

CHECKLIST ENVIRONMENTAL ASSESSMENT

Project Name:	Ewing Central Timber Sale
Proposed Implementation Date:	Spring 2013
Proponent:	Montana Department of Natural Resources (DNRC), Northwestern Land Office, Stillwater Unit
Location:	Sections 1-3, 9-15, & 23; Township 33 North, Range 24 West
County:	Flathead

I. TYPE AND PURPOSE OF ACTION

Montana Department of Natural Resources and Conservation (DNRC), Stillwater Unit, proposes to harvest approximately 2 to 3 million board feet of timber from the Stillwater State Forest (*see Vicinity Map*). The proposed activities would regenerate new stands of healthy trees while improving the vigor and growth of trees remaining in the forest for the purpose of benefiting future trust actions. This project would produce an estimated \$332,484 in revenue for the Common Schools Trust.

The lands in this 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 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 77-1-202*).

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 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.

In July 2012, DNRC solicited public participation on the Ewing Central Timber Sale Project. Scoping notices were placed in the Daily Inter Lake and the Whitefish Pilot newspapers. The Initial Proposal with maps was sent to neighboring landowners, individuals, agencies, industry representatives, and other organizations that have expressed interest in DNRC's management activities. The Initial Proposal was also placed on the DNRC website and posted at the Olney Post Office. The mailing list of parties receiving the Initial Proposal, and the comments received, are located in the project file at the Stillwater Unit Headquarters in Olney, Montana.

The public comment period for the Initial Proposal was open for 30 days. DNRC received one letter. In July 2012, the Interdisciplinary (ID) Team began to compile the following focal points related to the resources in the Ewing Central project area:

RESOURCE	RESPONSE
Timber harvesting activities could decrease mature forested cover, which could reduce habitat connectivity and suitability for wildlife species associated with mature forest.	Please refer to <i>Sec. III.7—Vegetation</i> for additional information.
The proposed activities could affect wildlife species associated with old-growth forests by reducing habitat availability and increasing fragmentation.	Please refer to <i>Sec. III.7—Vegetation</i> as well as <i>Sec. III.8 – Wildlife Habitats</i> and <i>Attachment VI -- Wildlife Analysis</i> for additional information.
Timber harvest activities could impact wildlife.	Please refer to <i>Sec. III.8 – Wildlife Habitats</i> and <i>Attachment VI -- Wildlife Analysis</i> for further information.
Timber harvesting activities may adversely affect soil resources due to increased compaction, displacement and erosion.	Please refer to <i>Sec.III.4 – Geology and Soil Quality</i> for additional information.
Timber harvesting and road construction activities may increase sediment delivery into streams and affect water quality.	Please refer to <i>Sec. III.5 – Water Quality</i> and <i>Attachment V – Water Resources Analysis</i> for further information.
Cumulative effects from timber harvest may affect channel stability and fisheries habitat by decreasing the amount of recruitable woody debris into streams and /or increasing stream temperatures.	Please refer to <i>Attachment V – Water Resources Analysis</i> for additional information.
Timber harvest activities could impact the viewshed.	Please refer to <i>Sec. III.11 – Aesthetics</i> for additional information.

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 Environmental Quality (DEQ)

DNRC, classified as a major open burner by DEQ, is issued a permit from DEQ to conduct burning activities on state lands managed by DNRC. As a major open-burning permit holder, DNRC agrees to comply with the limitations and conditions of the permit.

A Short-term Exemption From Montana’s Surface Water Quality Standards (318 Authorization) may also be required from DEQ if activities such as removing a native log-sill crossing on a stream would introduce sediment above natural levels into streams, and if Montana Department of Fish, Wildlife and Parks recommends it.

Montana/Idaho Airshed Group

DNRC is a member of the Montana/Idaho Airshed Group, which regulates prescribed burning, including both slash and broadcast burning, related to forest-management activities performed by DNRC. As a member of the Airshed Group, DNRC agrees to only burn on days approved for good smoke dispersion as determined by the Smoke Management Unit in Missoula, Montana.

Department of Fish, Wildlife and Parks (DFWP)

A Stream Protection Act Permit (124 Permit) is required from DFWP for activities that may affect the natural shape and form of a stream's channel, banks, or tributaries.

U.S. Fish and Wildlife Service (USFWS)

DNRC is managing the habitats of threatened and endangered species on this project by implementing the Montana DNRC Forested Trust Lands Habitat Conservation Plan (HCP) and the associated Incidental Take Permit that was issued by the United States Fish & Wildlife Service (USFWS) in February of 2012 under Section 10 of the Endangered Species Act. The HCP identifies specific conservation strategies for managing the habitats of grizzly bear, Canada lynx, and three fish species: bull trout, westslope cutthroat trout, and Columbia redband trout. This project complies with the HCP, which can be found at <http://dnrc.mt.gov/HCP>.

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, no timber would be harvested and therefore no revenue would be generated for the Common Schools Trust at this time. Salvage logging, firewood gathering, recreational use, fire suppression, noxious-weed control, additional requests for permits and easements, and ongoing management requests may still occur. Natural events, such as plant succession, tree mortality due to insects and diseases, windthrow, down fuel accumulation, in-growth of ladder fuels, and wildfires, would continue to occur.

- **Action Alternative**

Development of the Action Alternative is based on analyses of current forest and resource conditions within the project area and cumulative effects areas. Such conditions include connectivity of mature timber stands, timber stand health, fuel load levels, old growth, and viability of access.

The following are the main concerns or focal points related to forest and resource conditions in the project:

- Dwarf mistletoe is found in western larch and in lodgepole pine, with the most severe infections found within Units 3, 10, 11, 13, and 14.
- White pine blister rust (*C. ribicola*) has killed or is killing all the western white pine within Unit 6.
- Heavy infestations of *P. pini* stem decay are found within the western larch in Units 3 and 13.
- Severe infections of various root disease such as: *H. annosus*, *P. schweinitzii*, and *Armillaria* are causing high mortality rates within Douglas-fir in Units 3, 6, 10, and 13.
- Current cover types do not match DNRC's desired future conditions for several stands.
- Overstory tree growth and vigor has diminished due to overcrowding and in-growth of shade-tolerant species.
- A road slump has caused blockage of one CMP and is causing some erosion.

As a result, an Action Alternative (including mitigation measures) was developed. A detailed description of mitigation measures can be found in *Attachment IV - Stipulations and Specifications*.

Under this alternative, the DNRC would:

- commercially harvest approximately 2 million board feet of timber from approximately 346 acres;

- regenerate new stands of healthy trees on 199 acres through seed tree with reserves treatments and natural and planted regeneration;
- improve the vigor and growth on 85 acres through intermediate treatments such as single tree select;
- remove seed trees on 62 acres of successfully regenerated stands also known as an overstory removal treatment; and
- perform road maintenance and Best Management Practices (BMP) improvements on approximately 17 miles of constructed road and 1 mile of temporary road which would be reclaimed post harvest.

Detailed descriptions of the harvesting methods and silvicultural prescriptions can be found in *Attachment II – PROJECT MAP* and *Attachment III – PRESCRIPTION TABLE*.

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 following issue statements were compiled from internal discussions regarding the effects of the proposed timber harvesting:

- *Timber harvesting activities may adversely affect soil resources due to increased compaction, displacement and erosion.*
- *Removal of both coarse and fine woody material off site during timber harvest operations can reduce nutrient pools required for future forest stands and can affect the long-term productivity of the site.*

Existing Conditions

The *Soil Survey of Flathead National Forest Area, Montana (Martinson and Basko, 1998)* combines landform and soil information with habitat types to inventory and map soils in the project area. Nine landtypes were identified in the project area. None of these landtypes were considered as a high erosion hazard risk after field review; all are suitable for conventional ground-based timber harvest or cable harvest depending upon slope. A brief description of the landtypes within the project area can be found in the project file, located at the Stillwater Unit office.

DNRC strives to maintain soil productivity by limiting cumulative soil impacts to 15 percent or less of a harvest area, as noted in the SFLMP (*DNRC, 1996*). As a recommended goal, if existing detrimental soil effects exceed 15 percent of an area, proposed harvesting should minimize any additional impacts. Harvest proposals on areas with existing soil impacts in excess of 20 percent should avoid any additional impacts and include restoration treatments, as feasible, based on site-specific evaluation and plans.

Past monitoring on DNRC timber sales from 1988 to 2011 has shown an average of 11.3 percent soil impacts across all parent materials. Stratifying the results by soil texture that are similar to the majority of the proposed harvesting shows an average of approximately 14.3 percent of the harvest areas impacted from erosion, displacement or severe compaction on ground-based harvesting operations and an average of 6.8 percent on cable yarding harvesting operations (*DNRC, 2011*).

Cumulative effects from past and current forest management in the proposed harvest units are a result of roads, skid trails and landings. Records show evidence of harvest dating as early as the late 1920's. Major harvests occurred in the project area during every decade since the 1920's but the most intensive harvesting occurred in during the 1960's. Approximately 21 percent (72 acres) of the proposed harvest area has been previously harvested. Ocular estimate suggest less than 10 percent of this area shows signs of impacts from erosion,

compaction or displacement. Other forest product removals include fence posts and rails, firewood, and individual and commercial Christmas tree harvests throughout the last 85 years.

During field reconnaissance, 11 transects were used to estimate coarse woody debris in the project area; 9 transects were located in proposed units. *TABLE ST-2 – COARSE WOODY DEBRIS AMOUNTS* displays the average, minimum, maximum and median levels of coarse woody debris within transects in the project area and the proposed units. The median is the point with half the transects showing more, and half the transects showing less.

TABLE ST-2: COARSE WOODY DEBRIS AMOUNTS

	Number of transects	Average	Minimum	Maximum	Median
		<i>tons per acre</i>			
Project Area	11	9.5	0.0	19.4	11.6
Within proposed units	9	11.1	0.0	19.4	12.2

These results are within the recommendations in *Managing Coarse Woody Debris in Forests of the Rocky Mountains* (Graham et.al., 1994) on similar habitat types post timber harvest. Subalpine fir habitat types are recommended to have a level of coarse woody debris in the range of 7 to 24 tons per acre to maintain forest productivity. Currently, seven of the nine transects located in proposed units were within the recommendations and two were below the recommended levels.

Environmental Effects

- ***Direct, Indirect, and Cumulative Effects of the No-Action Alternative***

No timber harvesting or associated activities would occur under this alternative. Skid trails from past harvesting would continue to recover from compaction as freeze-thaw cycles continue and vegetation root mass increases. No additional adverse cumulative effects would be expected from the implementation of the No-Action Alternative. Because harvesting would not be implemented, compaction, displacement and erosion rates above natural levels would not be expected. Coarse woody debris levels and nutrient cycling would continue as dictated by natural events.

- ***Direct, Indirect, and Cumulative Effects of the Action Alternative***

The comparison of the landtype map, field reconnaissance notes, and topographic map features with the proposed harvest unit map indicates that 11 of the 14 proposed units would be ground-based skidded. The extent of expected impacts would likely be similar to those reported in the *DNRC SOIL MONITORING REPORT (DNRC, 2011)* on post-1990 sites with similar soil textures, or approximately 14.3 percent of the harvest area for ground-based operations and 6.8 percent for cable yarding operations. The project proposes to harvest 346 acres using a combination of yarding methods; therefore, DNRC would expect moderate or higher impacts from compaction and displacement on up to 42 acres, or 12.1 percent of the harvest area.

By designing the proposed harvesting operations with soil-moisture restrictions, season of use, and method of harvesting, the risk of unacceptable long-term impacts to soil productivity (soil impacts exceeding 15 percent of the harvest area) from compaction and displacement and nutrient pool losses would be low.

Coarse woody debris would be left on-site in volumes recommended to help maintain soil moisture and forest productivity, generally in the 7 to 24 tons per acre range for habitat types found in the harvest locations (Graham et al. 1994). Because coarse woody debris would be left on site in amounts recommended by scientific literature, and fine debris removal would be maintained as much as practicable, the risk of measureable adverse direct or indirect impacts to nutrient cycling would be low.

Although erosion would potentially result from this alternative, the magnitude, area and duration of erosion, compaction and displacement would remain low and within acceptable limits described in the SFLMP. . Therefore the risk of unacceptable adverse direct and indirect impacts to physical soil properties would be low.

Cumulative effects would be controlled by limiting the area of adverse soil impacts to less than 15 percent of the harvest units (as recommended by the SFLMP) through implementation of BMPs, skid trail planning on tractor units, and limiting operations to dry or frozen conditions.

Additional information can be found in the Project File: Soils, located at the Stillwater Unit office.

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.

After reviewing the public and internal comments, DNRC developed the following issue statements regarding the potential effects of the proposed timber harvesting:

- *Timber harvesting and road construction activities may increase sediment delivery into streams and affect water quality.*
- *Cumulative effects from timber harvest may affect channel stability and fisheries habitat by decreasing the amount of recruitable woody debris into streams and/or increasing stream temperatures.*

These issues will be addressed by assessing the risk of sediment delivery to water bodies from roads and harvest units; assessing the risk of destabilizing channels from annual water yield increases; and, assessing the risk of impacting recruitable woody debris and stream temperature due to harvesting.

Existing Condition

The project area is located in the Stillwater River-Hellroaring Creek watershed which is a 6th-code watershed, also referred to as a HUC (Hydrologic Unit Code). This HUC encompasses approximately 22,673 acres of land that drains to the Stillwater River and numerous small streams (named and unnamed) that are connected to the Stillwater River either by surface flow or groundwater. Many of the streams have discontinuous surface flow.

The Rock Creek watershed is a 2,296-acre watershed contained within the Stillwater River-Hellroaring Creek HUC. Field reconnaissance of channel conditions verified previous analysis reports noting that stream channels in this watershed are quite stable with limited evidence of channel movement.

A field review of the haul route found very few sediment sources from roads. Past timber sale projects and the Stillwater State Forest road maintenance programs have installed adequate surface drainage on most roads proposed for hauling. Six sites were observed that have direct delivery to streams or draws:

- A plugged culvert in Section 3, T33N, R24W which is contributing sediment during spring runoff.
- Approximately 500 feet west of the plugged culvert in Section 3, T33N, R24W, where runoff has eroded the fill slope of the low standard road.
- In Section 2, T33N, R24W, the drain dip saturated the fillslope of the road which failed into the unnamed stream below. This was the largest of the three sediment delivery sites found.
- In Section 2, T33N, R24W, a grown-over road where three existing native stream crossings exhibit varying degrees of decay.

The erosion risk for landtypes in the project area with proposed timber harvest proposed is low to moderate. No mass wasting sites or unstable soils were observed in any of the proposed harvest areas.

Timber harvest activities dating back to the 1920's within the Rock Creek watershed has led to an estimated 4.9 percent annual water yield increase over fully forested conditions. The recommended threshold of concern was set at 12 percent.

Past analysis has looked at the site potential tree heights (SPTH₁₀₀) at 100 years in this portion of the Stillwater State Forest (DNRC 2007). Tree heights have ranged from 90 feet to 110 feet for the dominant, open grown tree species in the riparian area. The SPTH₁₀₀ for this project is estimated at 103 feet which is the same as used for the Duck-to-Dog Timber Sale Project analysis (DNRC 2007).

The riparian area along Woods Lake is fully forested with mature western red cedar, Engelmann spruce, Douglas-fir and western larch trees. Although stumps were noted during field reconnaissance, the riparian stand is representative of late-seral stage conditions.

Because stream temperatures are generally sensitive to direct solar radiation, an assessment of the existing riparian stream shading was conducted using 2011 aerial photos. In the Woods Lake watershed, approximately 5 percent of the vegetation within 103 feet of the streams or lakes has been impacted by timber harvest.

Environmental Effects

• *Direct, Indirect and Cumulative Effects of the No-Action Alternative*

Under this alternative, no timber harvesting or related activities would occur. A low risk of sediment delivery from all sources would be expected to remain unchanged. No increase to annual water yield would occur in the Rock Creek watershed.

Because no timber harvesting or associated activities would occur under this alternative, cumulative effects would be limited to the existing condition. Sediment delivery risk from existing sources would remain in the project area. Conditions would continue to provide adequate levels of large woody debris recruitment and shade retention. Under this alternative, fisheries habitat and water quality variables described in this assessment would be maintained at their current level.

• *Direct, Indirect, and Cumulative Effects of the Action Alternative*

Existing roads would have drainage improvements and BMP upgrades implemented under this alternative to maintain a low risk of sediment delivery to streams. Minor drainage improvements include reshaping drain dips and cleaning ditches.

Stream crossing structures to be replaced under the Action Alternative include:

- Three temporary culverts would be installed to replace the native crossing structures. These culverts would be removed after the harvest is completed.
- The plugged culvert in Section 2, T33N, R24W, would be replaced with a larger culvert.

Although forestry BMPs would be followed to minimize sediment delivery, timber harvesting activities within the proposed project would lead to a short-term increase in sediment during and immediately following this work. Because DNRC would incorporate BMPs into the project design as required by *ARM 36.11.422 (2)* and all laws pertaining to SMZs would be followed, a low risk of sediment from timber-harvesting activities would result from the implementation of this alternative. Therefore, the risk of long-term adverse direct or indirect effects to water quality or beneficial uses due to increased sediment would be low.

Approximately 85.3 Equivalent Clearcut Acres (ECA) would be generated from 121 acres of harvest in the Rock Creek watershed, which would result in an annual water yield increase of 1.4 percent. Cumulatively, this project would increase the annual water yield over a fully forested condition to 6.3 percent in the Rock Creek watershed. This level of increase would not be expected to result in impacts that would be different from the current conditions.

Approximately 1700 feet of Riparian Management Zone (RMZ) would have up to 50 percent of the merchantable trees harvested. While this proposal would reduce the recruitable woody debris for this reach along Woods Lake, a majority of the recruitable woody debris and all sub-merchantable vegetation would be retained. This level of harvest (approximately 2 acres) in the RMZ would be expected to have a very low risk of adverse impacts to fish habitat.

The RMZ buffers proposed under this alternative would maintain all of the trees within 50 feet of Class 1 streams and lakes and remove a maximum of 50 percent of the merchantable trees in the remaining RMZ width. Therefore, stream shading post-project is expected to maintain a low risk of increasing stream temperatures due to timber harvesting.

Because all timber-harvesting activities would follow BMPs as required by *ARM 36.11.422* and the direct and indirect effects would have a low or very low risk of impacts, a low risk of additional adverse cumulative effects would be expected to occur under this alternative. This expectation includes (1) the results of a slight decrease in the recruitable woody debris in the RMZ along Woods Lake; (2) soil disturbance associated with road work and CMP installations; and, (3) increases in annual water yield. Because BMPs would be implemented during

timber-harvesting and road-construction operations, the risk of adverse cumulative impacts to water quality and beneficial uses, including the fisheries habitat and water quality addressed by this assessment, would be low.

For more information, refer to Attachment V: Water Resources Analysis.

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.

- **Direct, Indirect and Cumulative Effects of the No-Action Alternative**

Under this alternative, no timber harvest or related activities would occur. No dust associated with log hauling traffic and no burning of slash piles would occur from this proposed action.

- **Direct, Indirect, and Cumulative Effects of the Action Alternative**

The project is located in Airshed 2. Some particulate matter may be introduced into the Airshed from the burning of logging slash. Slash burning would be conducted when conditions favor good to excellent smoke dispersion; therefore, impacts are expected to be minor and temporary. Burning would be conducted during times of adequate ventilation and according to existing rules and regulations. Thus, direct, indirect, and cumulative effects to air quality are expected to be minimal.

During dry periods of the year, road dust may be created on gravel and dirt (native-surfaced) roads, relative to the amount of use. The log-hauling traffic from this proposed sale may increase by 6 to 12 truckloads per day. Depending on the season of harvest and the weather conditions, road dust may increase. In cases where the Forest Officer considers the dust level as unacceptable, the application of dust abatement, such as magnesium chloride, may be required.

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.

Existing Condition

The Forest Management Rules direct DNRC to promote biodiversity by taking a coarse-filter approach that favors an appropriate mix of stand structures and composition on state lands (ARM 36.11.404). The three cover types present within the proposed harvest units are: western larch/Douglas-fir (242 acres), mixed conifer (85 acres), and Douglas-fir (19 acres). The desired future cover types identified for these stands are western larch/Douglas-fir (300 acres), mixed conifer (19 acres), and western white pine (27 acres). Compared to desired future conditions, there is currently an excess of mixed conifer (66 acres) and Douglas-fir (19 acres) cover types, and deficiency in the western larch/Douglas-fir (58 acres) and western white pine (27 acres) cover types.

Forest health is a driving issue for this project. Many of the stands are in severe decline due to insect and disease issues such as the following:

- Dwarf mistletoe is found in western larch and in lodgepole pine, with the most severe infections found within Units 3, 10, 11, 13, and 14;
- White pine blister rust (*C. ribicola*) has killed or is killing all the western white pine within Unit 6;
- Heavy infestations of *P. pini* stem decay is found within the western larch in Units 3 and 13; and
- Severe infections of various root disease such as: *H. annosus*, *P. schweinitzii*, and *Armillaria* are causing high mortality rates within Douglas fir in Units 3, 6, 10, and 13.

Noxious weeds are present along the roads within the project area; these include oxeye daisy, spotted knapweed, orange hawkweed, and St. Johnswort.

Based on Stand Level Inventory (SLI) data and field surveys across the Stillwater Unit, approximately 11 percent (13,034 acres) of the Stillwater Unit analysis area can be classified as old growth using definitions by Green et al. (*Old-Growth Forest Types of the Northern Region, 1992*). There are 465 acres of old growth within the project area. To further describe the characteristics of old growth stands, DNRC developed a tool called the Full Old-Growth Index (FOGI) that assigns an index value to describe the level of development of the attributes commonly associated with old-growth stands. These attributes include number of live, large diameter trees per acre, amount of coarse woody debris, number of snags, amount of decadence, stand structure, gross volume, and crown cover. Each attribute is assigned a point value that describes the level of development of that attribute, and the sum of the point values provides an overall index value for the stand, which can then be grouped into high, medium, and low categories. High attribute old growth stands would be considered to have an increased level of attribute development (higher amounts of large live, trees, snags, coarse woody debris, crown cover, multi-storied canopy structure, etc.) compared to medium- and low-attribute old-growth stands. 202 acres (43 percent) of the old-growth stands in the project area are in the *high attribute* category, 192 acres (41 percent) of the old-growth stands are in the *medium attribute* category, and 71 acres (16 percent) are in the *low attribute* category.

Using the Natural Heritage Program (NHP) database, no sensitive, threatened, or endangered plant species have been documented within any proposed units. *Dryopteris cristata* (Crested shieldfern) and *Ophioglossum pusillum* (Moonworts) are located near Molly Lake. The mitigations implemented into the layout design for the proposed units that are near Molly Lake would provide the necessary protection for those sensitive plants (*Personal communication with Richard Prodggers, Plant Ecologist, Bighorn Environmental Sciences LLC*).

Environmental Effects

• *Direct, Indirect and Cumulative Effects of the No-Action Alternative*

Timber harvesting would not occur at this time. Neither cover types nor age class distributions would be directly or indirectly affected. Stocking levels of shade-tolerant trees and downed woody debris would increase within those stands over time. Various factors, such as insects, diseases, and weather events, would eventually cause more snags to occupy portions of the stands. This, in turn, would increase the potential and/or severity of a wildfire, and in the event that one was ignited, would make it harder to suppress.

Additional mineral soil would not be exposed, and heavy tree canopies would continue to compete with weeds; therefore the risk of additional establishment of weed populations would not likely increase.

• *Direct, Indirect, and Cumulative Effects of the Action Alternative*

Under the proposed action:

- 85 acres that do not currently meet the desired cover type would be converted to desired future conditions.
- DNRC's Stand Level Inventory (SLI) methodologies evaluate age class based on the sawtimber components within stands; stands with greater than 10 percent canopy coverage of sawtimber-size trees will not be classified in the "non-stocked" or "0-39 year age class". As a result of this methodology, most of the units will maintain their current age class. Unit 1 (32 acres) and a portion of Unit 3 (30 acres) would receive an overstory removal treatment which would move these stands from a 200+ age class to a 0-39 year age class; within all other units age class would remain the same.
- 135 acres of old growth would be treated:
 - Approximately 14 acres of high-attribute old-growth and 71 acres of medium-attribute old-growth (85 acres total) would receive an old-growth maintenance treatment, which would remove a portion of the whitewoods (subalpine fir, grand fir, lodgepole pine and Engelmann

spruce) but maintain the stands as old growth as defined by *Green et al. (Old-Growth Forest Types of the Northern Region, 1992)* and ARM 36.11.403 (48). These 85 acres would be converted to low-attribute old-growth due to the removal of most of the lower canopy level of the stand.

- Approximately 50 acres of old growth would receive a regeneration treatment and would remove these areas from old-growth status. Cumulatively, the harvest of 50 acres within this project and the proposed harvesting of 160 acres of old growth within the proposed Lower Herrig Timber sale would reduce the acres of old growth on the Stillwater Unit by 0.1 percent.
- Following harvest and fuels treatments, the connectivity of dense fuel loading and ladder fuels leading to the tree crowns would be removed in the proposed harvest units. The success of aerial and ground attacks on wildfires would likely be improved.
- The spread of noxious weeds from the use of mechanized equipment and ground disturbance would be minimized, but not completely eliminated, by the washing of equipment before entering the site, sowing grass seed on roads after road construction and harvesting (ARM 36.11.445), and applying herbicide on spots of weed outbreaks along approximately 6 miles of roadway.

Additional information can be found in the Project File: Vegetation, located at the Stillwater Unit office.

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.

Existing Condition

The project area provides habitat for a variety of wildlife species, including a host of species that require mature forests and/or use snags and coarse woody debris. Old-growth forest habitat is present within the proposed project area. Mature forest is abundant and well-connected within the project and cumulative effects analysis areas.

Eastern brook trout are the most abundant species found in streams within the project area although many of the streams are not fish-bearing. Westslope cutthroat trout may be present in the lower reach of Rock Creek, which is adjacent to the project area.

Environmental Effects

● *Direct, Indirect and Cumulative Effects of the No-Action Alternative*

Under the No-Action Alternative, no timber harvesting or related activities would occur. Thus, no appreciable changes to existing wildlife or fisheries habitat would be anticipated.

● *Direct, Indirect, and Cumulative Effects of the Action Alternative*

Under the Action Alternative, approximately 346 acres of grand fir, Douglas-fir, western larch, and mixed-conifer forest habitat would be harvested. Seed tree and overstory removal silviculture prescriptions on 261 acres would lead to young, open stands likely not suitable for forest interior species. An additional 85 acres would receive old-growth maintenance treatments that would reduce canopy cover and create scattered openings, but could provide suitable habitat for some species using a mosaic of open and dense forest patches. The Action Alternative would decrease habitat for wildlife species requiring interior forest conditions, while creating habitat for species preferring more open stands or younger forest. Coarse woody debris and snags would be altered during the proposed timber harvesting; however, snags, snag recruits, and coarse woody debris would be retained in all proposed harvest units. Overall, minor adverse direct, indirect, and cumulative effects would be anticipated on terrestrial and avian wildlife habitats.

Because BMPs would be implemented during timber-harvesting and road-construction operations, the risk of adverse cumulative impacts to fisheries habitat would be low.

Refer to *ATTACHMENT VI - WILDLIFE ANALYSIS* and *ATTACHMENT V – WATER RESOURCES* for an in-depth evaluation of wildlife and fisheries habitat and notes pertaining to species potentially present in the project area.

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.

Existing Condition

Threatened and Endangered Species

Suitable potential habitat for grizzly bear and Canada lynx is present in the project area. Both of these species have been documented in their respective cumulative effects analysis areas in the past. Year-round and seasonal open roads are present within the area; serving as a source of disturbance for these species, should they be present.

The Northwestern Land Office “Sensitive Species List” as developed from the State Forest Land Management Plan, was also consulted. The following species were included for detailed study due to historical observations and habitat present within the proposed project area: (1) fisher and (2) pileated woodpeckers.

Environmental Effects

- ***Direct, Indirect and Cumulative Effects of the No-Action Alternative***

Under this alternative, no timber harvesting or related activities would occur. Thus no appreciable changes to disturbance levels or existing grizzly bear, Canada lynx, or sensitive species’ habitat conditions would be anticipated.

- ***Direct, Indirect, and Cumulative Effects of the Action Alternative***

Under the Action Alternative, harvesting would temporarily (10 to 15 years) reduce habitat quality for grizzly bears and Canada lynx on 282 acres. Forest stands receiving intermediate or old-growth maintenance treatments would experience less of a reduction in habitat quality and recover previous levels of suitability faster than stands receiving regeneration treatments. Suitable habitat connectivity would not be expected to be decreased appreciably as the project design retained corridors of mature timber. Short-term increases in open roads and potential disturbance would be expected. Most harvest units would be directly adjacent to existing roads, visual screening along open roads (where present) would be maintained, and no new open roads would be built; minimizing disturbance to bears and lynx. Overall, minor adverse direct, indirect, and cumulative effects would be anticipated that could affect grizzly bear and lynx.

Under the Action Alternative, suitable habitat for fisher and pileated woodpeckers would be altered. The proposed logging would remove trees, some snags, and reduce forest cover. The proposed activities could temporarily (up to 21 months over 3 years) disturb or displace these sensitive species should they be present in close proximity to harvest units. Mitigations and vegetation treatments outlined by the Action Alternative would minimize affects to these wildlife species and meet forest management goals. Minor adverse effects to fisher and pileated woodpeckers in the project area would be anticipated.

Refer to *Attachment VI - WILDLIFE ANALYSIS* for more detailed information.

10. HISTORICAL AND ARCHAEOLOGICAL SITES:

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

The DNRC has no record of cultural resources within the proposed project's area of potential effect; however, a professional inventory of cultural resources has not been conducted of these locales. 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.

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.

- **Direct, Indirect and Cumulative Effects of the No-Action Alternative**

Under this alternative, no timber harvesting or related activities would occur. No changes in visual aesthetics would occur outside of natural events.

- **Direct, Indirect and Cumulative Effects of the Action Alternative**

Visual aesthetic impacts from the proposed project would vary depending on the location of the vantage point. At long range the visual impact would vary depending on the elevation of the vantage point. At low elevation long range vantage points such as along Highway 93, visibility of the project area would be very limited due to surrounding forest and hills and therefore visual impacts would be minimal. For example, Units 4, 13, and 7 may be the only units visible from Highway 93, particularly when there is snow on the ground. At mid range vantage points (such as the Ewing Road), the variations in spacing of the trees retained in the units, location of units and rolling topography would break up visual sight distance resulting in minor visual impacts. At close range, standing within individual harvest units, visual impacts would be the greatest. At this close range, individual scattered trees, stumps and some logging slash would be visible until regeneration has reached a point where sight distance is limited again. Under the Habitat Conservation Plan grizzly bear commitments, DNRC is required to design new clearcut and seed tree units so that visual sight distance is no greater than 600 feet in at least one direction from any point in the unit. By limiting visual sight distance to 600 feet or less, impacts to visual aesthetics at close range would be minimized.

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.

No demand for limited environmental resources or other activities demanding limited environmental resources were identified; therefore, no direct, indirect, or cumulative impacts would occur under either alternative.

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.

- Dog Meadow Timber Sale Project Environmental Assessment (January 2003)
- Duck to Dog Environmental Assessment (May 2007)
- Final HCP/EIS (USFWS/DNRC) (September 2010)
- Highway 93 Corridor Checklist Environmental Assessment (November 2011)
- Mystery Fish Environmental Assessment (April 2012)
- Fish Bull Face Checklist Environmental Assessment (April 2012)

IV. IMPACTS ON THE HUMAN POPULATION

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

14. HUMAN HEALTH AND SAFETY:

Identify any health and safety risks posed by the project.

No unusual safety considerations are associated with the proposed timber sale.

15. INDUSTRIAL, COMMERCIAL AND AGRICULTURE ACTIVITIES AND PRODUCTION:

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

The proposed timber harvest would provide continued industrial production in the region.

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.

Due to the relatively small size of the proposed timber sale, no measurable direct, indirect, or cumulative effects to the employment market would be likely. Based upon the *Bureau of Business and Economic Research, 2008* an average of 10.0 jobs are sustained per year per million board feet of timber harvested.

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.

Due to the relatively small size of the proposed timber sale, no measurable direct, indirect, or cumulative impacts to the tax base or tax revenue would be likely from either alternative.

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

Log trucks hauling to the purchasing mill would result in temporary increases in traffic on U.S. Highway 93. This increase is a normal contributor to the activities of the local community and would not be considered a new or increased source of traffic.

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.

No locally adopted environmental plans are associated with the proposed timber sale.

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.

Dispersed and concentrated recreation occurs within the project area. Dispersed recreation includes hiking, huckleberry picking, and hunting. The concentrated recreation is in the form of a commercial recreation licensee with a current land use license to use portions of the Ewing Road during the winter season. This project would share 1.7 miles of the Ewing Main road if logging occurred during the winter. If winter operations were to occur, efforts would be made to accommodate both logging and associated activities and the licensee.

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.

No measurable direct, indirect, and cumulative impacts related to population and housing would be expected due to the relatively small size of the proposed timber sale project.

22. SOCIAL STRUCTURES AND MORES:

Identify potential disruption of native or traditional lifestyles or communities.

No direct, indirect, and cumulative impacts related to social structures and mores would be expected under either alternative.

23. CULTURAL UNIQUENESS AND DIVERSITY:

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

No direct, indirect, and cumulative impacts related to cultural uniqueness and diversity would be expected under either alternative.

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.

- ***Direct, Indirect and Cumulative Effects of the No-Action Alternative***

No revenue would be generated for the Common Schools Trust at this time. Small timber permits could yield some additional revenue.

- ***Direct, Indirect and Cumulative Effects of the Action Alternative***

The timber harvest would generate approximately \$332,484 for the Common Schools Trust and approximately \$55,200 in Forest Improvement (FI) fees would be collected for FI projects. This is based on a stumpage rate of \$24.98 per ton, multiplied by the estimated volume of tons. This stumpage rate was derived by comparing attributes of the proposed timber sale with the attributes and results of other DNRC timber sales recently advertised for bid. Costs related to the administration of the timber sale program are only tracked at the Northwestern Land Office (NWLO) and Statewide level. DNRC does not track project-level costs for individual timber sales. An annual cash flow analysis is conducted on the DNRC forest product sales program. Revenue and costs are calculated Statewide and by Land Office. From 2006 through 2010, revenue-to-cost ratio of the NWLO was 2.51. This means that, on average, for every \$1.00 spent in costs, \$2.51 in revenue was

generated. Costs, revenues, and estimates of return are estimates intended for relative comparison of alternatives. They are not intended to be used as absolute estimates of return.

EA Checklist Prepared By:	Name: Pete Evans, Elspeth Pevear	Date: 1/17/2013
	Title: Management Foresters	

V. FINDING

25. ALTERNATIVE SELECTED:

An Interdisciplinary team (ID Team) has completed the Environmental Analysis Checklist (EAC) for the proposed Ewing Central Timber Sale Project. Following a thorough review of the EAC, project file, public correspondence, and Department policies and rules, the decision has been made to select the Action Alternative.

The Action Alternative meets the intent of the project objectives as stated in Section I – *Type and Purpose of Action*. Specifically the project would:

- Harvest approximately 2 to 3 million board feet of timber from the Stillwater State Forest to regenerate new stands of healthy trees while improving the vigor and growth of trees remaining in the forest, and reduce the amount of forest fuels and density of trees to mitigate potential effects of wildland fire.
- Generate approximately \$332,484 in revenue and approximately \$55,200 in Forest Improvement Fees for the Common School Trust for an estimated total benefit value to the trust of \$387,684.
- Address loss of value due to stem rot, root rot, dwarf mistletoe, white pine blister rust and blowdown occurring presently in timber stands where the project is located.
- Provide site conditions and utilize a combination of natural regeneration and planting to perpetuate tree species mixes that would move the forest toward preferred covertypes.
- Update road system on property involved, replacing plugged culverts, repairing a road segment where a saturated fill slope had slumped, and installing surface drainage on existing roads to reduce the potential for sediment delivery to streams.

DNRC is required by law to administer these trust lands to produce the largest measure of reasonable and legitimate return over the long run (*Enabling Act of February 22, 1889; 1972 Montana Constitution, Article X Section 11; and, 77-1-212 MCA*). The Action Alternative was designed to be in full compliance of 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 Selected Alternative in the Final EIS of the Montana DNRC Forested State Trust Lands Habitat Conservation Plan (HCP) and associated Record of Decision (ROD), as well as other applicable state and federal laws.

26. SIGNIFICANCE OF POTENTIAL IMPACTS:

The identified resource management concerns have been fully addressed in the environmental analysis that was conducted. Specific project design features and various recommendations of the resource management specialists were incorporated into the design and/or will be implemented during the project to ensure that this project will fall within the limits of acceptable environmental change. Taken individually and cumulatively, the proposed activities are common practices, and no project activities will be conducted on important fragile or unique sites. I find there will be no significant impacts to the human environment as a result of implementing the Action Alternative. In summary, I find that the identified adverse impacts will be controlled, mitigated, or avoided by the design of the project to the extent that the impacts are not significant.

27. NEED FOR FURTHER ENVIRONMENTAL ANALYSIS:

EIS More Detailed EA No Further Analysis

EA Checklist Approved By:	Name: Brian Manning
	Title: Unit Manager, DNRC Stillwater Unit
Signature: /s/ <i>Brian Manning</i>	
Date: January 17, 2013	