CHECKLIST ENVIRONMENTAL ASSESSMENT

Project Name:	Ten Mile Creek AP
Proposed Implementation Date:	Upon Signature
Proponent:	USDA Forest Service - Helena Ranger District
Location:	Sections 17, 20, 29, 32 Township 9 North Range 5 West (see map)
County:	Lewis and Clark

I. TYPE AND PURPOSE OF ACTION

The USDA Forest Service - Helena Ranger District is applying for an Alternative Practice (AP) to salvage beetle killed and hazard trees on Forest Service land located along 10 Mile Creek. Hazard trees are defined as trees that are leaning due to windthrow or mechanical means, or may present a falling or other hazard to the general public. The project would be expected to intermittently impact approximately 3 miles of Class One stream bank. This area has been significantly affected by mountain pine beetle in the lodgepole pine stands. This Alternative Practice would facilitate safe removal of dead and dying trees that have become a safety hazard near utility lines, travel corridors, houses, and other improvements. Many of the trees in the Utility Corridor have already been hand felled by Northwestern Energy though the trees remain in the SMZ.

According to MCA 77-5-301 through 307, DNRC is authorized to administer and enforce the provisions of the SMZ Law. This Law was developed to protect the public interest of water quality and quantity within forested areas; provide for standards, oversights and penalties to ensure forest practices conserve the integrity of SMZ's; provide guidelines for wildlife management within SMZ's; and allow operators necessary flexibility to use practices appropriate to site-specific conditions in the SMZ. ARM 36.11.301 through 313 further specify the design of SMZ boundaries, allowable activities and prohibitions within the SMZ, penalties and other related provisions.

According to MCA 77-5-304 and ARM 36.11.310, DNRC may approve alternative practices that are different from practices required by the SMZ Law only if such practices would be otherwise lawful and continue to conserve or not significantly diminish the integrity and function of the SMZ. The proximity of the beetle infested trees to utility lines, travel corridors, houses, and other improvements has created significant safety issues that may require treatments outside of the allowances of the SMZ law. Treatment would be limited to operation of a grapple type machine (such as an excavator with a grapple or thumb) inside the 50 foot SMZ, but no closer than 25 feet to the ordinary high water mark (OHWM) unless equipment is operating while on an existing road. This treatment would be conducted on slopes less than 15% and would allow removal of lodgepole and ponderosa pine, Douglas-fir, and/or Engelman spruce to below minimum retention standards for some short stretches as identified under Rules 4 and 5 in the *Montana Guide to the Streamside Zone Law and Rules 2006* (ARM 36.11.310-313). Additional mitigations and stipulations pertinent to this request may include:

- Only operation of the grapple type machine inside the 50 foot SMZ would be allowed. Operation would occur in a straight in and straight out manner. A cable choker may be used to retrieve logs that the grapple cannot reach.

- Trees, and slash would be placed outside of the 50 foot buffer, or in an existing roadway for skidding.

-All pilling of woody material for grinding would occur outside of the 50 foot buffer.

- Operation would only occur during periods when soil disturbance can be minimized under conditions of dry ground (<20% moisture content), or, ground frozen to four inches and/or snow covered to eight inches.

-No trees shall be felled in or across the stream. Any debris from falling or skidding operations that enters the stream must be removed immediately.

- Mitigation measures would include grass seeding and slash filter windrows placed on disturbed areas to prevent run-off and sediment from reaching stream segments.

- Small, un-infested lodgepole pine, in addition to other species of trees such as Douglas-fir, Engelmann spruce, quaking aspen and all brush species, would be retained and protected to the greatest extent possible.

- Except for tree retention standards, stream segments that require a 100 foot SMZ buffer under the SMZ Law will not be treated under this AP. Trees felled to help protect the utility corridor may be reduced to below minimum retention standards inside the 100 foot buffers. The determining factor in 50 or 100 buffers is above or below 35% slope. Operation of equipment on slopes greater than 35% is not consistent with The Helena National Forest Plan. This AP only allows for equipment operation on slopes less than 15%.

II. PROJECT DEVELOPMENT

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

Provide a brief chronology of the scoping and ongoing involvement for this project.

Montana DNRC (Roger Ziesak, Devin Healy), Helena Ranger District (Heather DeGeest, David Nunn, Zev Hunting, Sharon Scott)

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

DNRC is not aware of other agencies besides the proponent with jurisdiction. DNRC is not aware of other permits needed to complete this project. Since there are no alterations the existing shape and form of any stream or its banks or tributaries a 124 permit is not needed.

3. ALTERNATIVES CONSIDERED:

Alternative A –No Action: The No Action alternative would not operate machinery inside the fifty foot buffer. Beetle-killed trees left felled and likely removed, in an unregulated manner, for firewood by the general public. In instances when the trees are removed non-commercially, the DNRC has no jurisdiction over operations and excessive disturbance or increased risks to safety may occur.

Alternative B – Action: Please see *Type and Purpose of Action* for a full description of this alternative.

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 any cumulative impacts to soils.

Alternative A - No Action: No equipment operation would be allowed inside the 50 foot SMZ. Minimum retention standards would be recognized. Trees would be likely be taken by the general public as firewood or skidded by cable through the SMZ. Skidding may occur on various types of soils and on various degrees of slopes. Cable skidding each tree out of the SMZ would likely create more soil disturbance than a grapple type machine carrying multiple trees outside of the 50 foot SMZ buffer.

Alternative B – Action: Equipment operation would occur on soils that are described as "moderately suited, or not rated" for timber harvest in the Web Soil Survey (see attached soil survey). Equipment operation inside the SMZ would be minimal and would be limited to areas where slope is less than 15%. Mitigation measures would

include operating season restrictions that require ground moisture of 20% or less or snow covered to eight inches and/or frozen to four inches. In addition, grass-seeding and installation of erosion control measures such as a slash-filter windrow on any disturbed area upon completion of activity would be required. Minimal direct, indirect or cumulative impacts to soil stability and compaction are anticipated due to the operation restrictions and mitigation measures.

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 cumulative effects to water resources.

Alternative A - No Action: No equipment operation would be allowed inside the 50 foot SMZ. Minimum retention standards would be recognized. Trees would be likely be taken by the general public as firewood or skidded by cable through the SMZ. Hand-felling operations may introduce low levels of sediment delivery to adjacent waterbodies. Slash and down woody debris would likely end up in the stream course. High volumes of wood left in the SMZ could contribute to downstream infrastructure damage, and alter the existing stream course flow. Sedimentation delivery from existing roads, other land treatments and developments would continue.

Alternative B – Action: The regulated harvest of trees within the first 25 feet of the SMZ may introduce very low levels of sediment delivery to the stream. However, the 25 foot equipment exclusion zone would be expected to provide adequate filtration for any displaced soils or increased runoff due to compacted soils in the 25 to 50 foot AP zone. Increases in sedimentation would be expected to be very minimal and temporary due to operations only occurring on slopes less than 15% and application of mitigation measures. Mitigation measures include imposing seasonal operating restrictions that require ground moisture to be 20% or less or snow covered to eight inches and/or frozen to four inches; and requiring grass seeding and installation of erosion control measures such as a slash-filter windrow on any disturbed area upon completion of operations. Removal of the dead trees would expedite natural regeneration and cumulative effects to vegetative communities would decrease as trees regenerate and replace those that are harvested. The expedited regeneration would provide shading, and help protect the natural shape and function of the stream course. DNRC may monitor AP sites to verify effectiveness. Minimal direct, indirect, and cumulative impacts to water quality and quantity are expected due to operation restrictions and mitigation measures. Impacts would also be sporadic based on the number and type of entries into the SMZ being proposed.

6. AIR QUALITY:

What pollutants or particulate would be produced? Identify air quality regulations or zones (e.g. Class I air shed) the project would influence. Identify cumulative effects to air quality.

Alternative A - No Action: No direct, indirect, or cumulative impacts will occur.

Alternative B – Action: The Forest Service is planning on grinding slash created from this project, and not burned. No direct, indirect or cumulative impacts are anticipated to occur.

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 cumulative effects to vegetation.

Alternative A - No Action: If no action is taken firewood harvesting, (occurring throughout the year), and skidding of hand-felled trees using trucks or other machinery would have the potential to be more damaging to the residual stand than by grapple type machine. This is due to trees being cut in an unregulated manner and multiple entries by pickup trucks for firewood gathering.

Alternative B – Action: Vegetative communities would be affected to the extent that lodgepole pine would be reduced to below minimum retention standards as outlined in Rule 5 of the *Montana Guide to the Streamside Management Zone Law and Rules* handbook. Other tree species, unless identified as hazardous, such as Douglas-fir, Engelmann spruce and quaking aspen would be retained where present and understory vegetation would be protected to the greatest extent possible. Removal of the dead trees would expedite natural

regeneration and cumulative effects to vegetative communities would decrease as trees regenerate and replace those that are harvested.

8. TERRESTRIAL, AVIAN AND AQUATIC LIFE AND HABITATS:

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

Alternative A – No Action: Due to the areas being heavily used for recreation, firewood harvesting and their proximity to improvements, the suitability of the proposed sites would continue to be marginal at best for terrestrial and avian habitat. Dead lodgepole pine would eventually fall over and/or be removed in a non-commercial manner. (See attached list for *Species of Concern*)

Alternative B – Action: Due to the areas being heavily used for recreation and their proximity to roads and cabins, the suitability of the proposed sites would continue to be marginal at best for terrestrial and avian habitat. Operating restrictions and mitigation measures would minimize sedimentation impacts to fish habitat. The AP may reduce recruitable woody debris in westslope cutthroat trout streams. In areas of pure lodgepole pine stands, stream shading would be minimally reduced and peak seasonal stream temperatures may see an increase in July and August. All other species of trees and brush would be retained and protected to the greatest extent possible. Cumulative impacts would be expected to be short term and minor due to operating restrictions and mitigation measures. (See attached list for *Species of Concern*)

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 cumulative effects to these species and their habitat.

Alternative A – No Action: A query of the Montana Natural Heritage Program identifies the area as being possible habitat for wolverine. Due to the proximity of heavy recreational activities, a heavily traveled county road, and access to cabin sites, this area is not ideal habitat for wolverine. Minimum retention standards would be adhered to as well as equipment restrictions. Dead lodgepole pine would eventually be removed in a non-commercial manner. (See attached list for *Species of Concern*)

Alternative B – Action: If a sighting of any of the listed species of concern (or evidence such as nests, dens etc...) occurs, operations would be halted, or not allowed, until further assessment can take place. (See attached list for *Species of Concern*)

10. HISTORICAL AND ARCHAEOLOGICAL SITES:

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

A systematic inventory of such resources has not occurred. Because the project is not located on state land, the DNRC has no jurisdiction to require landholders to conduct professional level inventories to identify, or develop treatment plans for, privately owned National Register eligible properties. The USFS will make this assessment as part of their analysis. The abandoned and historic railroad bed that parallels the creek would be protected.

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 cumulative effects to aesthetics.

Alternative A – No Action: Minimum retention standards would be adhered to as well as equipment restrictions. Dead lodgepole would eventually be removed in a non-commercial manner. Aesthetics would be degraded there are would be increased impacts on the site by firewood cutters without mitigations and large amounts of woody material on the ground for a longer period of time.

Alternative B – Action: Potential impacts may be perceived as adverse by recreationists, landowners and travelers. The removal of beetle killed lodgepole would look unsightly in the short term, but would encourage regeneration. This regeneration would eventually soften and replace aesthetic quality damaged by mountain pine beetle infestation.

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 cumulative effects to environmental resources.

Alternative A- No Action: No direct, indirect, or cumulative impacts will occur.

Alternative B- Action: No direct, indirect, or cumulative impacts are anticipated to occur.

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.

Alternative A- No Action: No direct, indirect, or cumulative impacts will occur.

Alternative B Action: No direct, indirect, or cumulative impacts are anticipated to occur.

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.

Alternative A – No Action: Improvements such as culverts and bridges would be put in jeopardy as down trees impede water movement.

Alternative B – Action: The removal of beetle killed trees would improve safety to landowners and those that use the area for recreation.

15. INDUSTRIAL, COMMERCIAL AND AGRICULTURE ACTIVITIES AND PRODUCTION:

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

Alternative A- No Action: No direct, indirect, or cumulative impacts will occur.

Alternative B- Action: No direct, indirect, or cumulative impacts are anticipated to occur.

16. QUANTITY AND DISTRIBUTION OF EMPLOYMENT:

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

Alternative A – No Action: Project would continue without mechanical removal of trees inside SMZ with negligible impact to employment.

Alternative B – Action: Project would be allowed during the fall/winter of 2014. Project would employ one crew (approximately 2-4 short-term jobs)

17. LOCAL AND STATE TAX BASE AND TAX REVENUES:

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

Alternative A- No Action: Negligible amounts.

Alternative B- Action: Negligible amounts.

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 cumulative effects of this and other projects on government services

Alternative A- No Action: No direct, indirect, or cumulative impacts will occur.

Alternative B- Action: No direct, indirect, or cumulative impacts are anticipated to occur.

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.

Alternative A- No Action: No direct, indirect, or cumulative impacts will occur.

Alternative B- Action: The Action alternative would reduce fuel loading in areas considered at high risk for wildfire under the Tri-County County Community Wildfire Protection Plan. The Rimini road is the only feasible evacuation route for the community of Rimini. The action alternative is consistent with The Helena National Forest Plan.

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 cumulative effects to recreational and wilderness activities.

Alternative A- No Action: No direct, indirect, or cumulative impacts will occur.

Alternative B- Action: No direct, indirect, or cumulative impacts are anticipated to occur.

21. DENSITY AND DISTRIBUTION OF POPULATION AND HOUSING:
Estimate population changes and additional housing the project would require. Identify cumulative effects to population and housing.

Alternative A- No Action: No direct, indirect, or cumulative impacts will occur.

Alternative B- Action: No direct, indirect, or cumulative impacts are anticipated occur.

22. SOCIAL STRUCTURES AND MORES:
Identify potential disruption of native or traditional lifestyles or communities.

Alternative A- No Action: No direct, indirect, or cumulative impacts will occur.

Alternative B- Action: No direct, indirect, or cumulative impacts are anticipated to occur.

23. CULTURAL UNIQUENESS AND DIVERSITY:
How would the action affect any unique quality of the area?

Alternative A- No Action: No direct, indirect, or cumulative impacts will occur.

Alternative B- Action: No direct, indirect, or cumulative impacts are anticipated to occur.

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 cumulative economic and social effects likely to occur as a result of the proposed action.

Alternative A- No Action: No direct, indirect, or cumulative impacts will occur.

Alternative B- Action: No direct, indirect, or cumulative impacts are anticipated to occur.

EA Checklist Prepared By:	**Name:**	Devin Healy	**Date:**	9/24/2014
	Title:	Helena Unit Forester		

V. FINDING

25. ALTERNATIVE SELECTED:

Alternative B - Action

26. SIGNIFICANCE OF POTENTIAL IMPACTS:

As proposed, no significant impacts to the integrity and function of the SMZ will occur with the implementation of operating restrictions and mitigation measures.

27. NEED FOR FURTHER ENVIRONMENTAL ANALYSIS:

[ ]	EIS	[ ]	More Detailed EA	[X]	No Further Analysis

EA Checklist Approved By:	**Name:**	Andy Burgoyne
	Title:	Helena Unit Manager
Signature:		**Date:**9/26/2014

Animal Species of Concern

1 Special Status Species
8 Species of Concern
2 Potential Species of Concern
Filtered by the following criteria:
Township = 9 N Range = 5 W

Species List Last Updated **04/21/2014**

MONTANA Natural Heritage Program

A program of the Montana State Library's Natural Resource Information System operated by the University of Montana.

Species of Concern

8 Species
Filtered by the following criteria:
Township = 9 N Range = 5 W

MAMMALS (MAMMALIA)

2 SPECIES
FILTERED BY THE FOLLOWING CRITERIA:
TOWNSHIP = 9 N RANGE = 5 W

SCIENTIFIC NAME COMMON NAME TAXA SORT	FAMILY (SCIENTIFIC) FAMILY (COMMON)	GLOBAL RANK	STATE RANK	USFWS	USFS	BLM	CFWCS TIER ID	% OF GLOBAL BREEDING RANGE IN MT	% OF MT THAT IS BREEDING RANGE	HABITAT
Gulo gulo Wolverine	**Mustelidae** Weasels	G4	S3	C	SENSITIVE	SENSITIVE	2	0%	37%	Boreal Forest and Alpine Habitats
		Species verified in these Counties: Beaverhead, Broadwater, Carbon, Cascade, Deer Lodge, Flathead, Gallatin, Glacier, Granite, Jefferson, Judith Basin, Lake, Lewis and Clark, Lincoln, Madison, Meagher, Mineral, Missoula, Park, Pondera, Powell, Ravalli, Sanders, Silver Bow, Stillwater, Sweet Grass, Teton, Wheatland								
Lasiurus cinereus Hoary Bat	**Vespertilionidae** Bats	G5	S3				2	2%	100%	Riparian and forest
		Species verified in these Counties: Beaverhead, Big Horn, Blaine, Broadwater, Carbon, Carter, Cascade, Chouteau, Custer, Dawson, Deer Lodge, Fallon, Fergus, Flathead, Gallatin, Garfield, Glacier, Golden Valley, Granite, Hill, Jefferson, Judith Basin, Lake, Lewis and Clark, Liberty, Lincoln, Madison, McCone, Meagher, Mineral, Missoula, Musselshell, Park, Petroleum, Phillips, Powder River, Powell, Prairie, Ravalli, Richland, Rosebud, Sanders, Silver Bow, Stillwater, Sweet Grass, Teton, Toole, Treasure, Valley, Wibaux, Yellowstone								

BIRDS (AVES)

6 SPECIES
FILTERED BY THE FOLLOWING CRITERIA:
TOWNSHIP = 9 N RANGE = 5 W

SCIENTIFIC NAME COMMON NAME TAXA SORT	FAMILY (SCIENTIFIC) FAMILY (COMMON)	GLOBAL RANK	STATE RANK	USFWS	USFS	BLM	CFWCS TIER ID	% OF GLOBAL BREEDING RANGE IN MT	% OF MT THAT IS BREEDING RANGE	HABITAT
Accipiter gentilis Northern Goshawk	**Accipitridae** Hawks / Kites / Eagles	G5	S3			SENSITIVE	2	2%	68%	Mixed conifer forests
		Species verified in these Counties: Beaverhead, Broadwater, Carbon, Carter, Deer Lodge, Fergus, Flathead, Gallatin, Glacier, Granite, Jefferson, Judith Basin, Lake, Lewis and Clark, Liberty, Lincoln, Madison, Meagher, Mineral, Missoula, Park, Powder River, Powell, Ravalli, Rosebud, Sanders, Silver Bow, Stillwater, Sweet Grass, Teton, Wheatland								
Certhia americana Brown Creeper	**Certhiidae** Creepers	G5	S3				2	4%	53%	Moist conifer forests
		Species verified in these Counties: Beaverhead, Broadwater, Carbon, Carter, Cascade, Chouteau, Deer Lodge, Fergus, Flathead, Gallatin, Glacier, Golden Valley, Granite, Jefferson, Judith Basin, Lake, Lewis and Clark, Lincoln, Madison, Meagher, Mineral, Missoula, Park, Powder River, Powell, Ravalli, Rosebud, Sanders, Silver Bow, Stillwater, Sweet Grass, Teton, Wheatland								
Dryocopus pileatus Pileated Woodpecker	**Picidae** Woodpeckers	G5	S3				2	1%	27%	Moist conifer forests
		Species verified in these Counties: Beaverhead, Broadwater, Cascade, Flathead, Gallatin, Glacier, Golden Valley, Granite, Jefferson, Judith Basin, Lake, Lewis and Clark, Lincoln, Madison, Meagher, Mineral, Missoula, Park, Powell, Ravalli, Sanders, Silver Bow								
Haemorhous cassinii Cassin's Finch	**Fringillidae** Finches	G5	S3				3	11%	62%	Drier conifer forest
		Species verified in these Counties: Beaverhead, Big Horn, Broadwater, Carbon, Cascade, Chouteau, Custer, Deer Lodge, Fergus, Flathead, Gallatin, Glacier, Golden Valley, Granite, Jefferson, Judith Basin, Lake, Lewis and Clark, Lincoln, Madison, Meagher, Mineral, Missoula, Musselshell, Park, Petroleum, Phillips, Powder								

		River, Powell, Ravalli, Rosebud, Sanders, Silver Bow, Stillwater, Sweet Grass, Teton, Wheatland, Yellowstone								
Nucifraga columbiana Clark's Nutcracker	**Corvidae** Jays / Crows / Magpies	G5	S3				3	9%	84%	Conifer forest
		Species verified in these Counties: Beaverhead, Big Horn, Blaine, Broadwater, Carbon, Carter, Cascade, Chouteau, Deer Lodge, Fergus, Flathead, Gallatin, Glacier, Golden Valley, Granite, Jefferson, Judith Basin, Lake, Lewis and Clark, Liberty, Lincoln, Madison, Meagher, Mineral, Missoula, Musselshell, Park, Petroleum, Phillips, Pondera, Powder River, Powell, Ravalli, Sanders, Silver Bow, Stillwater, Sweet Grass, Teton, Toole, Wheatland								
Psiloscops flammeolus Flammulated Owl	**Strigidae** Owls	G4	S3B		SENSITIVE	SENSITIVE	1	2%	36%	Dry conifer forest
		Species verified in these Counties: Beaverhead, Gallatin, Granite, Jefferson, Lake, Lewis and Clark, Lincoln, Madison, Mineral, Missoula, Powell, Ravalli, Sanders								

Plant Species of Concern

Filtered by the following criteria:
Township = 9 N Range = 5 E

Species List Last Updated **06/18/2014**

MONTANA Natural Heritage Program

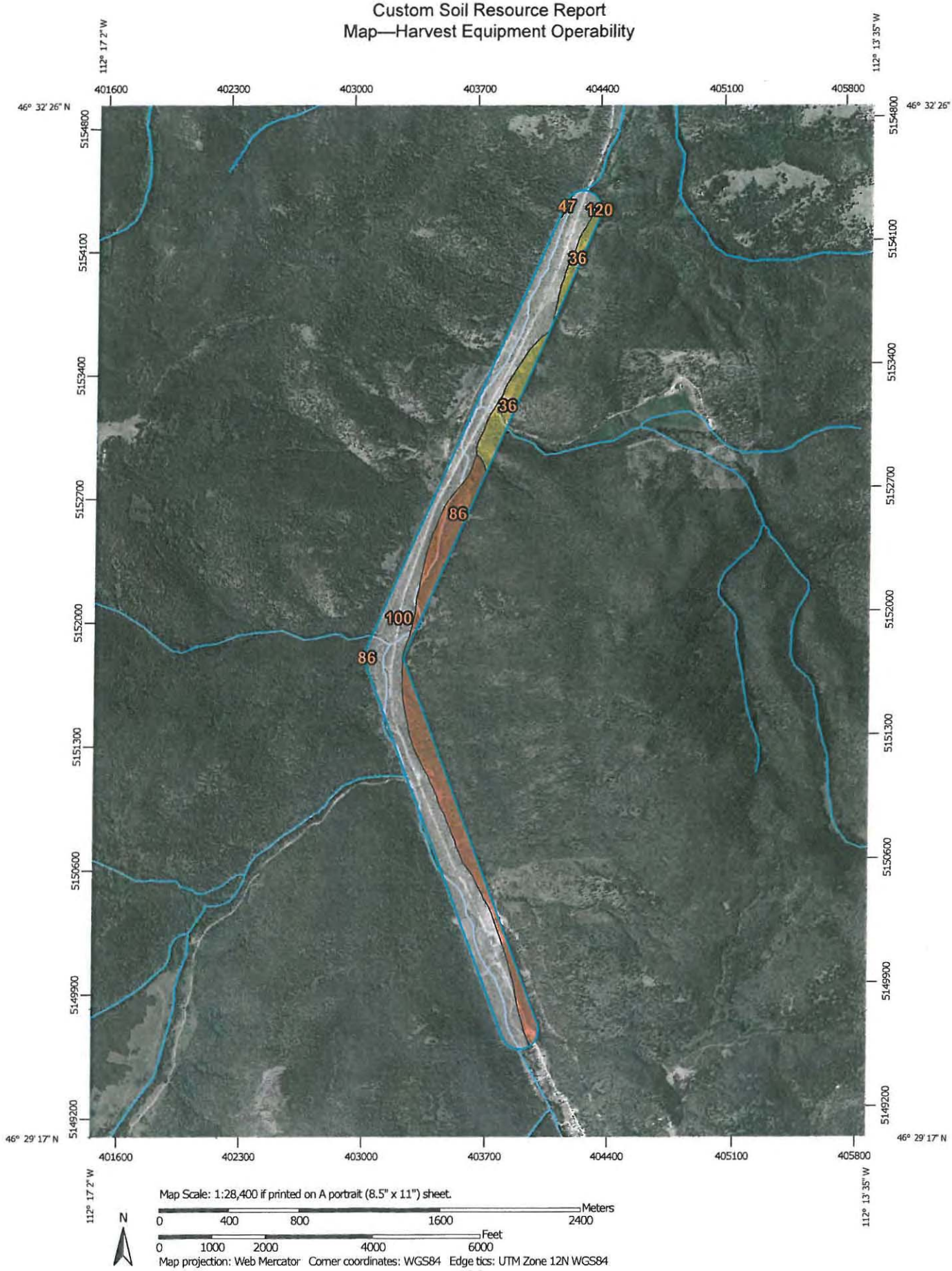
A program of the Montana State Library's Natural Resource Information System operated by the University of Montana.

Species of Concern

0 Species
Filtered by the following criteria:
Township = 9 N Range = 5 E

Citation for data on this website:
Montana Plant Species of Concern Report. Montana Natural Heritage Program. Retrieved on 9/24/2014, from http://mtnhp.org/SpeciesOfConcern/?AorP=p

Custom Soil Resource Report
Map—Harvest Equipment Operability



Map Scale: 1:28,400 if printed on A portrait (8.5" x 11") sheet.

N

Meters: 0 400 800 1600 2400

Feet: 0 1000 2000 4000 6000

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 12N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils

Soil Rating Polygons
- Poorly suited
- Moderately suited
- Well suited
- Not rated or not available

Soil Rating Lines
- Poorly suited
- Moderately suited
- Well suited
- Not rated or not available

Soil Rating Points
- Poorly suited
- Moderately suited
- Well suited
- Not rated or not available

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: http://websoilsurvey.nrcs.usda.gov
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Helena National Forest Area, Montana
Survey Area Data: Version 7, Dec 10, 2013

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jul 9, 2011—Jul 17, 2011

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Tables—Harvest Equipment Operability

Harvest Equipment Operability— Summary by Map Unit — Helena National Forest Area, Montana (MT631)						
Map unit symbol	**Map unit name**	**Rating**	**Component name (percent)**	**Rating reasons (numeric values)**	**Acres in AOI**	**Percent of AOI**
36	Typic Cryoboralfs, bouldery, granitic substratum	Moderately suited	Typic Cryoboralfs (85%)	Slope (0.50)	24.8	9.1%
				Sandiness (0.50)		
47	Typic Cryoboralfs and Mollic Cryoboralfs, basaltic substratum	Moderately suited	Mollic Cryoboralfs (45%)	Slope (0.50)	0.5	0.2%
				Low strength (0.50)		
				Dusty (0.30)		
			Typic Cryoboralfs (45%)	Slope (0.50)		
				Low strength (0.50)		
				Dusty (0.30)		
86	Typic Ustochrepts-Rock outcrop complex, glacial trough walls, granitic substratum	Poorly suited	Typic Ustochrepts (50%)	Slope (1.00)	66.4	24.2%
				Sandiness (0.50)		
				Dusty (0.03)		
100	Borolls, flood plains and terraces	Not rated	Borolls (90%)		181.8	66.4%
120	Typic Cryoboralfs-Typic Cryochrepts complex, granitic substratum	Well suited	Typic Cryoboralfs (45%)	Dusty (0.22)	0.3	0.1%
Totals for Area of Interest					**273.8**	**100.0%**

Harvest Equipment Operability— Summary by Rating Value		
Rating	**Acres in AOI**	**Percent of AOI**
Poorly suited	66.4	24.2%
Moderately suited	25.3	9.2%
Well suited	0.3	0.1%
Null or Not Rated	181.8	66.4%
Totals for Area of Interest	**273.8**	**100.0%**

Rating Options—Harvest Equipment Operability

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher