River State Forest block.

### **BACKGROUND**

The location of the salvage is the west side of the Swan River State Forest in and near the White Porcupine project area in (1) harvest units that had already been harvested, (2) harvest units that had not yet been harvested, and (3) some isolated patches outside, but generally adjacent to and accessible from existing harvest units or roads.

### **EXISTING ENVIRONMENT**

The windthrow event resulted in 3 types of volume concentrations of blown down timber: heavy, medium, and light. Heavy concentrations result in 10 to 15 thousand board feet (Mbf)/acre, medium concentrations result in up to 5 Mbf/acre, and light concentrations result in 1 to 2 Mbf/acre.

The heavy and medium concentrations involved occasional individual trees or, more often, multiple trees which fell in rows or in 'jackstraw' piles. The light concentrations involved primarily individual trees, either seedtrees within previously harvested regeneration units or along the fringes of the heavy and medium concentrations.

The windthrow areas consist of:

- (1) Harvest units that had been previously harvested which resulted in: (a) regeneration units encompassing 104 acres of moderate volume concentrations and 891 acres of light volume concentrations, and (b) thinning units encompassing 31 acres of heavy volume concentrations, 146 acres of moderate volume concentrations, and 63 acres of light volume concentrations.
- (2) Sold harvest units that had not yet been harvested which resulted in: (a) planned regeneration units encompassing 73 acres of heavy volume concentrations and 18 acres of moderate volume concentrations, and (b) planned thinning units encompassing 26 acres of heavy volume concentrations and 5 acres of moderate volume concentrations.
- (3) Isolated patches outside, but generally adjacent to and accessible from existing harvest units or roads which resulted in: 298 acres of heavy volume concentrations, 62 acres of moderate volume concentrations, and 229 acres of light volume concentrations.

Stand cover types include Douglas-fir, lodgepole pine, mixed conifer, subalpine fir, western larch/Douglas-fir, and western white pine.

Age class changes on the project area due to the wind event were as follows: 0- to 39-year age class increased by 128 acres from 1,590 to 1,718 acres, 40- to 99-year age class decreased by 86 acres from 1,583 to 1,497 acres, 100- to 149-year age class increased by 286 acres from 706 to 992 acres, 150+ age class decreased 9 acres from 310 to 301 acres, and old growth decreased by 319 acres from 1,706 to 1,387 acres.

Age class changes on the Swan River State Forest due to the wind event were as follows: 0- to 39-year age class increased by 128 acres from 8,038 to 8,166 acres, 40- to 99-year age class decreased by 86 acres from 9,986 to 9,900 acres, 100- to 149-year age class increased by 286 acres from 5,264 to 5,550 acres, 150+ age class decreased 9 acres from 6,330 to 6,321 acres, and old growth decreased by 319 acres from 10,640 to 10,321 acres.

The windthrow event generally affected patch size on a project and cumulative effects analyses areas' basis by increasing the younger age classes' and decreasing the older age classes' patch size. These changes in patch size may result in greater overall fragmentation.

Forest stand vigor may increase in the project area and to a minor degree overall in the cumulative effects area because the windthrow event generally removed the larger, less vigorous trees. However, forest stand vigor may decrease in the project area in the event that no natural regeneration occurs.

Forest stand structure was decreased in complexity in the project and cumulative effects areas by the event. Multi-storied stands were generally reduced to single- or two-storied stands. Two-storied stands were generally reduced to single-storied stands, and single-storied stands generally lost remaining seedtrees which decreases complexity as well.

Forest crown cover was decreased overall in the project and cumulative effects areas by the wind event. The amount varies from area to area due to the variation in windthrow concentrations.

Forest insect levels may increase in the project area due to the presence of stressed, dead or dying trees resulting from the windthrow event. Forest disease levels are not expected to increase as a result of the event but may decrease overall with the removal of older trees more prone to diseases present in the area for long periods of time such as root rot. These trees may have succumbed to the event due to weakness in their boles and/or root wads due to disease presence. These conditions may result in minor effects overall in the cumulative effects area.

Forest fire conditions may increase in the project area due to the presence of large amounts of downed woody debris as well as ladder fuels present due to the 'jackstraw' characteristics of the windthrow concentrations. These conditions may result in minor effects overall in the cumulative effects area.

Sensitive plant populations have not been identified within the windthrow areas.

Noxious weed populations are not expected to be impacted by the windthrow event however a minor increase may occur in the project area due to the increased availability of bare mineral soil, i.e. seed beds, at the locations where root wads rotated/overturnd.

## **CURRENT HABITAT TYPES AND FOREST PRODUCTIVITY WITHIN THE PROJECT AREA**

The stands include: grand fir, western red cedar, western hemlock, and subalpine fir habitat types and in the warm and moist, low and high elevation habitat groups. Forest productivity (growth) is rated high to very high. These stands typically contain varying populations of Douglas-fir, subalpine fir, grand fir, Engelmann spruce, western larch, and western white pine as well as occasional lodgepole pine and western hemlock. Forage potential in these stands is best in early successional stages.

## **DIRECT AND INDIRECT EFFECTS**

- ***No-Action Alternative***

Harvesting and removal of windblown damaged trees would not occur in areas adjacent to existing harvesting units or in units where harvesting is completed. Harvest of windblown trees may still occur in stands where harvesting has not yet been completed. Cover types would not be expected to change. Current age classes for the affected areas would be adjusted accordingly due to the event. Acreage increase/decrease would be as described previously under Existing Environment. Forest stand vigor may decrease in the project area in the event that no natural regeneration occurs. Insect activity may increase in the short term due to the concentrations of stressed, damaged, and dying trees. Disease activity may remain at current levels and/or show signs of decreasing. Forest fire conditions would be elevated in the short term due to the presence of smaller diameter flashy fuels. Overtime flashy fuels breakdown but the remaining larger diameter fuels would be present which may contribute to hotter more intense burning of the affected areas.

- ***Action Alternative***

Harvesting would focus on the removal of windblown trees that are downed or damaged from the event within the identified areas. Species composition that would be harvested consists primarily of western larch, western red cedar, western white pine, Engelmann spruce, and Douglas-fir. There is also a minor component of grand fir, alpine fir, and lodgepole pine. Tree size, diameter at breast height (dbh), range in size from 10 to 21+ inches with an estimated average dbh of 14 inches.

## **AGE CLASS AND COVER TYPES –**

No direct or indirect effects would occur in addition to those brought about by the storm event. Age class changes would remain consistent with the acreages per age class stated in the Existing Environment.

No direct or indirect effects would be expected in covertypes due to harvesting.

#### **PATCH SIZE AND FRAGMENTATION –**

Areas of fragmentation were created by the storm event which increased the younger age classes' and decreased the older age classes' patch sizes. Harvesting the windblown timber within these areas would not create any additional fragmentation.

#### **STAND VIGOR –**

Stand vigor may increase in the project area as well as across the forest. As regeneration develops and establishes younger more vigorous trees replace older less vigorous trees. By removing the concentrations of blown down trees opportunities would be created for regeneration to be planted or establish naturally.

#### **STAND STRUCTURE –**

Stand structure was changed by the event itself and removal of trees in the affected areas would not contribute to any additional effects to stand structure. Multi-storied stands were reduced to two-storied or single-storied stands as a result of the storm event. Harvesting of the windblown trees would not contribute to additional effects to stand structure.

#### **CROWN COVER –**

Crown cover was reduced overall in the project area due to the effects of the event. Additional effects to crown cover from harvesting would be negligible.

#### **OLD GROWTH –**

Effects to old growth occurred due to the storm event across the project area. Prior to the storm event the project area had approximately 605 acres of old growth. Due to the event 319 acres no longer meet the criteria for old growth classification. The removal of the windblown trees would not remove any additional acres from the old growth classification.

#### **INSECTS AND DISEASE –**

By harvesting and removal of the windblown trees insect and disease presence may be reduced. Insect populations tend to increase in recently downed trees and those that are weakened or stressed. By harvesting these areas current populations may remain at current levels or decrease. Disease infection spread may also be reduced as some of the individual trees are affected by various types of heart or root rot. Overall, removal of older trees more prone to insect and disease activity tends to reduce infection/infestations within the project area.

#### **FIRE EFFECTS –**

Harvesting of the large amounts of downed woody material would reduce the fuel loading within the project area. Some areas have heavy accumulations of 'jackstrawed' and ladder fuel blowdown which increases the fire hazard. Removal of the trees would reduce the potential for a potentially hotter burning and larger scale fire from developing.

#### **SENSITIVE PLANTS –**

Sensitive plant populations have not been identified within the proposed harvest areas. Therefore no effects are expected.

## **NOXIOUS WEEDS –**

Noxious weed populations may increase slightly within the project area primarily due to the exposure of bare mineral soil. Grass seeding disturbed roads and landings would reduce or prevent the establishment of new weed populations. Roadside herbicide spraying is not planned as a part of this project, however, the current annual weed spraying program would address any issues.

## **CUMULATIVE EFFECTS**

Cumulative effects of this project were considered in the context of other past and current actions, including the White Porcupine timber sale. Related future actions were also considered.

The storm event slightly changed some vegetative characteristics across the state forest; age class distribution, patch/fragmentation, old growth acreage, fuel loading, among others. The effects from the storm event are minor across the cumulative effects area. Because the storm event itself caused the changes in vegetative characteristics, harvesting the windblown and damaged trees would have negligible additional impacts in the cumulative effects analysis area.

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### **8. TERRESTRIAL, AVIAN AND AQUATIC LIFE AND HABITATS:**

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

Impacts to fisheries resources are addressed in *APPENDIX C - HYDROLOGY ANALYSIS and APPENDIX D –FISHERIES ANAYLYSIS* at the end of the document.

Impacts to terrestrial wildlife resources are addressed in *APPENDIX E– TERRESTRIAL WILDLIFE RESOURCES* at the end of the document.

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

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

Potential impacts to aquatic species of concern are addressed in *APPENDIX C - HYDROLOGY ANALYSIS and APPENDIX D –FISHERIES ANAYLYSIS* at the end of the document.

Impacts to terrestrial threatened and endangered species are addressed in *APPENDIX E – TERRESTRIAL WILDLIFE RESOURCES* at the end of the document.

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### **10. HISTORICAL AND ARCHAEOLOGICAL SITES:**

*Identify and determine direct, indirect, and cumulative effects to historical, archaeological or paleontological resources.*

DNRC has no record of cultural resources within the project's area of potential effect. However, a professional inventory of cultural resources has not been conducted. If previously unknown, cultural or paleontological materials are identified during project related activities, all work will cease until a professional assessment of such resources can be made.

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## 11. AESTHETICS:

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

### EXISTING ENVIRONMENT

Generally, foreground views are those associated with and connected to open roads. Open roads within the project area include: Fatty Creek, Whitetail, Main Woodward, and South Woodward roads. Harvest areas associated with the project are not within the foreground view but located in the middleground and background views on restricted access roads. Middleground views usually consist of hillsides or drainages. The area contains mid- to high-elevation vegetated ridges with both natural and man-made openings dispersed throughout. Due to topography and existing vegetation, these views are mostly visible within the project area. Background views consist of a collection of drainages and ridges that make up the northern end of the Mission Range. The most prominent viewshed is the middleground view since most views within the project area are from this vantage point, typically from the various open roads and along Highway 83.

### DIRECT AND INDIRECT EFFECTS

- ***No-Action Alternative***

Current conditions would not change.

- ***Action Alternative***

Views of the proposed harvest areas are primarily associated with existing harvest units from the White Porcupine Timber Sale. Portions of the harvest areas within Section 23, T24N, R18W, would be visible in the foreground view when traveling along open roads in the project area. The majority of harvest areas would be visible within the middleground viewsheds and associated with recently harvested areas with the exception of harvest units in Section 26, T24N, R18W. Harvesting in Section 26, T24N, R18W, would create new openings in the middleground viewshed. Proposed harvest areas located in Section 22, T24N, R18W, would be seen in the background viewshed when traveling along open roads.

### CUMULATIVE EFFECTS

Cumulative visual effects of this project were considered in the context of other past and current actions, including the White Porcupine timber sale. Related future actions including were also considered.

Timber management and natural processes on the landscape, such as wildfires, windthrow, insect infestations, and disease infections, would continue to alter the view over time. Ongoing and future harvest operations including salvage and green timber sale projects on all ownerships would continue to alter the aesthetics of all viewsheds. The blow down harvest would not measurably add to cumulative effects.

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

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

None

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**13. OTHER ENVIRONMENTAL DOCUMENTS PERTINENT TO THE AREA:**

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

Other environmental documents that pertain to the project area include:

- South Woodward FEIS
- Lucky Logger, Main Wood and Low Wood 612s
- White Porcupine Multiple Timber Sale FEIS
- Scout Lake Multiple Timber Sale Final Environmental Impact Statement though not directly within the project area; it is included within the cumulative-effects area.

The potential for cumulative effects due to any of the listed projects were considered in the individual resource effects analyses.

<b>IV. IMPACTS ON THE HUMAN POPULATION</b>
<ul style="list-style-type: none"><li>• <i>RESOURCES potentially impacted are listed on the form, followed by common issues that would be considered.</i></li><li>• <i>Explain POTENTIAL IMPACTS AND MITIGATIONS following each resource heading.</i></li><li>• <i>Enter "NONE" If no impacts are identified or the resource is not present.</i></li></ul>

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**14. HUMAN HEALTH AND SAFETY:**

*Identify any health and safety risks posed by the project.*

None

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**15. INDUSTRIAL, COMMERCIAL AND AGRICULTURE ACTIVITIES AND PRODUCTION:**

*Identify how the project would add to or alter these activities.*

Approximately 1.5 MMbf of sawlog timber would be made available to the wood products industry.

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**16. QUANTITY AND DISTRIBUTION OF EMPLOYMENT:**

*Estimate the number of jobs the project would create, move or eliminate. Identify direct, indirect, and cumulative effects to the employment market.*

Direct, Indirect and Cumulative effects of the No-Action Alternative

Harvesting and removal of windblown damaged trees would not occur in areas adjacent to existing harvesting units or in units where harvesting is completed. Harvest of windblown trees may still occur in stands where harvesting has not yet been completed. The affect on employment would be unchanged from the White Porcupine Multiple Timber Sale FEIS.

Direct, Indirect and Cumulative effects of the Action Alternative

Harvesting would focus on the removal of windblown trees that are downed or damaged from the event within the identified areas. Additional jobs could be created by managing the areas adjacent to existing harvest units and where harvesting was already completed. The average employment and wage effects are found in TABLE 1 – AVERAGE EMPLOYMENT IMPACT UNDER THE ACTION ALTERNATIVE. The project is expected to create the equivalent of 15 jobs.

**Table 1 – Average Employment Impact – Under the Action Alternative**

	<b>Employment</b>	<b>Wages</b>
Average	10.58 jobs/MMBF	\$34,000/job
Estimated effect of Sale	15 jobs	\$510,000

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**17. LOCAL AND STATE TAX BASE AND TAX REVENUES:**

*Estimate tax revenue the project would create or eliminate. Identify direct, indirect, and cumulative effects to taxes and revenue.*

No measurable direct, indirect, or cumulative effects to the State tax base or tax revenues are anticipated.

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**18. DEMAND FOR GOVERNMENT SERVICES:**

*Estimate increases in traffic and changes to traffic patterns. What changes would be needed to fire protection, police, schools, etc.? Identify direct, indirect, and cumulative effects of this and other projects on government services*

No direct, indirect or cumulative effects to the demand for government services would be expected as a result of this proposal.

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**19. LOCALLY ADOPTED ENVIRONMENTAL PLANS AND GOALS:**

List State, County, City, USFS, BLM, Tribal, and other zoning or management plans, and identify how they would affect this project.

In March 2003, DNRC adopted *Administrative Rules for Forest Management* (ARM 36.11.401 through 450). DNRC would manage lands involved in this project in accordance with the Forest Management Rules.

The project would adhere to the agreements made in the SVGBCA and the HCP.

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**20. ACCESS TO AND QUALITY OF RECREATIONAL AND WILDERNESS ACTIVITIES:**

Identify any wilderness or recreational areas nearby or access routes through this tract. Determine the effects of the project on recreational potential within the tract. Identify direct, indirect, and cumulative effects to recreational and wilderness activities.

**EXISTING CONDITIONS**

The Westside Blowdown Salvage project area, primarily used for hiking, berry picking, hunting and snowmobiling receives recreational use throughout the year.

**DIRECT, INDIRECT, AND CUMULATIVE EFFECTS**

- ***No-Action Alternative***

Recreational use is not expected to change.

- ***Action Alternative***

The haul routes would include open roads: Fatty Creek, Whitetail, Main Woodward, and South Woodward roads. Short delays due to log hauling and harvesting along the open roads may inconvenience recreationists; however, recreational use in the project area is not expected to change with the implementation of this project. Only traffic related to logging and administrative use would be allowed on any restricted access roads needed during the period of harvest operations.

The status of the closed roads used to access this project would not change with project implementation.

Harvesting activities may occur on adjacent ownerships as well, exact details are not known at this time. All levels of existing recreational use on Swan River State Forest and adjacent ownerships are expected to continue.

No measurable direct, indirect, or cumulative effects to access to Recreation or Wilderness resources would be expected as a result of this proposal.

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**21. DENSITY AND DISTRIBUTION OF POPULATION AND HOUSING:**

*Estimate population changes and additional housing the project would require. Identify direct, indirect, and cumulative effects to population and housing.*

None

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**22. SOCIAL STRUCTURES AND MORES:**

*Identify potential disruption of native or traditional lifestyles or communities.*

None

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**23. CULTURAL UNIQUENESS AND DIVERSITY:**

*How would the action affect any unique quality of the area?*

None

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**24. OTHER APPROPRIATE SOCIAL AND ECONOMIC CIRCUMSTANCES:**

*Estimate the return to the trust. Include appropriate economic analysis. Identify potential future uses for the analysis area other than existing management. Identify direct, indirect, and cumulative economic and social effects likely to occur as a result of the proposed action.*

The proposed salvage project would create jobs in the private sector. Harvest would provide a monetary return to the Montana School Trust Fund.

The potential benefit to the trust can be estimated by looking at recently sold timber sales in the area. Recent sales of sawlog material have sold in the range of \$13.10 to \$23.16 per ton. This sale is a salvage, so expected values might be lower for the same material due to damaged wood, difficult logging, and scattered pieces. To estimate this sale the above values would be averaged and discounted, hence the average for this sale will be \$12.00/ton. 1.5 MMBF multiplied by 5.5 tons per Mbf (conversion factor) equals 8,250 tons; 8,250 tons multiplied by \$12.00 per ton equals \$99,000.00. This is the potential return to the trust and is higher than the appraised value would be. This figure assumes a highly competitive market with several interested parties. This calculation is not an actual appraisal of the projected timber sale.

<b>EA Checklist Prepared By:</b>	<b>Name:</b> Kristen Baker	<b>Date:</b> August 3, 2012
	<b>Title:</b> Forest Management Supervisor	

## V. FINDING

### 25. ALTERNATIVE SELECTED:

Two alternatives are present and fully analyzed in the CEA:

- The No-Action Alternative includes existing activities, but does not include the salvage of blown down timber.
- The Action Alternative includes removal of 1.5 MMbf of blown down sawtimber through several small salvage permits across 6,425 acres on the west side of the Swan River State Forest.

I have reviewed the correspondence from the public and information presented in the CEA. I have selected the Action Alternative without additional modifications. I feel the Action Alternative best meets the purpose and need for action for the following reasons:

- The selected Action Alternative meets the goals and objectives listed in this CEA.
- The analysis of identified issues did not reveal information to persuade me to select the No-Action Alternative.
- The project area is located on State-managed lands that are principally valuable for the timber that is on them (*77-1-402 MCA*). DNRC manages these lands according to the standards adopted by the Administrative Rules for Forest Management (*ARM 36.11.401 through 450*) and the philosophy within the SFLMP, which states:

*Our premise is that the best way to produce long-term income for the trust is to manage intensively for healthy and biologically diverse forests...in the future; timber management will continue to be our primary source of revenue and our primary tool for achieving biodiversity objectives.*

- The Action Alternative meets all requirements of the Administrative Rules for Forest Management (*ARM 36.11.401 through 450*), the Montana DNRC Forested State Trust Lands Habitat Conservation Plan, and the SVGBCA, in that impacts are minimal, mitigated, and minor in scope.
- The Action Alternative provides an important mechanism to manage intensively for a healthy and biologically diverse forest in a way that harvests dead, dying, or damaged timber before a substantial value loss occurs, while limiting environmental impacts.
- As mandated by State statute (*77-5-222 MCA*), the Action Alternative will contribute to DNRC's sustained yield.

---

**26. SIGNIFICANCE OF POTENTIAL IMPACTS:**

I find that the Action Alternative will not have significant impacts on the human environment for the following reasons:

- The Action Alternative conforms to the management philosophies of DNRC and is in compliance with existing laws, rules, policies, and standards applicable to this type of proposed action.
- While the proposed salvage project exceeds operating windows allowed under the SVGBCA for the Porcupine-Woodward Subunit, the USFWS has approved DNRC's requested exception to the SVGBCA and has determined that there would be no additional incidental take associated with the proposed action if mitigations offered within the exception are implemented.
- DNRC will not be precluded from analyzing future actions on State trust lands.
- The Action Alternative is similar to past projects on State trust lands using common practices in the industry and activities are not being conducted on unique or fragile sites.

---

**27. NEED FOR FURTHER ENVIRONMENTAL ANALYSIS:**

Based on the following, I find that a more detailed EA or an EIS does not need to be prepared:

- The CEA adequately addressed the issues identified during project development and displayed the information needed to make decision.
- Evaluation of the potential impacts of the proposed Westside Blowdown Salvage Project indicates that no significant impacts would occur.

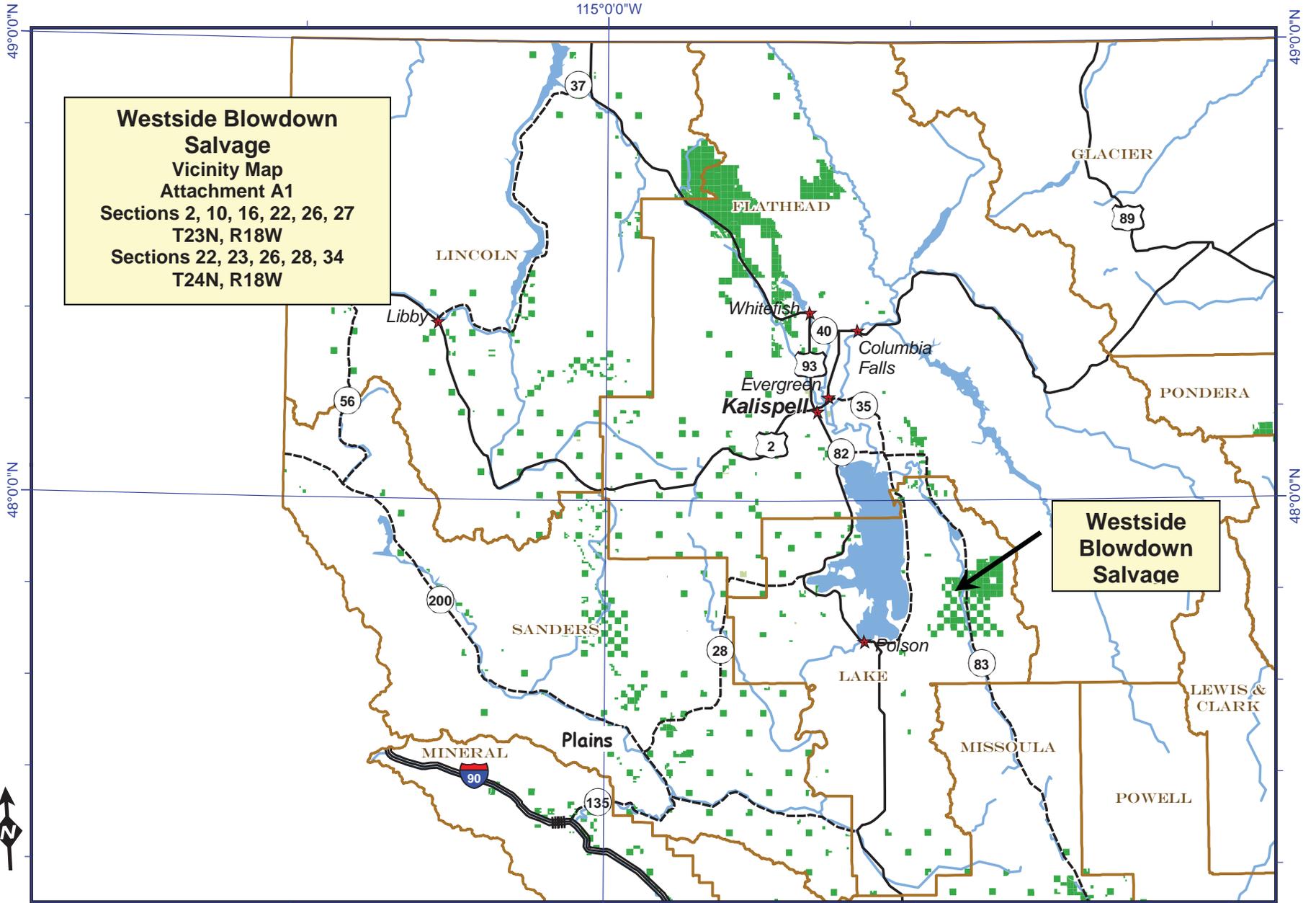
The ID Team provided adequate opportunities for public review and comment. Public concerns were incorporated into the project design and the analysis of impacts as displayed on page 2: *Public Involvement, Agencies, Groups or Individuals Contacted*, and Appendix A: *Response to Comments*.

EIS

More Detailed EA

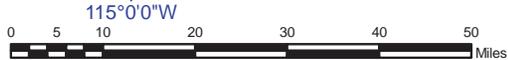
No Further Analysis

<b>EA Checklist Approved By:</b>	<b>Name:</b> Dan Roberson
	<b>Title:</b> Swan Unit Manager
<b>Signature:</b> /s/ Dan Roberson	<b>Date:</b> 8/3/12



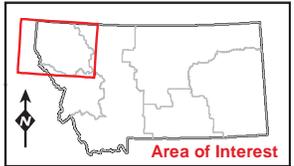
**Westside Blowdown Salvage Vicinity Map Attachment A1**  
 Sections 2, 10, 16, 22, 26, 27  
 T23N, R18W  
 Sections 22, 23, 26, 28, 34  
 T24N, R18W

**Westside Blowdown Salvage**



	Interstate Highway		Rivers		Lakes
	U.S. Route		City		DNRC managed for timber
	State Highway		County		DNRC other

21 February 2007  
 Montana DNRC  
 Technical Services Section/dr



# Westside Blowdown Salvage Proposed Project Area

0 0.5 1 Miles

## Legend

### Roads

#### ROAD CLASS

- OPEN
- RESTRICTED
- SEASONAL
- TEMPORARY

### Streams

#### Type

- River or Other Major Waterbody
- Intermittent Stream
- Perennial Stream
- ▨ White Porcupine units

### POST-INCIDENT

#### Category & concentration

- Outside unit & heavy concentration
- Outside unit & moderate concentration
- Outside unit & light concentration
- Planned regeneration unit & heavy concentration
- Planned regeneration unit & moderate concentration
- Previous regeneration unit & moderate concentration
- Previous regeneration unit & light concentration
- Planned thinning unit & heavy concentration
- Planned thinning unit & moderate concentration
- Previous thinning unit & heavy concentration
- Previous thinning unit & moderate concentration
- Previous thinning unit & light concentration
- Sections
- Lakes and Rivers

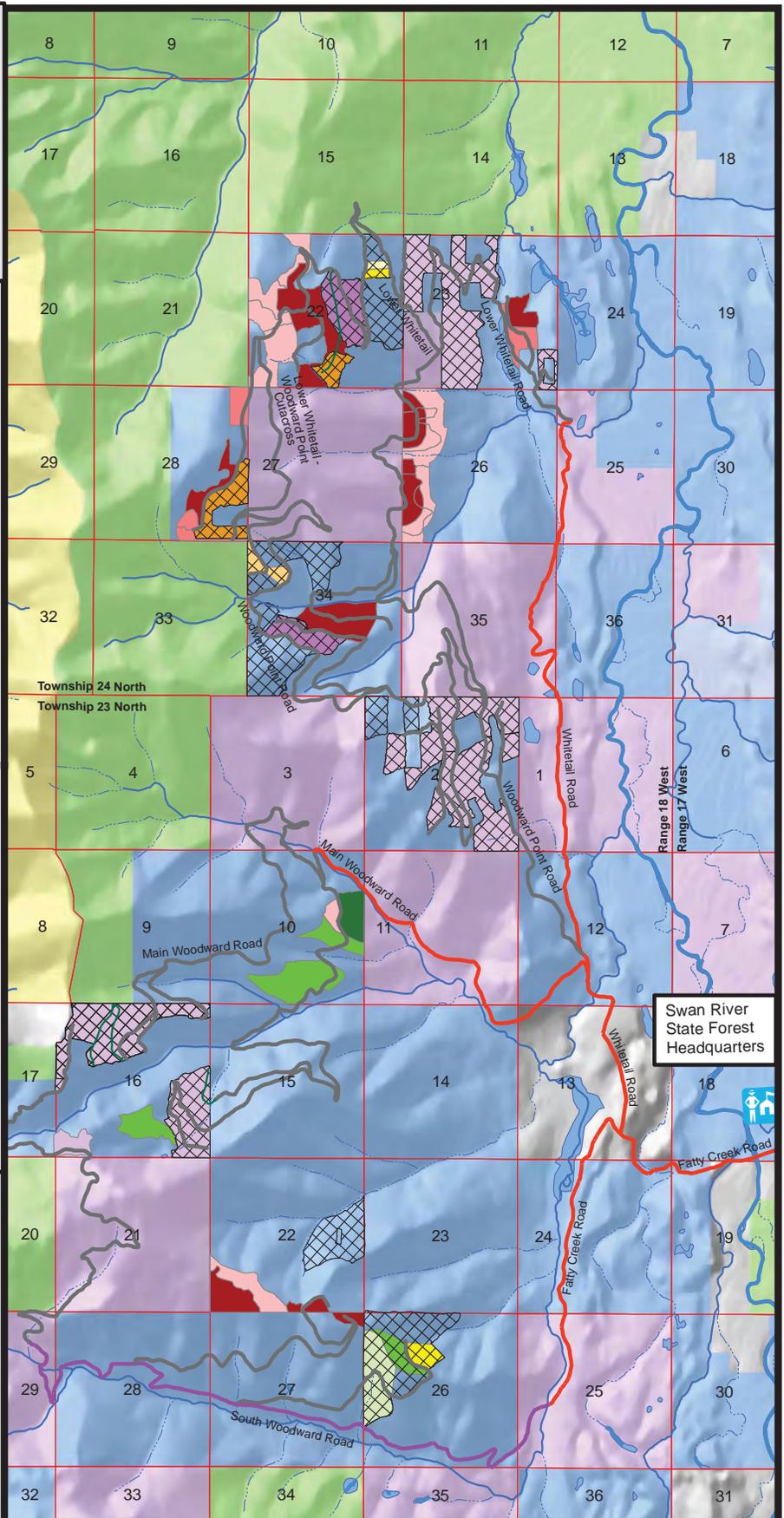
### Ownership - General

#### Ownership

- MT DNRC
- MT FWP
- The Nature Conservancy
- Tribal
- USFS

Prepared by  
Montana Department of  
Natural Resources & Conservation  
July 2012

NAD 1983 State Plane Montana FIPS 2500



## APPENDIX A - RESPONSES TO COMMENTS

### Stephen Braun's comments

- 1) Comment: There is no comment on any environmental effects to streams, lakes or wetlands.

Response: Please see *APPENDIX C - HYDROLOGY ANALYSIS* and *APPENDIX D – FISHERIES ANALYSIS*.

- 2) Comment: The only reason to pursue this timber sale is to harvest logs, with no other attention going towards any other resource values that the DNRC is to manage for.

Response: As stated within *I. TYPE AND PURPOSE OF ACTION* (p. 1): The lands involved in the proposed project are held in trust by the State of Montana for the support of specific beneficiary institutions (*Enabling Act of February 22, 1889; 1972 Montana Constitution, Article X, Section 11*). The *Montana State Board of Land Commissioners* (Land Board) and DNRC are legally required to administer these trust lands to produce the largest measure of reasonable and legitimate long-term return for the trust beneficiaries (*Montana Code Annotated [MCA], Section 77-1-202*). The State is required by law to establish a salvage timber program that provides for the timely harvesting of dead and dying timber that has been threatened by insects, diseases, wildfires, or wind on State forests. Under this requirement, DNRC shall, to the extent practicable, harvest dead and dying timber before there is substantial wood decay and value loss (*Section 77-5-207, MCA*).

This project was developed in compliance with the *State Forest Land Management Plan* (SFLMP), the *Administrative Rules for Forest Management* (Forest Management Rules; ARM 36.11.401 through 471), and conservation commitments contained in the *Montana DNRC Forested State Trust Lands Habitat Conservation Plan* (HCP), as well as other applicable state and federal laws.

- 3) Comment: What elevation are these sales?

Response: Please see *I. TYPE AND PURPOSE OF ACTION, PROJECT AREA*, (p.1) for a description of the elevations.

- 4) Comment: Please make some maps that identify where the blow down is and what type of trees were most affected. Identify if the heavily blown down areas are adjacent to present or past timber sales and do an adequate scoping.

Response: Please see *I. TYPE AND PURPOSE OF ACTION* which describes the type of trees most affected. Please see *7. VEGETATION COVER, QUANTITY AND QUALITY* (p. 5 to 9) as well as the *AREA MAP* which shows concentrations of blowdown as well as past harvesting activity within the blowdown areas.

- 5) Comment: When will the quiet time be required under the HCP start? Is this the reason for this rushed project?

Response: The Porcupine-Woodward subunit is scheduled to be inactive to salvage activities after August 31, 2012 and the proposed activities would require an exception to the Swan Valley Grizzly Bear Conservation Agreement which has been submitted to and approved by the USFWS. Please see *APPENDIX E - WILDLIFE* for further detail.

- 6) Comment: I think that due to the proximity and size of this sale next to the White Porcupine Timber Sale that a new EIS legally needs to be done.

Response: The impacts associated with the White Porcupine Multiple Timber Sale project were disclosed within the EIS associated with that project. We are addressing the impacts of the blowdown salvage in this EA, which is specific to the new set of circumstances that exist due to the storm event. Interdisciplinary team members are taking into consideration the proximity of the blowdown to the White Porcupine Multiple Timber Sale project area as they do their impacts analysis.

- 7) Comment: Also how have the projected economics of the White Porcupine TS done?

Response:

White Porcupine 1	= \$14.06/ton X 14,491 tons	= \$203,743.46
White Porcupine 2	= \$13.10/ton X 22,136 tons	= \$289,981.60
White Donut	= \$21.79/ton X 964 tons	= \$21,005.56
White Wood	= \$21.16/ton X 10,564 tons	= \$223,534.24
White Cliffs	= \$16.83/ton X 22,449 tons	= \$377,816.67
White Cedar	= \$23.16/ton X 18,739 tons	= \$433,995.24
White Tailed	= \$16.87/ton X 14,065 tons	= \$237,276.55
White Bird	= \$22.68/ton X 971 tons	= \$22,022.28

Please use the following link for further information regarding the bids received on DNRC sales.  
<http://dnrc.mt.gov/Trust/Timber/Bids.asp>

Please see the *White Porcupine Multiple Timber Sale Project FEIS* for further details regarding the predicted tonnages and prices at the time of that analysis.

- 8) Comment: It could be that on the ground activities of White Porcupine affected this blow down and that this needs be looked into.

Response: The dispersed locations of the concentrations of blown down trees indicate a random event under a severe thunderstorm. Blowdown occurred in previously harvested units, along roads and/or harvest unit edges, as well as in areas where no harvesting had occurred.

- 9) Comment: Thanks for your time and I hope that you decide to reopen the White Porcupine EIS to identify true effects of this new added timber sale.

Response: Please see response 6 regarding the *White Porcupine Multiple Timber Sale Project FEIS*.

### **Friends of the Wild Swan, Arlene Montgomery's, comments**

- 1) Comment: Your environmental assessment should fully analyze the cumulative effects of the White Porcupine Project as well as other salvage logging that has/is occurring in the area. While some of the blowdown units were in the White Porcupine project, more are not.

Response: Interdisciplinary team members are considering the White Porcupine Multiple Timber Sale Project in their analysis of cumulative effects of the Westside Blowdown Salvage Project.

- 2) You should disclose whether proposed units are in old-growth forest habitat and if they are why is salvage logging preferable to leaving down woody debris on the forest floor for wildlife denning, foraging and cover. Please analyze effects to old-growth dependent wildlife.

Response: Please see 7. *VEGETATION COVER, QUANTITY AND QUALITY* (p. 5 to 9) as well as *APPENDIX E - WILDLIFE ANALYSIS*.

- 3) Comment: What is the habitat quality in these units? How will salvage logging affect it? How will salvage logging affect wildlife in terms of displacement and in degradation of habitat?

Response: Please see *APPENDIX E - WILDLIFE ANALYSIS*.

- 4) Down trees are an important component for stream pool formation and hiding cover for fish. Blown down trees in riparian areas, especially if they are partially in the stream, should be left. Please analyze the effects to bull and westslope cutthroat trout.

Response: Please see *APPENDIX C HYDROLOGY ANALYSIS* and *APPENDIX D – FISHERIES ANALYSIS*.

- 5) Comment: How will salvage logging down trees affect lynx denning and foraging?

Response: Please see the *APPENDIX E - WILDLIFE ANALYSIS*.

- 6) Comment: How will salvage logging affect fisher?

Response: Please see the *APPENDIX E - WILDLIFE ANALYSIS*.

- 7) Comment: Will the salvage logging require an exemption from the Swan Valley Conservation Agreement for grizzly bears? How will this affect bears?

Response: There are 'exceptions' built into the Swan Agreement for addressing salvage harvests. This salvage project would require an exception which has been submitted to and approved by the USFWS. Please see the *APPENDIX E - WILDLIFE ANALYSIS* for further detail.

- 8) Comment: How does the blowdown in the White Porcupine units affect your previous assumptions, prescriptions and outcomes? What will be done to ensure that future project prescriptions take into consideration these natural events?

Response: Foresters regularly consider the fact that residual stands adjacent to harvest units may become more susceptible to wind throw. During this particular storm event, blowdown occurred in a random pattern including previously harvested units, along roads and/or harvest unit edges, as well as in areas in which no recent harvesting had occurred.

Please see 7. *VEGETATION COVER, QUANTITY AND QUALITY* (p. 5 to 9). Future natural disturbance events that occur randomly cannot be predicted in terms of scope and intensity and are therefore outside the scope of this document.

- 9) Comment: Please explain how leaving blown down trees will threaten the integrity, diversity and health of the remaining trees since forests rely on down trees for soil formation, wildlife habitat, stream diversity and many other values.

Response: Please see 7. *VEGETATION COVER, QUANTITY AND QUALITY* (p. 5 to 9) as well as *APPENDICES B, C, D and E – SOILS, HYDROLOGY, FISHERIES and WILDLIFE ANALYSES*.

- 10) Comment: Please describe where down trees are a safety hazard, are they along roads or recreation sites?

Response: The down trees are found occasionally along open roads but primarily along the restricted roads within the project area. Down trees may be a safety hazard for loggers harvesting the timber as the 'jackstraw', blown down concentrations can result in tension and compression changes in the stems. This can cause the fibers to give suddenly when cut or to roll unexpectedly. The concentrations can also pose physical challenges in regards to reaching and safely working around material as the material can be over a person's head and contain additional obstructions such as limbs. Down trees can also be a safety hazard for individuals using the roads for administrative use or for recreational activities as they are already in a weakened or unstable state and may shift again. Finally, down trees can be a safety hazard in regards to fire suppression as they prevent access to fires for quick response as well as create an abundance of downed and ladder fuels to promote fire spread.

- 11) Question: What species of trees are down? What species of trees are you targeting for removal? Do you intend to leave any down trees for wildlife habitat?

Response: Please see *I. TYPE AND PURPOSE OF ACTION* (p.1), *VEGETATION COVER, QUANTITY AND QUALITY* (p. 5 to 9), and *APPENDIX E - WILDLIFE ANALYSIS*.

- 12) Question: How will you keep weeds from spreading?

Response: Please see 7. *VEGETATION COVER, QUANTITY AND QUALITY* (p. 5 to 9). Weed spraying will occur as a forest improvement activity regardless of any proposed windthrow salvage. If the proposed salvage were to occur, logging equipment that leaves roads and landings (for example: rubber tired skidders) would be washed and inspected prior to use.

- 1) Comment: I support this project and I am in favor of active forest management as a means of returning revenue to the school trust, improving forest health, increasing growth for the future benefit of the trust, and providing jobs, income, and products for the local economy.

Response: Thank you for your comment.

- 2) Comment: Is some of this still in an active sale area that's still under contract or are all those contracts closed?

Response: Most of the blowdown areas are in active sale areas that are still under contract.

- 3) Comment: Will this be bid as one big sale or chopped up into smaller permit type sales?

Response: Those areas not associated with active sale areas will be bid out as smaller permit type sales.

**Roger Marshall, Stewardship Forester, Swan Ecosystem Center, comments**

- 1) Comment: I fully support completion of this project as proposed. Utilization of the blowdown is essentially for sound forest management. The project is warranted and appropriate for Montana DNRC managed lands.

Response: Thank you for your comment.

## APPENDIX B SOILS ANALYSIS

### Soils Analysis for the Westside Blowdown Salvage Project

Swan River State Forest

August 1, 2012

J. Schmalenberg, Soil Scientist

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#### **Introduction**

The following analysis will disclose anticipated effects to soil resources within the Westside Blowdown Salvage Project area. Direct, indirect, and cumulative effects of both the No-Action and Action alternatives will be analyzed.

#### **Analysis Areas**

##### *Direct and Indirect*

The analysis area for direct and indirect effects will include only the harvest units proposed for salvage activities.

##### *Cumulative Effects*

For an impact to soil resources to be cumulative they must overlap at least twice in both time and space. Considering this constraint, the cumulative effects analysis area for this analysis will be the same that is described for the direct and indirect impacts above but limited to only those units that have had previous harvest activities.

#### **Analysis Methods**

All harvest units in the project area were field reviewed to assess soil conditions and harvest limitations, as well as, to design mitigation measures to reduce the potential for soil resource impacts. Areas identified for salvage that have previously been harvested under contracts associated with the White Porcupine Multiple Timber Sale Project EIS were monitored for detrimental soil disturbance using randomly located transects, pace transects, and/or ocular assessments during walk-thru evaluations utilizing skid trail spacing measurements. The results from these monitoring efforts will be adaptively incorporated into the mitigation measures used during salvage activities and will also be used to forecast potential rates of soil disturbance within unharvested portions of the project area.

Volumes of both coarse and fine woody material were collected along transects or were ocularly assessed during field review. These volumes were then compared to recommendation made by *Graham et al. (1994)* for maintain functional ectomycorrhizal populations within various habitat types. Both soil disturbance and coarse and fine woody debris retention will be used to assess potential impacts to long-term soil productivity.

## Issues and Measurement Criteria

The following issues have been identified, both internally and through public comment, for analysis:

- Harvest operations have the potential to compact and displace surface soils which can reduce soil function.
- Harvest activities associated with the proposed actions may cumulatively affect long-term soil productivity.
- The removal of large volumes of both coarse and fine woody material through timber harvest reduces the amount of organic matter and nutrients available for nutrient cycling possibly affecting the long-term productivity of the site.

The measurement criteria used to evaluate these issues will use both the existing level and forecasted rate of detrimental soil disturbance within harvest units. The volume of coarse and fine woody material retained on site (tons/acre) will be used as a surrogate for nutrient retention and, in conjunction with disturbance data, as an indicator of the soils ability to maintain long-term productivity.

## Existing Conditions

The majority of the project area outside of previously harvested units associated with the White Porcupine Multiple Timber Sale Project has no measureable levels of detrimental soil disturbance. The exception is a 45 acre area proposed for salvage that was managed previously in 1981. This 1981 entry resulted in 14.3% soil disturbance which was located solely on primary skid trails. Harvest units in the White Porcupine Multiple Timber Sale Project area that have not been harvested will be first entry stands, and thus, no soil disturbance or productivity loss have been observed. Coarse and fine woody material in these areas, prior to the wind event, varies by habitat type but generally range from 5-30 tons/acre (DNRC, 2008). Soil productivity in these areas is high and rather static in trend.

Levels of soil disturbance within the completed harvest units analyzed in the White Porcupine Multiple Timber Sale Project EIS vary slightly by the extent certain logging systems were used in individual units (cable yarding vs. tractor yarding). *Table S-1; Whitetail Porcupine Soil Disturbance* displays the average rate of soil disturbance in all harvest units grouped by timber sale contract. These soil disturbance rates are slightly below those analyzed for in the White Porcupine Multiple Timber Sale Project EIS (DNRC, 2008). The level of coarse and fine woody debris retained on site ranges from 15-40 tons/acre with all large size classes represented and sufficient fine litter to assist nutrient cycling and soil formation. Soil productivity in these units has been maintained.

*Table S-1; Whitetail Porcupine Soil Disturbance*

Timber Sale Contract	Monitoring Method	Average Soil Disturbance Rate	Acres Harvested	Acres Impacted
White Donut	Random Transects	12.0%	13	1.6
White Porcupine #1	Pace Transcets/Random Transects	17.1%	217	37.1
White Porcupine #2	Pace Transects	19.2%	316	60.7
White Cedar	Walk Thru	10-12%	256	28.2
White Tailed	Walk Thru	12-14%	225	29.3
White Cliffs	Walk Thru	8-10%	240	21.6
White Wood	Walk Thru	12-14%	222	28.9
White Bird	Walk Thru	10-12%	20	2.2
<b>Summary Averages/Totals</b>		<b>13.9%</b>	<b>1509</b>	<b>209.4</b>

## Mitigation Measures

The following mitigation measures would be implemented during salvage activities:

- Heavy equipment (skidders, feller bunchers, processors) would operate from and/or reuse existing skid trails or temporary road locations where practicable.
- Ground-based equipment operations would be limited to slopes less than 45% to minimize soil displacement and compaction.
- Operations would be conducted under dry or frozen conditions. Skidding operations will be shut down when soil moisture is  $\geq 20\%$ .
- Within existing harvest units, snapped or broken seed trees that remain standing will be retained for future large woody debris unless the snag is hazardous for operations.
- Where skid trails are non-existent in un-entered stands, skid trails will be spaced at no less than 60'.

## Environmental Effects

### *No-Action Alternative; Direct, Indirect, and Cumulative Effects*

Under the No-Action Alternative, no salvage activities would occur in previously harvested areas or areas outside of harvest units associated with the White Porcupine Multiple Timber Sale Project EIS. Wind felled trees in harvest units not yet completed would be removed through implementing active timber sale contracts, however, silviculture prescriptions, woody debris retention requirements and forecasted soil disturbance estimates would be met. No direct, indirect, or cumulative effects would occur under the No-Action Alternative.

### *Action Alternative; Direct and Indirect Effects*

Direct and indirect effects to soil resources would be minimized by implementing the mitigation measures listed above, as well as, the mitigation measures outlined in the White Porcupine Multiple Timber Sale Project EIS in those harvest units currently under contract. By restricting equipment operations in existing harvest units to existing skid trails and temporary and permanent road locations, where practicable, direct soil disturbance (compaction and displacement) will be limited to 1-3% of the previously harvested area. Due to the abundance of coarse and fine woody material in existing harvest units (15-40 tons/acre), equipment operations that might occur off existing trails would have minimal effect due to the buffering effect the slash mat provides to the forest floor and surface soil. This estimate is based on previous soil monitoring (DNRC, 2009) and professional experience. Coarse and fine woody material retention targets would be met (15-25 tons/acre) as recommended by the White Porcupine Multiple Timber Sale Project EIS (DNRC, 2008) and *Graham et al. (1994)* in all harvested areas. Long-term soil productivity will be maintained.

In salvage areas outside of that analyzed in the White Porcupine Multiple Timber Sale Project EIS, rates of soil disturbance would be similar, and potentially much lower due to the nature of the harvest, than the forecasted rates in the EIS (DNRC, 2008). Recent soil disturbance monitoring outlined in *Table S-1* above provides an effective adaptive feedback loop to verify the accuracy of the estimates in the EIS and reconfirms the findings within DNRC's soil monitoring program (DNRC, 2009). In light of these current findings and long-term monitoring results, soil disturbance in areas outside of the White Porcupine Multiple Timber Sale Project EIS are expected to have significantly less than 15% of the soil resource

detrimentally disturbed as a direct and indirect effect of the salvage harvest. Coarse woody debris retention would range between 15-25 tons/acre dependant on habitat type. Soil productivity would not be directly or indirectly affected.

#### *Action Alternative; Cumulative Effects*

Two areas in the project area have the potential for cumulative effects; proposed areas of salvage that have been harvested under the White Porcupine Multiple Timber Sale Project EIS and areas proposed for salvage with historic harvest. The existing level of detrimental soil disturbance in previously harvest areas in the White Porcupine Multiple Timber Sale project area is outlined above in *Table S-1; Whitetail Porcupine Soil Disturbance*. Considering these levels and the potential additive disturbance of 1-3% from direct and indirect activities associated with the harvest, detrimental soil disturbance levels will remain below that recommended as a threshold of concern for cumulative effects in the *State Forest Land Management Plan (DNRC, 1996)*. Coarse and fine woody material as well as snag recruits will be retained to provide material for future soil formation processes. Long-term soil productivity will be maintained by effective implementation of the mitigation measures outlined above.

One area of the proposed salvage areas was managed in 1981 with the Lower Whitetail #2 timber sale. This area was also monitored for soil disturbance during field reconnaissance for the White Porcupine Multiple Timber Sale Project EIS. The results of this soil disturbance survey showed that these 45 acres currently have 14.3% soil disturbance. Existing skid trails are still evident, properly located and can be reused for this entry. Considering these results with the potential additive impacts of 1-3% resulting from salvage activities, cumulative soil impacts will be maintained below the threshold of concern of 20% as outlined in the *State Forest Land Management Plan (DNRC, 1996)*. Coarse and fine woody material will be retained as recommended by *Graham et al. (1994)*. With woody debris retentions met and mitigations measures effectively implemented, long-term soil productivity will be maintained. Considering all of the above, the salvage activities as proposed pose a moderate risk for low level cumulative effects.

#### **References**

- DNRC, 1996. State Forest Land Management Plan, Final Environmental Impact Statement. Montana Department of Natural Resources and Conservation, Forest Management Bureau. Missoula, MT.
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- DNRC, 2008. Whitetail Porcupine Environmental Impact Statement. Montana Department of Natural Resources and Conservation, Forest Management Bureau. Missoula, MT.
- DNRC, 2009. DNRC Compiled Soil Monitoring Report on Timber Harvest Projects, 1988-2005, 2nd edition. Montana Department of Natural Resources and Conservation, Forest Management Bureau. Missoula, MT.
- Graham, R. T., A. E. Harvey, M.F. Jurgensen, T.B Jain, J.R. Tonn and D.S. Page-Dumroese, 1994. Managing coarse woody debris in forests of the Rocky Mountains. USDA Forest Service, Ogden, UT: Intermountain Research Station.

## APPENDIX C – HYDROLOGY ANALYSIS

### WATERSHED AND HYDROLOGY

#### *INTRODUCTION*

##### **Project Area and Project Activities**

The gross project area (see I. TYPE AND PURPOSE OF ACTION for project area) includes 6,425 acres within Swan River State Forest. Affected watersheds include the East Porcupine Creek, Whitetail Creek, Woodward Creek and South Woodward Creek watersheds in the Swan River Drainage. Each of these watersheds includes land managed by the Flathead National Forest, The Nature Conservancy/Trust for Public Lands, and the DNRC. There are also areas outside of the watersheds listed that are included in the proposed project area. The proposed action alternatives would include a combination of ground-based and cable yarding methods to salvage wind-thrown timber on approximately 1,930 acres within the project area. No road construction is proposed with this salvage project.

##### **Resource Description**

Whitetail, Woodward and South Woodward creeks are all fish-bearing Class 1 streams. Numerous intermittent tributaries and discontinuous streams also exist throughout the project area. The general hydrology of the streams within the project area is characterized by groundwater-fed streams with stable flow regimes that flow through a series of wetlands once they reach the valley floor.

##### **Issues and Measurement Criteria**

The following issues encompass the specific issues and concerns raised through public comment and scoping of the proposed project. For a specific list of individual comments and concerns, please refer to the project file.

##### ***Sediment Delivery***

Timber harvesting and related activities, such as road construction, can lead to water-quality impacts by increasing the production and delivery of fine sediment to streams. Construction of roads, skid trails, and landings can generate and transfer substantial amounts of sediment through the removal of vegetation and exposure of bare soil. In addition, removal of vegetation near stream channels reduces the sediment-filtering capacity and may reduce channel stability and the amounts of large woody material. Large woody debris is a very important component of stream dynamics, creating natural

sediment traps and energy dissipaters to reduce the velocity and erosive power of stream flows. Other aspects of sediment analysis can also be found in the fisheries analysis portion of this document.

#### *Water Yield*

Timber harvesting and loss of live canopy cover can affect the timing, distribution, and amount of water yield in a harvested watershed. Water yields increase proportionately to the percentage of canopy removal (*Haupt 1976*), because removal of live trees reduces the amount of water transpired, leaving more water available for soil saturation and runoff. Canopy removal also decreases interception of rain and snow and alters snowpack distribution and snowmelt, which lead to further water-yield increases. Higher water yields may lead to increases in peak flows and peak-flow duration, which can result in accelerated streambank erosion and sediment deposition. Vegetation removal can also reduce peak flows by changing the timing of snowmelt. Openings will melt earlier in the spring with solar radiation and have less snow available in late spring when temperatures are warm. This effect can reduce the synchronization of snowmelt runoff and lower peak flows.

#### **Analysis Area**

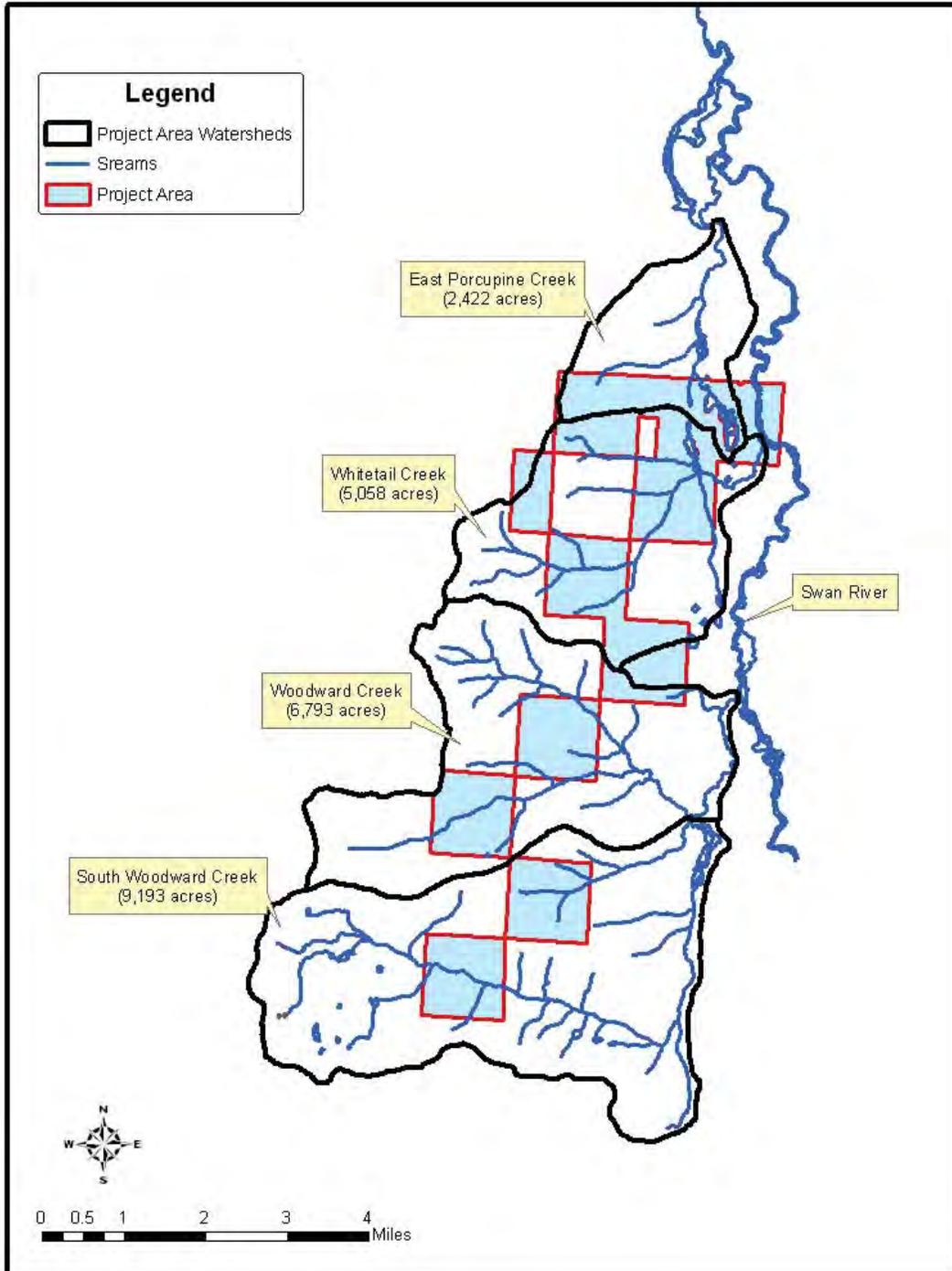
##### *Sediment Delivery*

Direct, indirect, and cumulative effects to sediment delivery will be analyzed using a modified version of the Washington Forest Practices method in each of the 4 project area watersheds listed in the Project Area and Project Activities portion of this analysis. These watersheds were chosen as an appropriate scale of analysis for the Washington Forest Practices method, and will effectively display the estimated impacts of proposed activities. Additional sites not located within the project area watershed boundaries will be assessed qualitatively for their potential to affect downstream water.

##### *Water Yield*

Direct, indirect, and cumulative effects to water yield will be analyzed in each of the 4 project area watersheds listed in the Project Area and Project Activities portion of this analysis. A map of the project area watersheds and their relation to the proposed project area is found below in *FIGURE H-1 – PROJECT AREA WATERSHEDS*. All existing activities on all ownership and proposed activities related to the Westside Blowdown Salvage project within each project area watershed will be analyzed using the ECA method to estimate the water yield changes that may occur as a result of the proposed project. These watersheds were chosen as an appropriate scale of analysis for the ECA method, and will effectively display the estimated impacts of proposed activities. A qualitative assessment of water yield will be done for areas outside of the 4 watersheds listed in Project Area and Project Activities portion of this analysis.

FIGURE H-1 – PROJECT AREA WATERSHEDS. Map of project area watersheds.



### **Analysis Methods**

Each of the analyses below was conducted on a watershed basis, and included activities on all roads and acres, regardless of ownership. For cumulative effects analyses, all proposed DNRC activities and proposed actions on other ownerships were considered. Potential future management on other ownerships was not considered due to the speculative nature of predicting the intentions of other landowners.

#### *Sediment Delivery*

Methodology for analyzing sediment delivery was completed using a sediment-source inventory. All roads and stream crossings were evaluated to determine sources of introduced sediment. Data were collected in 2007 to quantify sediment delivery from roads using procedures adapted from the Washington Forest Practices Board (*Callahan, 2000*). In addition, in-channel sources of sediment were identified using channel-stability rating methods developed by *Pfankuch (1975)* and through the conversion of stability rating to reach condition by stream type developed by *Rosgen (1996)*. These analyses were conducted in 1998 and 1999 by a DNRC hydrologist, and the results were verified in 2007 and 2012 to ensure the validity of the results.

#### *Water Yield*

The water-yield increase for the watersheds in the project area was determined using the ECA method as outlined in *Forest Hydrology Part II (Haupt 1976)*. ECA is a function of total area roaded and harvested, percent of crown removal in harvesting, and amount of vegetative recovery that has occurred in harvest areas. This method equates area harvested and percent of crown removed with an equivalent amount of clearcut area. For example, if 100 acres had 60-percent crown removed, ECA would be approximately 60, or equivalent to a 60-acre clearcut. The relationship between crown removal and ECA is not a 1-to-1 ratio, so the percent ECA is not always the same as the percent canopy removal. As live trees are removed, the water they would have evaporated and transpired either saturates the soil, or is translated to runoff. This method also calculates the recovery of these increases as new trees begin to grow and move toward pre-harvest water use.

In order to evaluate the watershed risk of potential water-yield increase effectively, a threshold of concern must be established. In order to determine a threshold of concern, acceptable risk level, resource value, and watershed sensitivity are evaluated according to *Young (1989)*. The watershed sensitivity is evaluated using qualitative assessments, as well as procedures outlined in *Forest Hydrology Part II (Haupt 1976)*. The stability of a stream channel is an important indicator of where a threshold of concern should be set. As water yields increase as a result of canopy removal, the amount of water flowing in a creek gradually increases. When these increases reach a certain level, the bed and banks may begin to erode. More stable streams will be able to handle larger increases in water yield before they begin to erode, while less stable streams will experience erosion at more moderate water-yield increases (*Rosgen 1996*).

### *Risk Assessment Criteria*

Where risk is assessed in both sediment-delivery and water-yield analyses, the following definitions apply to the level of risk reported:

- low risk means that impacts are unlikely to result from proposed activities,
- moderate risk means that there is approximately a 50-percent chance of impacts resulting from proposed activities, and
- high risk means that impacts are likely to result from proposed activities.

Where levels or degrees of impacts are assessed in this analysis, the following definitions apply to the degree of impacts reported:

- very low impact means that impacts from proposed activities are unlikely to be measurable or detectable and are not likely to be detrimental to the water resource;
- low impact means that impacts from proposed activities would likely be measurable or detectable, but are not likely to be detrimental to the water resource;
- moderate impact means that impacts from proposed activities would likely be measurable or detectable, and may or may not be detrimental to the water resource;
- high impact means that impacts from proposed activities would likely be measurable or detectable, and are likely to have detrimental impacts to the water resource.

### **Relevant Agreements, Laws, Plans, Rules, and Regulations**

#### *Montana Surface Water-Quality Standards*

According to *ARM 17.30.608 (1)(b)(i)*, the Swan River Drainage, including East Porcupine, Whitetail, Woodward, and South Woodward creeks, is classified as B-1. Among other criteria for B-1 waters, no increases are allowed above naturally occurring levels of sediment, and minimal increases over natural turbidity. "Naturally occurring," as defined by *ARM 17.30.602 (19)*, includes conditions or materials present during runoff from developed land where all reasonable land, soil, and water conservation practices (commonly called *Best Management Practices* or BMPs) have been applied. Reasonable practices include methods, measures, or practices that protect present and reasonably anticipated beneficial uses. These practices include, but are not limited to, structural and nonstructural controls and operation and maintenance procedures. Appropriate practices may be applied before, during, or after completion of activities that could create impacts.

Designated beneficial water uses within the project area include cold-water fisheries and recreational use in the streams, wetlands, and lakes in the surrounding area. There are 2 existing surface water rights in the project for domestic use on Woodward Creek. Domestic use refers to water rights assigned to individual property owners for uses such as eating, drinking, laundering, bathing, lawn watering, and watering a household garden.

### *Water-Quality-Limited Waterbodies*

None of the streams in the proposed project area are currently listed as water-quality-limited waterbodies in the 2006 *Montana 303(d)* list. Swan Lake is currently listed on the 2006 *Montana 303(d)* list. Each of the project area watersheds is a tributary to the Swan River, which is the primary inflow to Swan Lake. The 303(d) list is compiled by the *Montana Department of Environmental Quality (DEQ)* as required by *Section 303(d)* of the *Federal Clean Water Act* and the *Environmental Protection Agency (EPA) Water Quality Planning and Management Regulations (40 CFR, Part 130)*. Under these laws, DEQ is required to identify waterbodies that do not fully meet water-quality standards, or where beneficial uses are threatened or impaired. These waterbodies are then characterized as “water quality limited” and thus targeted for Total Maximum Daily Load (TMDL) development. The TMDL process is used to determine the total allowable amount of pollutants in a waterbody of a watershed. Each contributing source is allocated a portion of the allowable limit. These allocations are designed to achieve water-quality standards.

The *Montana Water Quality Act (MCA 75-5-701 through 705)* also directs DEQ to assess the quality of state waters, ensure that sufficient and credible data exists to support a 303(d) listing, and develop TMDL for those waters identified as threatened or impaired. Under the *Montana TMDL Law*, new or expanded nonpoint source activities affecting a listed waterbody may commence and continue provided they are conducted in accordance with all reasonable land, soil, and water conservation practices. DNRC will comply with the TMDL Law and interim guidance developed by DEQ through implementation of all reasonable soil and water conservation practices, including BMPs and Forest Management Rules (*ARM 36.11.401 through 450*).

Swan Lake is currently listed as threatened for aquatic life support and for cold-water fisheries. The current listed cause of impairment in Swan Lake is sedimentation/siltation; the probable sources include forest roads (road construction and use), highways, roads, bridges, infrastructure (new construction). Through the Swan Lake Watershed Group and its associated Swan Lake Technical Advisory Group, a water-quality restoration plan was developed for Swan Lake in June 2004. The Swan Lake Watershed Group and Technical Advisory Group are comprised of local stakeholders and include:

- the Swan Ecosystem Center, Flathead Lake Biological Station at Yellow Bay, and Friends of the Wild Swan;
- landowners, including the USDA Forest Service, Montana DNRC, Plum Creek Timber Company; and
- regulatory agencies, including DEQ and the U.S. Environmental Protection Agency (EPA).

The *Water Quality Restoration Plan* was approved by EPA in August 2004, and activities are ongoing to correct current sources and causes of sediment to Swan Lake and its tributaries. DNRC is an active partner and participant in this process. All proposed activities within the project area would implement activities to alleviate identified sources of sediment and comply fully with all TMDL requirements.

#### *Montana SMZ Law*

By the definition in *ARM 36.11.312 (3)*, the majority of the stream reaches in the Whitetail, Woodward, and South Woodward creek watersheds are Class 1 streams. All of these streams and many of their tributaries have flow for more than 6 months each year. Many of these stream reaches also support fish. Some of the smaller first-order tributaries may be classified as Class 2 or 3 based on site-specific conditions. A Class 3 stream is defined as a stream that does not support fish; normally has surface flow during less than 6 months of the year; and rarely contributes surface flow to another stream, lake or other body of water (*ARM 36.11.312 (5)*). According to *ARM 36.11.312 (4)*, a Class 2 stream is a portion of a stream that is not a Class 1 or class 3 stream segment.

#### *Forest Management Rules*

In 2003, DNRC drafted Administrative Rules for Forest Management. The portion of those rules applicable to watershed and hydrology resources include *ARM 36.11.422* through *426*. All applicable rules will be implemented if they are relevant to activities proposed with this project.

## **EXISTING ENVIRONMENT**

### **Introduction**

The watersheds in the proposed project area include South Woodward, Woodward, Whitetail, and East Porcupine creeks. Each drainage lies on the east slope of the Mission Range, and form a portion of the western geologic boundary of the Swan Valley. Precipitation ranges from approximately 20 inches annually in the valley bottom to approximately 70 inches near ridge tops. Due to the east facing nature of these drainages, the high occurrence of springs and groundwater upwelling, and the underlying geology, stream flows are generally very stable and are not “flashy” during spring runoff. Stream gauging data gathered since 1976 on project area streams show that peak discharge in streams on the west side of the Swan Valley is approximately double that of summer low flows. In comparison, streams on the east side of the valley gauged on the same dates show approximately a 5-fold increase from low flow to peak discharge. The result of these stable flows is generally high channel and bank stability. These and other attributes will be described in more detail in the following sections.

## Sediment Delivery

In-channel and out-of-channel sediment-source reviews were conducted by DNRC hydrologists and fisheries biologists in 1998 and 2007 and by PBS&J Consulting in association with the development of the *Swan Lake Water Quality Protection Plan* and TMDL (DEQ 2005). The results of these assessments were used in the following sections of this analysis.

### *In-channel Sources*

Based on field reconnaissance from 1998-2000, 2007, and 2012, stream channels in the proposed project area are primarily in good to fair condition (Rosgen 1996). Five stream reaches (1 in South Woodward and 4 in Woodward Creek) were rated in poor condition. These reaches were all moderate to moderately high gradient channels in gravel or sand substrate. Channels with dominant substrate sizes in the gravel and sand ranges have less resistance to erosive flows, especially in steeper gradient channels. These reaches represent approximately 5 percent of the total length of streams in South Woodward Creek, and approximately 25 percent of the total length of streams in the Woodward Creek watershed and are located mainly on DNRC-managed lands. For a more in-depth description of the channel stability and in-channel sediment sources in project area streams, please refer to the *HYDROLOGY ANALYSIS* in the White Porcupine Multiple Timber Sale Project Environmental Impact Statement.

Sediment delivery from in-channel sources can be trapped and reduced by the presence of downed woody debris in stream channels. Several areas of blown down trees were found in SMZs throughout the proposed project area. These fallen trees are contributing to increased large woody debris levels in these streams, and will act as gradient breaks and sediment traps where they have fallen across streams. All blowdown observed in project area SMZs still left enough standing live trees to meet SMZ tree retention rules.

### *Road System*

The existing road system located within and leading to the proposed project area received upgrades in surface drainage and erosion control in 2010 and 2011. Based on the sediment-source review and upgrades, *TABLE H-1* shows the estimated potential sediment delivery from the existing road system within the project area. These sediment-delivery values are estimates based on procedures outlined above and are not measured values.

**TABLE H-1 - CURRENT SEDIMENT DELIVERY.** *Current estimated sediment delivery to project area streams.*

	<b>SOUTH WOODWARD CREEK</b>	<b>WOODWARD CREEK</b>	<b>WHITETAIL CREEK</b>
Existing tons per year	19.4	2.1	1.4

Estimated sediment delivery occurs primarily at stream crossings, and sediment comes from a variety of sources. Approximately 16 of the 19.4 tons of delivery estimated in the South Woodward Watershed come from 2 sites on The Nature Conservancy/Trust for Public Lands ownership located well outside of the proposed project area. These crossings are located on seasonally closed roads that receive traffic annually.

Much of the existing road system in the proposed project area meets applicable BMPs. Surface drainage and erosion control features were installed on the road systems in most of the project area watersheds through recent past project work.

### **Water Yield**

According to *ARM 36.11.423*, allowable water-yield increase values were set at levels to ensure compliance with all water-quality standards, protect beneficial uses, and exhibit a low degree of risk. This means that the allowable level is a point below which water yields are unlikely to cause any measurable or detectable changes in channel stability. The allowable water-yield increase for the South Woodward Creek Watershed has been set at 12 percent based on channel-stability evaluations, watershed sensitivity, and acceptable risk. This water-yield increase would be reached approximately when the ECA level in South Woodward Creek reaches the estimated level of 2,758 acres. The allowable water-yield increase for the Woodward Creek watershed has been set at 12 percent based on channel-stability evaluations, watershed sensitivity, and acceptable risk. This water-yield increase would be reached approximately when the ECA level in Woodward Creek reaches the estimated level of 2,038 acres. The allowable water-yield increase for the Whitetail Creek watershed has been set at 12 percent based on channel-stability evaluations, watershed sensitivity, and acceptable risk. This water-yield increase would be reached approximately when the ECA level in Whitetail Creek reaches the estimated level of 1,517 acres. The allowable water-yield increase for the East Porcupine Creek watershed has been set at 15 percent based on watershed sensitivity and acceptable risk. This water-yield increase would be reached approximately when the ECA level in East Porcupine Creek reaches the estimated level of 908 acres.

Based on analysis conducted in the White Porcupine Multiple Timber Sale Project Environmental Impact Statement, all past harvesting activities including the ongoing timber sales associated with the White Porcupine Multiple Timber Sale Project EIS have led to an estimated 8.9 percent water-yield increase over a fully forested condition in the South Woodward Creek watershed, 9.2 percent over a fully forested condition in Woodward Creek, 12.0 percent over a fully forested condition in Whitetail Creek, and 8.3 percent over a fully forested condition in East Porcupine Creek. *TABLE H-2 –*

*CURRENT WATER YIELD* summarizes the existing conditions for water yield and the associated ECA levels in the project area watersheds. Estimated water yield and ECA levels are at or below established thresholds in all project area watersheds.

Water yield values may be slightly elevated from the levels reported due to the blowdown loss of a portion of the leave trees in timber harvest units from the White Porcupine analysis. These trees killed by the wind event effectively lower the tree retention in these units, but the difference is likely not measurable due to the scattered nature of the blowdown.

**TABLE H-2 – CURRENT WATER YIELD.** *Water-yield and ECA increases in project area watersheds.*

	<b>SOUTH WOODWARD CREEK</b>	<b>WOODWARD CREEK</b>	<b>WHITETAIL CREEK</b>	<b>EAST PORCUPINE CREEK</b>
Existing % WYI	8.9	9.2	12	8.3
Allowable % WYI	12	12	12	15
Existing ECA	1,979	1,429	1,348	459
Allowable ECA	2,758	2,038	1,517	908

## **ENVIRONMENTAL EFFECTS**

### **Sediment Delivery**

#### *Direct, Indirect, and Cumulative Effects*

##### ***Direct, Indirect, and Cumulative Effects of No-Action Alternative to Sediment Delivery***

No-Action Alternative A would have no direct, indirect or cumulative effects to sediment delivery beyond those currently occurring. Existing sources of sediment, both in-channel and out of channel would continue to recover or degrade based on natural or preexisting conditions.

##### ***Direct, Indirect, and Cumulative Effects to Sediment Delivery from the Action Alternative***

A very low risk of direct, indirect, or cumulative impacts to sediment delivery is expected as a result of the proposed salvage of blown down trees in the proposed project area. The action alternative would use only existing roads, all of which meet applicable BMPs. All proposed log hauling would maintain all applicable BMPs on all haul routes. All applicable rules from the SMZ law, DNRC Forest Management Rules, and provisions of the HCP would be followed. Salvage of wind thrown trees in a SMZ would involve winching of downed trees if they do not cross a stream channel. None of the proposed salvage within a SMZ would reduce tree retention below the requirements of the SMZ Law and Rules. All proposed ground-based salvage activities outside of or adjacent to SMZs would be far enough from stream channels, and would have a

substantial enough vegetated filter that there is a low to very low risk of sediment delivery to stream channels from skid trails. For these reasons, sediment delivery from roads and in-channel sources has a low risk of changing beyond the levels reported in the *EXISTING CONDITIONS* portion of this analysis.

## **Water Yield**

### *Direct, Indirect, and Cumulative Effects*

#### ***Direct, Indirect, and Cumulative Effects of No-Action Alternative to Water Yield***

No-Action Alternative would have no direct or indirect, or cumulative effects on water yield. Water quantity would not be changed from present levels and the harvest units would continue to return to fully forested conditions as areas of historic timber harvests regenerate.

#### ***Direct, Indirect, and Cumulative Effects of Action Alternative to Water Yield***

There is a very low risk of direct or indirect effects to water yield from the proposed action alternative. All trees proposed for salvage have been killed by windthrow, and are no longer functioning as live canopy. As a result, salvage of these trees would have no impact to water yield or increased stream flows. Direct, indirect, and cumulative effects of the proposed salvage to water yield are expected to be the same as those reported in the *EXISTING CONDITIONS* portion of this analysis.

## **APPENDIX D –FISHERIES ANALYSIS**

### **Westside Blowdown Salvage Project Environmental Assessment – Fisheries Resources**

Jim Bower

8/1/12

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#### **1 INTRODUCTION**

##### **1.1 PROJECT AREA**

The Westside Blowdown Salvage Timber Sale project area includes state trust lands in the western portion of the Swan River State Forest (Sections 2, 10, 16, 22, 26, 27, Township 23 North, Range 18 West and Sections 22, 23, 26, 28, 34, Township 24 North, Range 18 West). Forest roads that would be used for hauling to Highway 83 are also included in the project area.

##### **1.2 FISHERIES ANALYSIS AREA**

Eight different fish-bearing watersheds either contain some portion of the state trust lands in the project area or intersect the forest road haul routes: Cedar Creek, South Woodward Creek, Swan River, Swan River Face Drainages, Unnamed Tributary to Porcupine Creek, Unnamed Tributary to Swan River, Whitetail Creek, and Woodward Creek. (Please see the Fisheries Analysis section of the White Porcupine Multiple Timber Sale Project Final Environmental Impact Statement (FEIS) (2009) for detailed maps of these watersheds.) For the purposes of this environmental assessment, the combined area of all eight watersheds described above will define the single analysis area for fisheries resources.

For information on relevant water quality standards, beneficial uses, laws and rules, and agreements and plans pertaining to streams within the analysis area please see the Hydrology analysis.

##### **1.3 SPECIES**

Both bull trout and westslope cutthroat trout occur within the analysis area. The US Fish and Wildlife Service has listed bull trout as ‘threatened’ under the Endangered Species Act. Both species are listed as S2 Montana Animal Species of Concern. Species classified as S2 are considered to be at risk due to very limited and/or potentially declining population numbers, range, and/or habitat, making the species vulnerable to global extinction or extirpation in the state. DNRC has also identified bull trout and westslope cutthroat trout as sensitive species. For a complete list of native and nonnative species that occur in the analysis area please see the Fisheries Analysis section of the White Porcupine Multiple Timber Sale Project FEIS (2009).

##### **1.4 FISHERIES ISSUES RAISED DURING SCOPING**

Fisheries resources issues raised internally after reviewing the proposed actions include: the proposed actions may adversely affect native fisheries and fisheries habitat features, including channel forms, and stream temperature. Two issues statements related to fisheries resources were received from the public during project scoping: (1) cumulative impacts may affect fisheries resources, and (2) riparian tree

blowdown contributes to stream pool formation and hiding cover for fish, and removing riparian tree blowdown may affect bull trout and westslope cutthroat trout.

## **1.5 ANALYSIS METHODS**

The *EXISTING CONDITIONS* of fisheries resources will be described for each analysis area. The *ENVIRONMENTAL EFFECTS* section will compare the existing conditions to the anticipated effects of the proposed No-Action and Action Alternatives to determine the foreseeable impacts to associated fisheries resources.

Analysis methods are a function of the types and quality of data available for analysis, which varies among the different analysis areas. The analyses may either be quantitative or qualitative. The best available data for both populations and habitats will be presented for the analysis area. In order to adequately address the issues raised in Section 1.4 (Fisheries Issues Raised during Scoping) the existing conditions and foreseeable environmental effects to fisheries in the analysis area will be explored using the following outline of issues and subissues. Sedimentation will be addressed through an analysis of effects to channel forms.

- Fisheries Populations – Presence/Absence
- Fisheries Habitat – Channel Forms
  - Fisheries Habitat – Sediment
  - Fisheries Habitat – Flow Regimes
  - Fisheries Habitat – Woody Debris
- Habitat – Stream Temperature
  - Fisheries Habitat – Stream Shading
- Cumulative Effects

In terms of the risk that an impact may occur, a low risk of an impact means that the impact is unlikely to occur. A moderate risk of an impact means that the impact may or may not (50/50) occur. A high risk of an impact means that the impact is likely to occur.

A very low impact means that the impact is unlikely to be detectable or measurable, and the impact is not likely to be detrimental to the resource. A low impact means that the impact is likely to be detectable or measurable, but the impact is not likely to be detrimental to the resource. A moderate impact means that the impact is likely to be detectable or measurable, and the impact is likely to be moderately detrimental to the resource. A high impact means that the impact is likely to be detectable or measurable, and the impact is likely to be highly detrimental to the resource.

Cumulative impacts are those collective impacts on the human environment of the proposed action when considered in conjunction with other past, present, and future actions related to the proposed action by location or generic type (75-1-220, MCA). The potential cumulative impacts to fisheries in the analysis areas are determined by assessing the collective anticipated direct and indirect impacts, other related existing actions, and future actions affecting the fish-bearing streams.

## **2 ALTERNATIVES**

### **2.1 NO-ACTION**

## 2.2 PROPOSED ACTION ALTERNATIVE AND RELATED MITIGATIONS

Approximately 1.5 million board feet of salvageable sawlogs would be harvested from approximately 43 forest stands totaling approximately 1,937 acres. The proposed actions would begin in August 2012 and continue through October 2012.

Fisheries-related resource mitigations that would be implemented with the proposed actions include: the Montana DNRC Forested Trust Lands Habitat Conservation Plan (2011), Montana Forestry BMPs, Forest Management Administrative Rules for fisheries, roads, soils, and riparian wetland management zones, and monitoring all road-stream crossings for sedimentation.

## 3 EXISTING CONDITIONS

The proposed actions that may affect fisheries resources in the analysis area include timber harvest, log hauling, and road maintenance actions.

Data supporting species presence and absence in the analysis areas are from *MFISH 2012* and DNRC fisheries surveys during 2003 through 2011. Total fisheries densities within all analysis areas are stable, and no foreseeable impacts to total fisheries density are anticipated in the foreseeable future. However, field surveys during the past 8 years and collaborative studies involving other agencies suggest that populations of native bull trout and westslope cutthroat trout within all of the analysis areas are generally declining, and populations of nonnative eastern brook trout and rainbow trout are generally increasing. Bull trout are generally declining due to competitive displacement of rearing fish by eastern brook trout, predation of subadult fish in Swan Lake by lake trout and to a lesser degree, hybridization with eastern brook trout. Westslope cutthroat trout are declining primarily due to competitive displacement by eastern brook trout and hybridization with rainbow trout. Within each analysis area, both bull trout and westslope cutthroat trout currently occupy only a fraction of the habitats that likely were historically occupied. As a result of the adverse effects of invasive nonnative fish species, the existing impacts to native fisheries populations within each analysis area range from moderate to high.

The existing conditions of channel forms in fish-bearing reaches are addressed by evaluating the collective characteristics of sediment, flow regime, and woody debris features. Although many of the actions in Alternative B of the White Porcupine Multiple Timber Sale Project have been recently implemented, the existing conditions for fish-bearing stream morphologies, sediment and woody debris are generally expected to be very similar to those described in the FEIS (2009) for that project. Sediment impacts in the FEIS (2009) are described as negligible to low throughout the analysis area, except in the South Woodward Creek Drainage where sediment impacts are described as low to moderate. No impacts to woody debris frequencies or riparian function in fish-bearing streams are noted in the FEIS (2009) in potentially affected drainages of the analysis area; except, riparian function in the Whitetail Creek Drainage is described as having low to moderate impacts. Woody debris frequencies in fish-bearing streams after the recent blowdown event are still expected to be within the ranges of natural variability. The *HYDROLOGY ANALYSIS* estimates that existing sedimentation from road-stream crossings in the analysis area is low. The *HYDROLOGY ANALYSIS* has also determined that an existing departure in flow regime in the watershed is low. Considering existing sediment conditions, flow regime, and woody debris recruitment rates, a low risk of negligible to moderate impacts to channel forms occurs in the analysis area.

Many different variables affect the natural fluctuations and ranges of stream temperatures (e.g. groundwater inflows, loss of flow, canopy closure, stream gradient, stream width to depth ratio, volume). Important variables affected by management activities within the analysis area include shading from riparian shrub components, woody debris canopy closure, and sedimentation. Although many of the actions in Alternative B of the White Porcupine Multiple Timber Sale Project have been recently implemented, the existing conditions for fish-bearing stream temperatures are generally expected to be very similar to those described in the project FEIS (2009). No impacts to stream temperatures in fish-bearing streams are noted in the FEIS (2009) in potentially affected drainages of the analysis area. Canopy closures and stream temperatures in fish-bearing streams after the recent blowdown event are still expected to be within the ranges of natural variability. No existing impacts to stream temperatures likely exist in the analysis area.

Other past and present factors affecting the analysis area include the ongoing implementation of Alternative B of the White Porcupine Multiple Timber Sale Project, firewood and Christmas tree cutting, unapproved off road vehicle use, riparian and upland harvest by other landowners, timber and equipment hauling by other landowners, and other public, open road-stream crossing sites. These other factors, in conjunction with the area-specific existing conditions assessed above, contribute an existing moderate to high collective impact to all analysis areas. The moderate to high existing collective impact to fisheries is primarily a result of the adverse effects of nonnative fish populations on native fisheries. Although other contributing factors currently affect fisheries resources, the population dynamics between native and nonnative fisheries has had the most profound existing effect on fisheries resources, as a whole, throughout the analysis area.

## **4 ENVIRONMENTAL EFFECTS**

### **4.1 NO-ACTION ALTERNATIVE**

As a result of implementing the No-Action Alternative, no additional direct or indirect effects to fisheries resources would occur within the project area in these analysis areas beyond those described in the *EXISTING CONDITIONS*.

The other related past and present factors and site-specific existing conditions described in *EXISTING CONDITIONS* would continue to occur. Considering all of these impacts collectively, a moderate risk of moderate to high cumulative impacts to fisheries resources is expected to occur. Although the anticipated moderate to high cumulative effect is a function of all potentially related impacts to fisheries resources, the elevated cumulative effect in the analysis area is principally due to existing adverse impacts from nonnative fish species.

### **4.2 ACTION ALTERNATIVE**

As a result of implementing the Action Alternative, no direct or indirect impacts to fisheries populations (including species presence or absence and genetics) are expected to occur in any of the analysis areas. The adverse effects of nonnative fisheries on native fisheries would continue to occur at the same levels as described under *EXISTING CONDITIONS*.

Effects to channel forms in the analysis area will be addressed by evaluating the collective potential impacts to sediment, flow regime, and woody debris. An increase in the proportion of fine substrates is an impact that would be expected to adversely affect channel forms. No new roads would be built in upland zones of

the analysis area, and approximately 6% of the acreage in the analysis area would have harvest operations. Short-term and long-term impacts to substrates comprising stream channel forms are not expected to occur as a result of sedimentation from adjacent upland harvest (see *HYDROLOGY ANALYSIS*). Hauling and road maintenance activities on existing forest roads in all eight drainages of the analysis area may have low impacts to sediment in fish-bearing streams (see *HYDROLOGY ANALYSIS*). Departures in flow regime associated with the proposed actions are not expected to occur (see *HYDROLOGY ANALYSIS*). Minimum Streamside Management Zone (SMZ) tree retention standards may occur adjacent to approximately 3,240 feet of intermittent, non-fish-bearing streams in the analysis area, which is approximately equivalent to 1% of the length of all intermittent streams in the analysis area. Minimum SMZ tree retention standards may also occur adjacent to approximately 1,980 feet of perennial, non-fish-bearing streams (Whitetail Creek Drainage) and approximately 950 feet of perennial, fish-bearing lake (Whitetail Creek Drainage). The potential SMZ harvest area adjacent to perennial waterbodies is approximately equivalent to 1% of the length of all perennial waterbodies in the analysis area. The proposed SMZ harvest adjacent to intermittent and perennial non-fish-bearing reaches is not expected to measurably affect woody debris frequencies in fish-bearing streams. A moderate impact to woody debris frequencies may occur in the single affected fish-bearing lake, although the scale of this impact would be very minor relative to the entire analysis area. If the proposed actions are implemented, short- and long-term risks of adverse impacts to channel forms are expected to be low.

Due to the expected extent of SMZ harvest across all intermittent and perennial streams, low impacts to canopy closure in the analysis area may occur. A low risk of low impacts to stream temperatures is expected in the analysis area.

As part of the consideration of cumulative effects, all existing collective impacts described in the *EXISTING CONDITIONS* for this analysis area would be expected to continue. Additionally, short- and long-term term impacts to sediment and channel forms would be low. Low impacts to stream temperatures in the analysis area have a low risk of occurring. Considering all of these impacts collectively, a moderate risk of moderate to high cumulative impacts to fisheries resources is expected to occur. Although the anticipated moderate to high cumulative effect is a function of all potentially related impacts to fisheries resources, the elevated cumulative effect in the analysis area is principally due to existing adverse impacts from nonnative fish species.

## **SUMMARY**

The combined area of eight watersheds (Cedar Creek, South Woodward Creek, Swan River, Swan River Face Drainages, Unnamed Tributary to Porcupine Creek, Unnamed Tributary to Swan River, Whitetail Creek, and Woodward Creek) defines the single analysis area for fisheries resources. As a result of implementing the Action Alternative, direct and indirect impacts to fisheries resources include the risks of low impacts to channel forms and stream temperatures. Considering all impacts collectively, a moderate risk of moderate to high cumulative impacts to fisheries resources is expected to occur. Although the anticipated moderate to high cumulative effect is a function of all potentially related impacts to fisheries resources, the elevated cumulative effect in the analysis area is principally due to existing adverse impacts from nonnative fish species.

## APPENDIX E – WILDLIFE ANALYSIS

### ***Wildlife Analysis for the Westside Blowdown Salvage Project Swan River State Forest July 27, 2012***

***R. Baty***

#### **Description:**

The project area involves state trust parcels on the west side of the Swan River State Forest (Sections 2, 10, 16, 22, 26, 27, Township 23 North, Range 18 West and Sections 22, 23, 26, 28, 34, Township 24 North, Range 18 West), and encompasses approximately 6,425 gross acres. An estimated 1.5 million board feet (MMbf) of salvageable sawlogs (approximately 9,000 tons total at 6.0 tons/ Mbf) would be harvested over a gross stand polygon area within the affected parcels that encompasses approximately 1,930 acres (see attached map). Salvage across these acres would range from intensive harvest for removal of downed trees on some areas very heavily impacted by wind that previously possessed >40% mature overstory canopy cover (i.e., 181 acres) to lighter removal and pickup of individual scattered trees and groups of trees across the remaining acreage (~1,749 acres). Project activities are proposed to begin August 4, 2012 and continue until October 7, 2012. The narrowest operating window possible is being proposed to minimize impacts to grizzly bears during the critical fall period to the extent possible. Also, as much work as possible would be conducted in the months of August and September to avoid the later fall period when bears become increasingly vulnerable. Approximately 3 to 5 contractors operating concurrently would be needed to accomplish proposed activities in the described operating window. Additional salvage activities could also occur opportunistically from November 16 to March 31 during the grizzly bear winter denning period as snow conditions allow.

This assessment is based on visual observations made during a field review of the project area on July 18, 2012, reviews of recent 2011 aerial photography, photos taken by the project leader from a fixed-wing flight on July 16, 2012, and review of the White Porcupine Multiple Timber Sale Project Final EIS. Acreages were derived from pre- and post-event stand maps. Direct and indirect effects were analyzed on the 6,425-acre project area. Cumulative effects were analyzed within the 37,614-acre Porcupine-Woodward Grizzly Bear Subunit.

Of the 1,930-acre stand area affected, 1,235 acres were associated with harvest units in the recent White Porcupine Multiple Timber Sale Project, most of which had been logged prior to the blowdown event. Habitat conditions in the 1,930-acre affected stand area range from areas of dense, mature forest with individual trees that were blown down or snapped off, to dense patches that were effectively flattened by the event (181 acres). Most of these particular sites would be very difficult for large, wide-ranging species such as elk and deer to use or move through. Of these 181 acres, approximately 37 occur in stands that were a part of the White Porcupine Multiple Timber Sale Project .

#### **Relationship of this Analysis to the White Porcupine Multiple Timber Sale Project Final EIS:**

1,198 acres affected that were previously analyzed in the EIS where habitat and cover was affected for species such as Canada lynx, grizzly bears, fisher, pileated woodpecker, and big game. Approximately 37 acres of the 1,235 blow down acres in the White Porcupine Multiple Timber Sale Project Area were flattened and were out of prescription for planned units in that project. Given this situation, the effects

on wildlife habitat regarding the wind-affected 1,198 acres would be the same with the exception of the additional effects that would occur associated with additional logging disturbance and removal of some snags and recruitment trees in previously logged units. That is, habitat removal and alteration for these species on the 1,198 acres of habitat affected by the wind event, remain consistent with those effects disclosed in the White Porcupine Multiple Timber Sale Project Final EIS.

**Coarse Filter Assessment:**

The majority of the project area occurs in a grizzly bear linkage zone, however, no activities would be planned in the spring period. Thus, minimal impacts to spring grizzly bear use in this area would be anticipated. Habitat connectivity of mature forest was potentially influenced on the 181 acres of dense, mature forest that was heavily impacted and blown down by wind. Also, approximately 5 acres along 0.4 miles of perennial stream located in Section 34 (T24N, R18W) was affected by the wind, which could impede travel by wildlife along the SMZ due to cover loss and high density of downed logs. Proposed salvage activities would not be expected to further reduce connectivity of mature forest habitat in the project area or cumulative effects analysis area as activities would be restricted to removal of down material only, or broken topped trees. Roads have potential to impede movements of some wildlife species and a number of open and restricted roads would be required for use to accomplish the proposed salvage activities. Use of these roads would be expected to temporarily displace species otherwise using this geographic area for the duration of the project. See Table 1 below for road amounts that would be used by their type.

**Old-Growth Associated Species:**

Within the salvage project area, approximately 605 acres of old growth were present prior to the wind event on June 26, 2012. Of those acres, 319 (53%) suffered winds that blew down large trees in numbers that caused them to fall out of old-growth status. These 319 acres would be additive to the 963 acres removed in the White Porcupine Multiple Timber Sale Project. Approximately 50 acres of old growth that suffered wind damage occurred in White Porcupine harvest units. 269 acres occurred outside of harvest units. The White Porcupine Multiple Timber Sale Project and wind event combined, resulted in a cumulative reduction of 1,282 acres of old growth across the Porcupine-Woodward Subunit cumulative effects analysis area. This reduction in habitat and habitat attributes such as reductions in snags and coarse woody debris, would be additive to other timber sales on the Swan River State Forest that have affected acreages of old growth (eg. Goat Squeezer Timber Sale, Three Creeks Timber Sale, White Porcupine Multiple Timber Sale Project, and the Scout Lake Timber Sale). Mechanized logging activities would likely disturb old-growth-associated species that may be using adjacent or nearby stands, however, activities would be short duration which would lessen additional risk. Given the scope and scale of additional acres of old growth lost due to the wind event, the short duration of the project, and the fact that no additional acres of old growth would be removed by proposed salvage treatments, there would be a low level of adverse direct, indirect, and cumulative effects to old-growth-associated wildlife species. See fisher and pileated woodpecker below in the fine-filter analysis for additional details regarding old-growth-associated species.

**Table 1. Road types and amounts in miles of roads that would be used to conduct salvage activities on the Westside Blowdown Salvage Project on the Swan River State Forest.**

<b>Road Type</b>	<b>Miles</b>
<b>Open Roads</b>	<b>11.4</b>
<b>Restricted Roads</b>	<b>50.4</b>
<b>Seasonal Roads</b>	<b>4.8</b>
<b>Temporary Roads</b>	<b>1.9</b>
<b>Grand Total</b>	<b>68.4</b>

**The No-Action Alternative:**

*Under the No-Action Alternative, no project activities would occur. No direct, indirect, or cumulative impacts associated with salvage-related disturbance would occur. Concentrations of blowdown in some localized areas on a minimum of 181 acres would make travel difficult for some species of wildlife, but would provide abundant structure and legacy material usable by fisher for denning and foraging sites. Some blowdown removal would occur during the winter period within several previously sold harvest units within the White Porcupine Multiple Timber Sale Project Area. Environmental effects associated with proposed harvest in those units were displayed in the final EIS for that project; however, 37 additional acres of mature forested habitat were reduced by the wind event compared to those numbers in the Final EIS analysis. Effects to any species of concern are described in more detail in the fine-filter analysis below.*

**Fine-Filter Analysis:**

**TABLE W-1. THREATENED, ENDANGERED, AND SENSITIVE SPECIES ANALYSIS FOR THE DNRC WESTSIDE BLOWDOWN SALVAGE PROJECT.**

<b>SPECIES</b>	<b>Assessment of Direct, Indirect, and Cumulative Effects Associated with the Proposed Action</b>
Grizzly bear ( <i>Ursus arctos</i> )	This project would require an exception to the <b>Swan Valley Grizzly Bear Conservation Agreement</b> from the USFWS, which is allowed under subsection (3)(b)(iv) of the agreement. The proposed action may disturb and displace bears from habitats within the Porcupine-Woodward Subunit on Swan River State Forest that is scheduled to be inactive during this time. The risk of human-bear confrontations would also slightly increase due to harvest operations. No harvest activities would occur in the spring period. Project activities that would have greatest potential to affect grizzly bears

	<p>would potentially run from August 4 through October 7, 2012. Three to 5 operators working concurrently would be needed to expedite the removal of down material in the narrow operating window, which would create considerable noise disturbance throughout much of the Porcupine-Woodward Subunit. Grizzly bears would likely be displaced from portions of this subunit during active operations. Hauling and other motorized activities would be required on the existing road system in the amounts shown in Table 1 above and no new open or restricted roads would be constructed as a part of the project. No additional patches of standing forest that provide hiding cover would be removed. However, the wind resulted in the loss of an additional 181 acres of mature forest cover that would be additive to the 1,614 acres of cover removed in the White Porcupine Multiple Timber Sale Project Area. At the scale of the cumulative effects analysis area, the combined result in the reduction of cover would total 1,795 acres representing 4.8% of the area. As a part of the exception agreement with the USFWS, DNRC would restrict commercial activities and salvage harvest on 2,946 acres of the Goat Creek Subunit (active) and 2,650 acres in the Lion Creek Subunit for the remainder of this year and the next operating season (not including winter period), which would be required to help ensure that ample quiet areas would be present nearby that bears could move to, should the proposed action be implemented. Activities proposed in this salvage project would create disturbance that would be additive to recent disturbance in the White Porcupine Multiple Timber Sale Project Area, and the active Scout Lake Timber Sale on the east side of the Swan Valley. Given the timing, the scope, limited duration, and proposed project mitigations, low to moderate adverse direct, indirect, and cumulative effects to grizzly bears would be anticipated as a result of project activities and associated disturbance.</p>
<p>Canada lynx (<i>Felis lynx</i>)</p>	<p>The proposed action may disturb and displace lynx from habitats within the project area and nearby lands within the Porcupine-Woodward Subunit on Swan River State Forest. Hauling and other motorized activities would be required on the existing road system in the amounts shown in Table 1 above and no new open or restricted roads would be constructed as a part of the project. No additional patches of standing forest that currently provide lynx habitat would be removed. However, the wind resulted in the loss of an additional 181 acres of habitat that would be additive to the 1,235 acres of lynx suitable habitat removed in the White Porcupine Multiple Timber Sale Project Area. This would result in the combined reduction of 1,416 acres during the last 4 years in the cumulative effects analysis area. Of the 181 acres affected, 77 acres were "other" travel habitat, 45 acres were winter foraging habitat, and 59 acres were denning habitat. Approximately 145 of the 181 acres were in other stands not treated in the White Porcupine Multiple Timber Sale Project. Under the Forest Management HCP, 1% of the identifiable "jack-strawed area" would be required to be retained, preferably in a location adjacent to stands of standing suitable lynx habitat. Thus, DNRC would identify at least 1.8 acres</p>

	<p>of down trees to leave for as material that may serve as potential den sites over time. Many additional large snags and downed logs would be present across the project area as well following treatments. Following implementation of Alternative B in the White Porcupine Multiple Timber Sale Project, approximately 8,154 acres of suitable lynx habitat remain. The additional loss of 181 acres of potentially suitable habitat would result in an additional 2.2% reduction on DNRC-managed lands in the cumulative effects analysis area. Activities proposed in this salvage project would create disturbance that would be additive to recent disturbance in the White Porcupine Multiple Timber Sale Project Area, and the active Scout Lake Timber Sale on the east side of the Swan Valley. Given the timing, the scope, limited duration, and proposed project mitigations for the project, minor adverse direct, indirect, and cumulative effects to Canada lynx would be anticipated as a result of project activities and associated disturbance.</p>
<p>Gray wolf (<i>Canis lupus</i>)</p>	<p>Wolves are present in the Swan Valley and may be present in portions of the project area at any time. Activities would occur outside of more sensitive denning periods in spring, and would pose minor risk to wolves. Wolves could be displaced by mechanical disturbance associated with proposed salvage activities, and if a rendezvous or den site were encountered during operations, activities would cease until appropriate site-specific mitigations could be developed and implemented. Minor associated adverse effects would be anticipated for local elk and deer herds that may use the project area and adjacent lands (see big game analysis below). Minor direct, indirect, and cumulative effects to gray wolves would be anticipated as a result of the proposed activities.</p>
<p>Bald eagle (<i>Haliaeetus leucocephalus</i>)</p>	<p>The project area is over 4 miles northwest of the nearest known bald eagle nest at Van Lake, over 4.5 miles from a nest on Station Creek near Flathead Lake, and over 5 miles from a nest near Swan Lake. No large water bodies suitable for nesting are within 1 mile of the project area. Additionally, the project area is separated from the local nests by areas of unsuitable habitats. Thus, no direct, indirect, or cumulative effects to bald eagles would be expected to occur as a result of any alternative.</p>
<p>Black-backed woodpecker (<i>Picoides arcticus</i>)</p>	<p>No recently (less than 5 years) burned areas or massive, widespread insect outbreaks are in the project area. Thus, no direct, indirect, or cumulative effects to black-backed woodpeckers would be expected to occur as a result of any alternative.</p>
<p>Coeur d'Alene salamander (<i>Plethodon idahoensis</i>)</p>	<p>No moist talus or streamside talus habitat occurs in the project area. Thus, no direct, indirect, or cumulative effects to Coeur d'Alene salamanders would be expected to occur as a result of any alternative.</p>
<p>Columbian sharp-tailed grouse (<i>Tympanuchus phasianellus columbianus</i>)</p>	<p>No suitable grassland communities occur in the project area. Thus, no direct, indirect, or cumulative effects to Columbian sharp-tailed grouse would be expected to occur as a result of any alternative.</p>
<p>Common loon (<i>Gavia immer</i>)</p>	<p>No further analysis conducted – Common loons have nested on Swan, Vann, and Flathead lakes in the past. None of these nests exist within 4.5</p>

	<p>miles of the project area. No large lakes that could support loons exist within the project area. Thus, no direct, indirect, or cumulative effects to common loons would be expected to occur as a result of any alternative.</p>
<p>Fisher (<i>Martes pennanti</i>)</p>	<p>Potential fisher habitats occur in the project area. No additional existing fisher habitat patches would be altered as a part of this project proposal and no new restricted or open roads would be constructed (Table 1). However, 181 acres of dense forest flattened by the wind event was potentially suitable upland fisher habitat, which is no longer present. This represents an additional reduction in habitat from the 1,067 acres removed in the White Porcupine Multiple Timber Sale Project Area and some affected adjacent lands to 1,248 acres, which have been altered in a 4-year period. The wind event reduced estimated amount of fisher habitat in the White Porcupine Multiple Timber Sale Project Area by 2.8% (64 acres of 2,326 acres), which is a reasonable approximation for much of the west side of the Forest and the Porcupine-Woodward Subunit. An additional 5.1 acres of riparian fisher habitat was affected by the wind event in Section 34, (T24N, R18W). The wind event created numerous large, broken topped snags of many tree species, across a very large area on the west side of the Swan Valley. Thus, large trees and downed logs suitable for denning and foraging are not likely to be limiting for fishers this general area for several decades to come, even if proposed treatments were completed. Many individual trees or groups of trees went down in areas that are inaccessible and would remain outside of the areas proposed for salvage. Various combinations of 4 large (&gt;21in. dbh) downed logs, snags, and or live recruitment trees per acre would also be required for retention to maintain large woody legacy material on site in each salvage unit to help maintain habitat attributes and structure in future forests. Minor adverse direct, indirect, and cumulative effects to fishers would be anticipated, primarily related to motorized disturbance associated with short-term logging activities required to pick up downed logs and removal of accessible large, downed material across portions of the 1,930-acre area proposed for treatments.</p>
<p>Flammulated owl (<i>Otus flammeolus</i>)</p>	<p>No suitable dry ponderosa pine and Douglas-fir habitats occur within the project area. No direct, indirect, or cumulative effects to flammulated owls would be expected to occur as a result of any alternative.</p>
<p>Harlequin duck (<i>Histrionicus histrionicus</i>)</p>	<p>No suitable high-gradient stream or river habitats occur in the project area. No direct, indirect, or cumulative effects to harlequin ducks would be expected to occur as a result of any alternative.</p>
<p>Northern bog lemming (<i>Synaptomys borealis</i>)</p>	<p>No suitable sphagnum bogs or fens occur in the project area. Thus, no direct, indirect, or cumulative effects to northern bog lemmings would be expected to occur as a result of any alternative.</p>
<p>Peregrine falcon (<i>Falco peregrinus</i>)</p>	<p>No suitable cliffs/rock outcrops occur within the project area or within 1 mile of the project area. Thus, no direct, indirect, or cumulative effects to peregrine falcons would be anticipated as a result of any alternative.</p>
<p>Pileated woodpecker (<i>Dryocopus pileatus</i>)</p>	<p>Western larch-Douglas-fir stands occur in the project area that could provide habitat for pileated woodpeckers. No additional pileated</p>

	<p>woodpecker habitat would be altered as a part of this project proposal. However, 181 acres of dense forest that was flattened by the wind event was pileated woodpecker habitat, which is no longer present. This represents an additional reduction in habitat from the 1,046 acres removed in the White Porcupine Multiple Timber Sale Project Area and some affected adjacent lands to 1,227 acres, which have been altered in a 4-year period. The wind event reduced estimated amount of pileated woodpecker habitat in the White Porcupine Project Area by 2.7% (64 acres of 2,389 acres), which is a reasonable approximation for much of the west side of the Forest and Porcupine-Woodward Subunit. The wind event created numerous large, broken topped snags of many tree species, across a very large area on the west side of the Swan Valley. Thus, large nesting trees and large, downed logs used for nesting and foraging sites are not likely to be limiting for pileated woodpeckers in this area for several decades to come. Various combinations of 4 large (&gt;21in. dbh) downed logs, snags, and or live recruitment trees per acre would be required for retention to maintain large woody legacy material on site to help maintain habitat attributes and structure in future forests. Minor adverse direct, indirect, and cumulative effects to pileated woodpeckers would be anticipated, primarily related to motorized disturbance associated with short-term logging activities required to pick up downed logs.</p>
<p>Townsend's big-eared bat (<i>Plecotus townsendii</i>)</p>	<p>No suitable caves or mine tunnels are known to occur in the project area. Thus, no direct, indirect, or cumulative effects to Townsend's big-eared bats would be anticipated as a result of any alternative.</p>
<p>Big Game Elk (<i>Cervus elaphus</i>) Mule deer (<i>Odocoileus hemionus</i>) White-tailed deer (<i>Odocoileus virginianus</i>)</p>	<p>No MTFWP-identified winter range occurs within the project for any of these three species. Some individual animals may be disturbed and displaced by logging disturbance during the early fall and winter period. No appreciable additional effects on elk security would be anticipated as no additional open or restricted roads would be constructed. Disturbance associated with blowdown removal across the 1,930 affected acres would be additive to that anticipated in the White Porcupine Multiple Timber Sale project. Project activities would be short term and would be completed prior to April 1, 2013. The majority of additional impacts in the project area can be attributed to the wind event, which caused minor loss of overhead cover on approximately 181 acres. Overall, minor adverse direct, indirect, and cumulative effects would be expected due to proposed logging disturbance. However, some minor offsetting benefits would be expected from removing concentrations of down trees, which would facilitate travel of big game animals.</p>

**Exception Form**  
**Swan Valley Grizzly Bear Conservation Agreement**

July 23, 2012

Name: **Dan Roberson/Ross Baty, DNRC**

For Year: **2012**

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Proposed Exception: **Exceed the 30-day allowable salvage restriction in an inactive subunit (Porcupine Woodward) to capture revenue from high value logs due to an unforeseen wind event that affected the west side of the Swan River State Forest (SRSF). The exception is also necessary to clear access routes needed to complete scheduled winter logging activities in this subunit, which are under active contracts. The applicable portion of the Agreement that pertains to allowable special management in such circumstances is subsection (3)(b)(iv).**

Legal location: **The project area involves state trust parcels on the west side of the SRSF (Sections 2, 10, 16, 22, 26, 27, Township 23 North, Range 18 West and Sections 22, 23, 26, 28, 34, Township 24 North, Range 18 West). The gross area of the affected parcels is approximately 6,425 acres (See attached proposed project area map). Only scattered portions of these parcels are affected (additional details provided below).**

Estimated dates of exception activity: **37 days after the end of the Summer Period (i.e., after August 31). Exception days would run from September 1 to October 7. Approximately 28 of the subunit's allowable salvage days would be used during the month of August to complete as much of the activity as possible.**

Subunit Status: **Inactive**

Linkage Zone Proximity: **Inside (partial)**

Description:

The project area involves state trust parcels on the west side of the SRSF (Sections 2, 10, 16, 22, 26, 27, Township 23 North, Range 18 West and Sections 22, 23, 26, 28, 34, Township 24 North, Range 18 West), and encompasses approximately 6,425 gross acres. An estimated 1.5 million board feet (MMbf) of salvageable sawlogs (approximately 9,000 tons total at 6.0 tons/ Mbf) would be harvested over a gross stand polygon area within the affected parcels that encompasses approximately 1,930 acres (See attached map). Salvage across these acres would range from intensive harvest for removal of downed trees on some areas very heavily impacted by wind (i.e., less than 400 total acres) to light removal and pickup of individual scattered trees and small groups of trees on the remaining acreage (~1,530 acres). Proposed project activities are proposed to begin August 4, 2012 and continue until October 7, 2012. The narrowest operating window possible is being proposed to minimize impacts to grizzly bears during the critical fall period to the extent possible. Also, as much work as possible would be conducted in the months of August and September to avoid the later fall period when bears become increasingly vulnerable. Three to 5 contractors operating concurrently would be needed to accomplish proposed activities in the described operating window. Additional salvage activities may also

occur opportunistically from November 16 to March 31 during the grizzly bear winter denning period as snow conditions allow.

Was the situation unforeseen?  Yes No

Explain:

On the morning of June 26, 2012 a severe thunderstorm tracked to the north along the Mission Range on the west side of the Swan Valley. The storm contained large hail, rainfall in the amount of one inch or greater and very high velocity surface winds. The storm resulted in widespread blowdown of timber along the eastern aspect of the Mission Range within the SRSF. The blown down timber occurs in and near the White Porcupine project area in: (1) harvest units that were recently harvested, (2) harvest units that have not yet been logged (scheduled for winter 2012), and (3) some isolated patches outside of harvest units that are accessible for salvage harvesting.

Can the activity be rescheduled to a time period allowable by the Agreement?  No

Explain:

DNRC is expediting a thorough environmental review process and proposing a narrow window of operations for the proposed action to minimize disturbance to grizzly bears during the critical fall period and capture revenue from high value logs before they become buried by deep snow. It can be difficult to find and remove downed logs in deep snow, and value may be lost should downed trees remain on the ground until the next allowable operating window under the Agreement, which would begin June 16, 2013 -- and again only allow 30 days of additional operating time to complete the project. DNRC also has active contracts in place in this area with operators planning winter logging operations for winter 2012-13. These operations are needed to complete contract obligations associated with the completion of White Porcupine Timber Sales. Clearing access to these sale areas and picking up downed trees previously scheduled for logging this winter is necessary to ensure safety of the operators, minimize loss in value of down trees, and facilitate successful project completion under existing legal contracts.

Without action, will DNRC be in violation of State or Federal laws, water quality concerns, other agreements (HCP), or be liable for hazardous situations?  Yes

Explain:

DNRC is also required by *Section 77-5-207, Montana Code Annotated* to administer a salvage timber program, which must consider the economic value of timber to be harvested and provide for the timely removal of merchantable logs to minimize value loss. The wind event that occurred on June 26, 2012 blew over a number of high value trees across a broad portion of the SRSF, some in active sale areas. Much of the affected high value timber volume is accessible, which requires DNRC to give this project careful consideration and make efforts to capture the value in an expedient manner to the extent practicable.

Proposed Mitigations:

DNRC proposes the following mitigations consistent with subsection (3)(b)(iv) of the Agreement to reduce impacts to grizzly bears that could occur as a result of extending operations into the

early fall period in the Inactive Porcupine Woodward Grizzly Bear Subunit.

-Minimize operating window to the extent possible and utilize early winter months as snow conditions may allow if needed. Cease all salvage activities by October 7, 2012 to lessen disturbance for the remaining 3 weeks of October and first two weeks of November. Activities could resume during the winter period after November 15 as snow conditions allow.

-Forego 30 allowable salvage days in Lion Creek Subunit (**Inactive**) for remainder of 2012 and 2013 (approximately 4.5 DNRC sections -- T23N, R17W sections 20, 28, 32, 34, 36). Result -- forfeit 60 salvage days on approximately 2,650 acres (See attached mitigation parcel map).

-Forego any commercial or salvage operations in 5 select sections in the southerly portion of the Goat Creek Subunit (**Active**) for remainder of 2012 and 2013 (approximately 4.5 DNRC sections -- T23N, R17W sections 10, 16, 22, 26, 36). Result -- forfeit salvage and otherwise allowed active commercial activities for 120 days on approximately 2,946 acres of this Active subunit (See attached mitigation parcel map).

Thus, DNRC is proposing to mitigate the 37 additional days needed in September and early October 2012 across 6,425 acres of affected parcels by foregoing salvage and other commercial activities for 180 total days in parcels in the adjacent Lion Creek and Goat Creek subunits which total 5,596 acres. Foregoing salvage and commercial activities on these parcels would help ensure a relatively quiet area of equal or greater area would be protected from disturbance. Three parcels totaling approximately 1,760 acres owned by Montana Fish, Wildlife and Parks, and 8 parcels totaling approximately 4,800 acres owned by TNC parcels are intermingled with lands DNRC is proposing as mitigation in this area. Given this proposal and the management objectives of the adjacent lands identified here, minimal disturbance would be expected across a total area of 12,156 acres for the remainder of 2012, and operating season in 2013.

#### Impacts to Grizzly Bears:

The proposed action may disturb and displace bears from habitats within the Porcupine-Woodward Subunit on SRSF that is scheduled to be Inactive during this time. The risk of human-bear confrontations would also slightly increase due to harvest operations. Project activities that would have greatest potential to affect grizzly bears would potentially run from August 4 through October 7 2012. Three to 5 operators working concurrently would be needed to expedite the removal of down material in the narrow operating window, which would create considerable noise disturbance throughout much of the Porcupine Woodward Subunit. Grizzly bears would likely be displaced from portions of this subunit during active operations. Hauling and other motorized activities would be required on the existing road system in the amounts shown in Table 1 below. Proposed DNRC restrictions on commercial activities and salvage harvest on 2,946 acres of the Goat Creek Subunit (Active) and 2,650 acres in the Lion Creek Subunit would help ensure that ample quiet areas would be present nearby that bears could move to, should the proposed action be implemented.

Table 1. Road types and amounts in miles of roads that would be used to conduct salvage activities on the Westside Blowdown Salvage Project on the Swan River State Forest.

<b>Road Type</b>	<b>Miles</b>
Open Roads	11.4
Restricted Roads	50.4
Seasonal Roads	4.8
Temporary Roads	1.9
<b>Grand Total</b>	<b>68.4</b>

# Westside Blowdown Salvage Proposed Project Area



0 0.5 Miles

## Legend

### Roads

#### ROAD CLASS

- OPEN
- RESTRICTED
- SEASONAL
- TEMPORARY

### Streams

#### Type

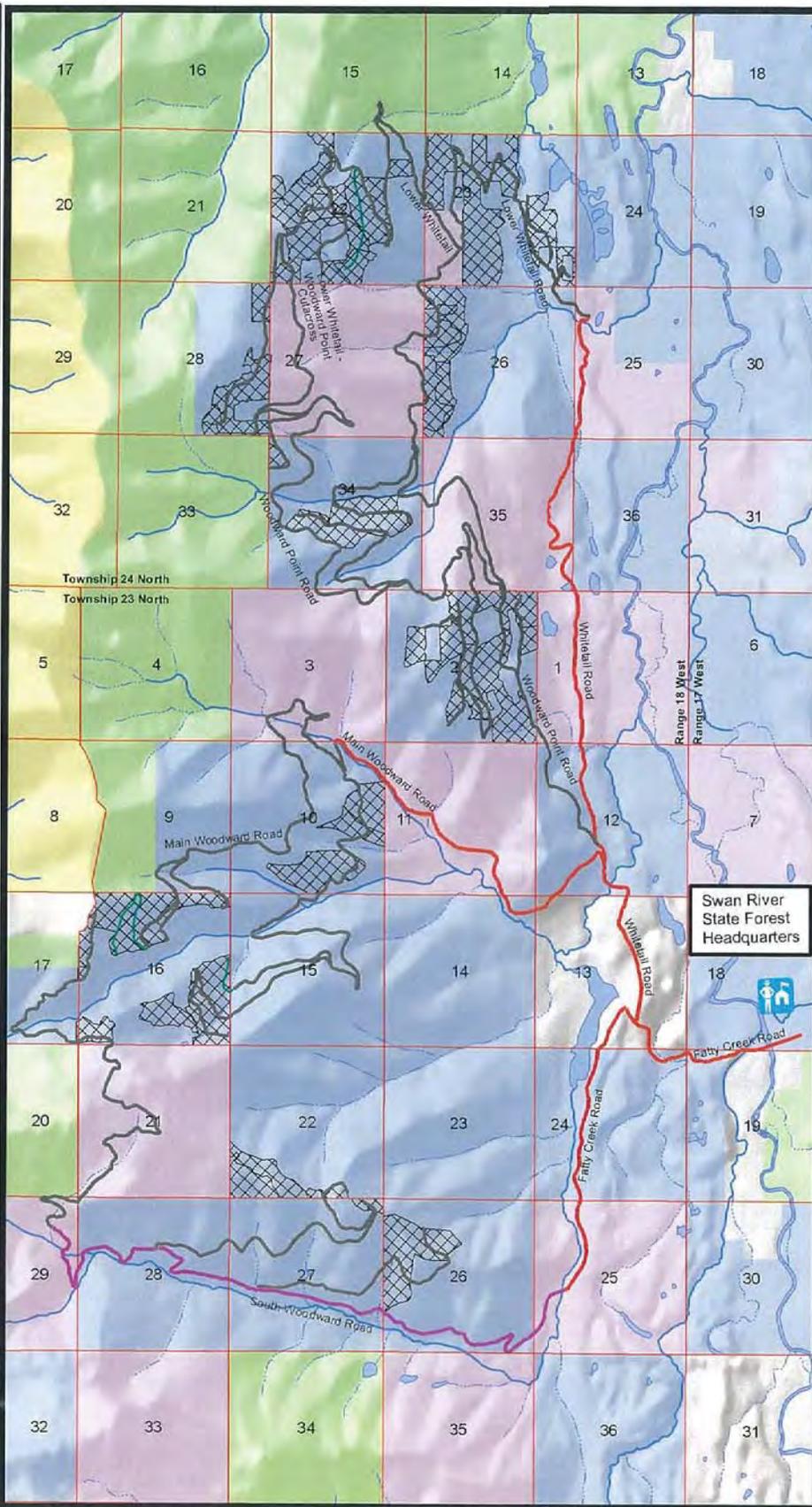
- River or Other Major Waterbody
- Intermittent Stream
- Perennial Stream
- Lakes

- Proposed Salvage Areas
- Sections

### Ownership - General

#### Ownership

- MT DNRC
- MT FWP
- The Nature Conservancy
- Tribal
- USFS

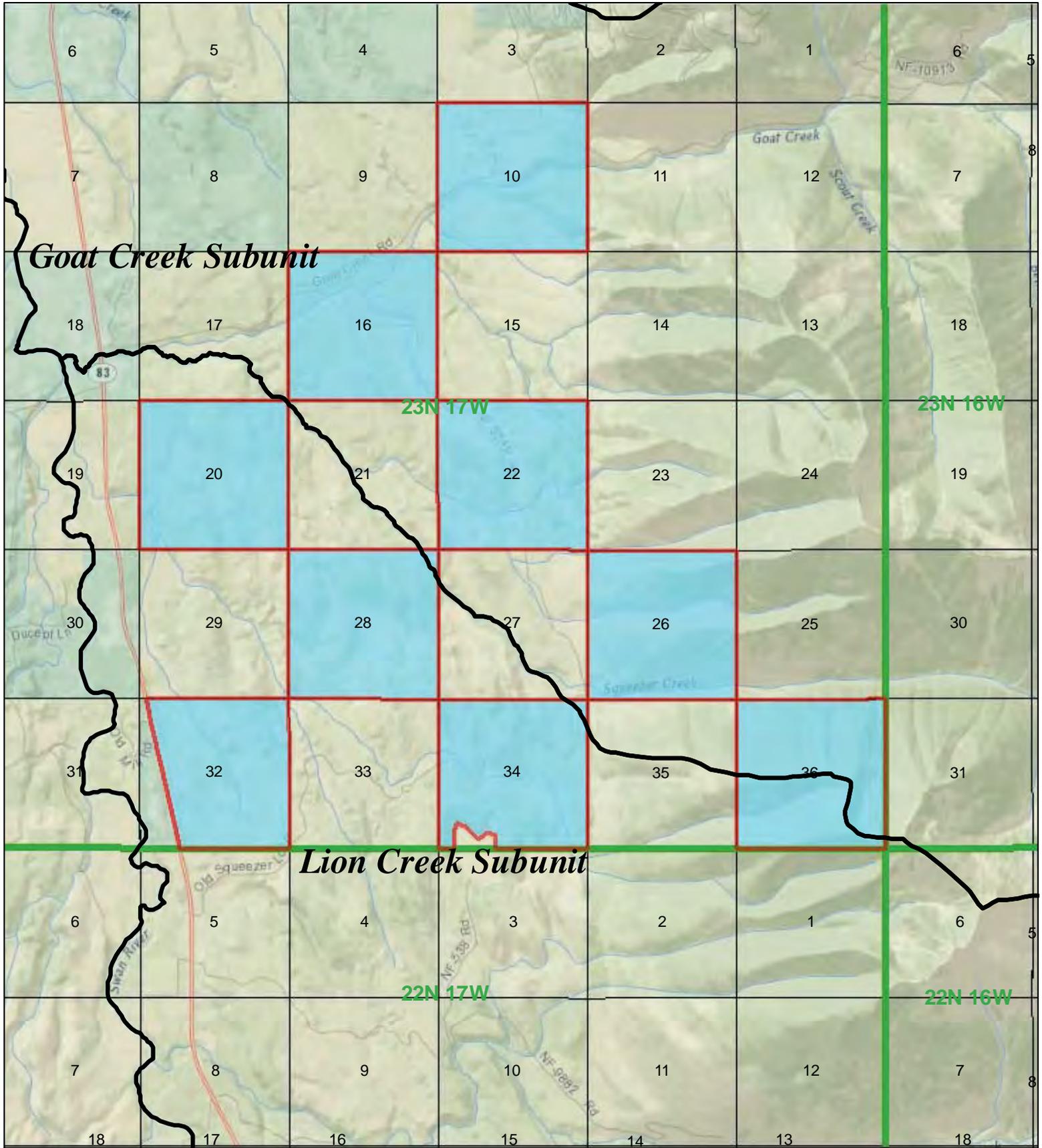


Prepared by  
Montana Department of  
Natural Resources & Conservation  
July 2012

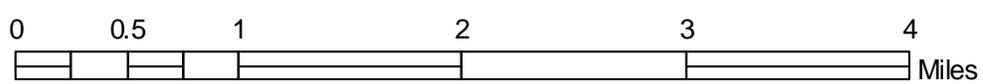
NAD 1983 State Plane Montana FIPS 2500



# Proposed Salvage Deferral Areas for the Westside Blowdown Salvage Project



Subunit boundary
  Proposed deferrals
  Township boundary
  Other Trust Land ownership



Montana DNRC  
 Forest Management Bureau  
 23 July 2012  
 OIT GIS/dr