

Environmental Assessment Checklist

Project Name: South Boulder
Proposed Implementation Date: July 2020
Proponent: Bozeman Unit, Central Land Office, Montana DNRC
County: Madison

Type and Purpose of Action

Description of Proposed Action:

The Bozeman Unit of the Montana Department of Natural Resources and Conservation (DNRC) is proposing the South Boulder Timber Permit. The project area is located ~9 air miles northwest of Harrison, MT (refer to Attachments vicinity map and project site map) and includes the following sections:

Beneficiary	Legal Description	Total Acres	Treated Acres
Common Schools	W2SW4 Section 27, T1S, R3W	80	11.3
	N2NE4SW4, N2SE4NW4, S2NE4 & N2SE4 Section 28, T1S, R3W	200	51.5

Objectives of the project include:

- The primary objective would be to generate revenue for the Common Schools Trust while improving the health, vigor, and productivity of the forest stand.
- The desired future condition of this stand is a Douglas-fir cover type.
- Regeneration would be expected to occur naturally.

Proposed activities include:

Action	Quantity
Proposed Harvest Activities	# Acres
Clearcut	
Seed Tree	22.8
Shelterwood	10
Selection	30
Commercial Thinning	
Salvage	
Total Treatment Acres	62.8
Proposed Forest Improvement Treatment	# Acres
Pre-commercial Thinning	

Action	Quantity
Planting	
Proposed Road Activities	
	# Miles
New permanent road construction	
New restricted road construction	0.8
Road maintenance	0.8
Road reconstruction	
Road abandoned	
Road reclaimed	
Other Activities	

Duration of Activities:	6 months
Implementation Period:	July 2020 thru September 2022

The lands involved in this proposed project are held in trust by the State of Montana. (Enabling Act of February 22, 1889; 1972 Montana Constitution, Article X, Section 11). The Board of Land Commissioners and the DNRC are required by law to administer these trust lands to produce the largest measure of reasonable and legitimate return over the long run for the beneficiary institutions (Section 77-1-202, MCA).

The DNRC would manage lands involved in this project in accordance with:

- The State Forest Land Management Plan (DNRC 1996),
- Administrative Rules for Forest Management (ARM 36.11.401 through 471),
- The Montana DNRC Forested State Trust Lands Habitat Conservation Plan (HCP) (DNRC 2010),
- and all other applicable state and federal laws.

Project Development

SCOPING:

- DATE:
 - April 20, 2020
- PUBLIC SCOPED:
 - The scoping notice was posted on the DNRC Website: <http://dnrc.mt.gov/PublicInterest/Notices/Default.asp>
 - Adjacent landowners.
- AGENCIES SCOPED:
 - MT FWP
 - USFS
 - MT DNRC
 - Madison County
- COMMENTS RECEIVED:

- How many: Three comments were received from agency and other interested parties.
- Concerns: Primary concerns were new road construction would facilitate additional public access intensifying wildlife security issues and project activities would increase weeds.
Additional comments: Thinning the forest would have a positive effect on wildlife and their forage, logging would be good for forest and glad to see State doing a logging project.
- Results (how were concerns addressed): Project leader responded individually to comments and those responses were recorded in the project file. Where specific resource concerns were posed, those resources affected were analyzed and the effects are disclosed in the resources analysis within this document.

DNRC specialists were consulted, including: Patrick Rennie, Archaeologist; Jeff Schmalenberg, Resource Management and Planning Section; Ross Baty, Wildlife Biologist; Sierra Farmer, Forest Management Planner.

Internal and external issues and concerns were incorporated into project planning and design and would be implemented in associated contracts.

OTHER GOVERNMENTAL AGENCIES WITH JURISDICTION, LIST OF PERMITS NEEDED:

- **United States Fish & Wildlife Service** - DNRC is managing the habitats of threatened and endangered species on this project by implementing the Montana DNRC Forested Trust Lands 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. The HCP can be found at www.dnrc.mt.gov/HCP.
- **Montana Department of Environmental Quality (DEQ)** - DNRC is classified as a major open burner by DEQ and 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.
- **Montana/Idaho Airshed Group** - The DNRC is a member of the Montana/Idaho Airshed Group which was formed to minimize or prevent smoke impacts while using fire to accomplish land management objectives and/or fuel hazard reduction (Montana/Idaho Airshed Group 2006). The Group determines the delineation of airsheds and impact zones throughout Idaho and Montana. Airsheds describe those geographical areas that have similar atmospheric conditions, while impact zones describe any area in Montana or Idaho that the Group deems smoke sensitive and/or having an existing air quality problem (Montana/Idaho Airshed Group 2006). As a member of the Airshed Group, DNRC agrees to burn only on days approved for good smoke dispersion as determined by the Smoke Management Unit.

- **Montana Department of Fish, Wildlife, and Parks (FWP)** - A Stream Preservation Act Permit (124 Permit) is required for activities that may affect the natural shape and form of any stream or its banks or tributaries.

ALTERNATIVES CONSIDERED:

No-Action Alternative: Under the no-action alternative, no harvest would occur, no new road would be constructed and timber management for the proposed project area would be deferred indefinitely. An opportunity to generate revenue for the Common Schools Trust would be lost.

Action Alternative: Under the action alternative, a commercial harvest of approximately 500 MBF of Douglas-fir sawtimber from ~63 treated acres would occur. The proposed project would construct approximately 0.8 miles of minimum standard temporary new road and install a temporary ford crossing to access the harvest areas. At project closure, the new road would be waterbared, seeded and physically closed with slash and debris. Skid trails would be seeded and closed with slash and debris. Ground based harvest systems would utilize shelterwood, selection and seed tree (6-12 leave trees per acre depending on availability) harvests. Treatment would generate revenue for the Common Schools Trust while improving the health, vigor, and productivity of the forest stand.

Impacts on the Physical Environment

Evaluation of the impacts on the No-Action and Action Alternatives including **direct, secondary, and cumulative** impacts on the Physical Environment.

VEGETATION:

Vegetation Existing Conditions: The stands are located at the northern edge of the foothills of the Tobacco Root Mountains. Habitat type is Douglas fir/Snowberry with an expected productivity of 35-65 cu ft/ac/year. The cover type is Douglas-fir and the desired future condition of the stands. Douglas-fir is a moderately shade tolerant species and is the indicated climax species and vigorous seral for the respective habitat types. The stands are included in fire group six. The fire disturbance regime was likely low to moderate severity fires occurring at 40 to 45-year interval, maintaining mature stands in a more open condition with an occasional stand replacing fire occurring in denser, overstocked areas. The absence of fire, in combination with encroachment, has resulted in overstocked and suppressed stands. These conditions have made the stands more susceptible to attack from insects and disease and created heavier fuel loadings than were historically present. Spruce Budworm is low to moderate and present in all stands and pockets of root rot are present in Unit 1. There has been selective harvesting on adjacent private lands to the north of Section 27 in the last 30 years and a wildfire in 2012 immediately south of the project area. Minor harvesting occurred on Section 27 ~50-70 years ago.

Stands are exhibiting low vigor and poor growth due mainly to too many mature trees per acre competing for the same limited resources. Compounded by droughty conditions over the last decade and recurrent infestations of Spruce Budworm, trees are stressed and in poor health. Reducing the trees per acre by reducing the basal area in these stands would lessen the

competition for resources while promoting a healthier environment and healthier trees more able to fend off attacks from insects and disease. Opening the crown canopy would create gaps to let in sunlight and aid in establishment of Douglas-fir regeneration. Additionally, reducing the trees per acre and creating space in the crown canopy would reduce fuel loadings within the stands and may help change the character a high severity fire.

Severity of stand conditions would dictate harvest method used, emulating low to moderate severity ground fires. Harvest prescription would reduce overstocking and suppression, additional susceptibility to insect and disease and hazardous fuels; recover value from timber; open the stands to encourage natural regeneration of Douglas-fir and maintain a Douglas-fir cover type while bringing the stands back to a more historic open, park like condition; and promote existing aspen stands where applicable.

Some larger relic trees are scattered through the stands but there are not enough to meet the DNRC old growth minimum criteria. Under growth is light to moderate with negligible conifer regeneration within the timbered stands. No rare plants or cover types have been noted or observed within the project area.

Noxious weeds are present within the project area with moderate infestations of houndstoung observed.

Vegetation	Impact												Can Impact Be Mitigated?	Comment Number
	Direct				Secondary				Cumulative					
	No	Low	Mod	High	No	Low	Mod	High	No	Low	Mod	High		
No-Action														
Noxious Weeds		x				x				x			Yes	1
Rare Plants	x				x				x				N/A	
Vegetative community		x				x				x			No	2
Old Growth	x				x				x				N/A	
Action														
Noxious Weeds		x				x				x			Yes	3
Rare Plants	x				x				x				N/A	
Vegetative community		x				x				x			Yes	4
Old Growth	x				x				x				N/A	

Comments:

1. The State can conduct resource monitoring and corrective actions if necessary.
2. Stand overstocking would continue to reduce vigor and growth and leave stands at a greater risk to insect and disease attack and heavier fuel loadings.
3. Mechanical treatment would increase ground disturbance and increase the potential spread of noxious weeds. The State would perform weed monitoring and management as necessary. In time, native species would be expected to out compete the invasive species and return the area to a more pre-harvest condition.
4. Harvest treatments would remove up to 65% of the sawtimber basal area, improving the health, vigor, and productivity of the stands. Douglas-fir leave trees and trees from

adjacent stands would provide a seed source for regeneration and new timber stands in the long-term.

Vegetation Mitigations:

- All road and logging equipment would be power washed and inspected prior to being brought on site.
- Project area would be monitored for noxious weeds during and following harvest and a weed treatment plan would be developed and implemented for 3-5 years.
- All new roads and culvert installations would be reseeded with native site adapted grass to reduce the threat of noxious weed spread. Grass seed disturbed sites (landings, slash piles, major skid trails) at the completion of the project. Seed mix used would be appropriate for the site.
- Two large snags and snag recruits (≥ 21 " dbh or next dbh class) per acre would be left where available. Cull live trees and cull snags would be retained where applicable. Sub-merchantable/non-merchantable trees and shrubs would be protected and retained where available. Retain visual screening cover in harvest units and riparian and wetland management zones. Emphasize the retention of downed logs of 15-inch diameter or larger where available. Retain live, healthy older trees and stand attributes suitable for old growth development where available and applicable.
- Compliance with Forestry Best Management Practices (BMP's), Streamside Management Zone (SMZ) laws, DNRC Forested State Trust Lands Habitat Conservation Plan (HCP) and DNRC Forest Management Administrative Rules.

SOIL DISTURBANCE AND PRODUCTIVITY:

Soil Disturbance and Productivity Existing Conditions: Soils in the project area are very gravelly loams derived from gneiss, schist, andesite and granite parent materials. The soils are deep, well drained and moderately productive. Constructed roads would have a moderate to high risk of erosion, compaction and surface displacement and would require special design and mitigation measures to control. The soils within the harvest units have a low to moderate risk of erosion, compaction and surface displacement from off road equipment operations. No areas of slope instability were observed within the project area during field review.

Soil Disturbance and Productivity	Impact												Can Impact Be Mitigated?	Comment Number
	Direct				Secondary				Cumulative					
	No	Low	Mod	High	No	Low	Mod	High	No	Low	Mod	High		
No-Action														
Physical Disturbance (Compaction and Displacement)	x				x				x				N/A	
Erosion	x				x				x				N/A	
Nutrient Cycling	x				x				x				N/A	
Slope Stability	x				x				x				N/A	
Soil Productivity	x				x				x				N/A	
Action														

Soil Disturbance and Productivity	Impact												Can Impact Be Mitigated?	Comment Number
	Direct				Secondary				Cumulative					
	No	Low	Mod	High	No	Low	Mod	High	No	Low	Mod	High		
Physical Disturbance (Compaction and Displacement)			x			x				x			Yes	1,2
Erosion			x			x				x			Yes	1,2
Nutrient Cycling			x			x				x			Yes	1,2
Slope Stability	x				x				x				N/A	
Soil Productivity		x				x				x			Yes	1,2

Soil Comments:

1 & 2. Detrimental soil impacts resulting from compaction, displacement and erosion would be expected on approximately 15% or less of the harvest area and would be localized to access roads, primary skid trails and log landing sites. Project area nutrient pools are not expected to be affected if 5-10 tons of fine and coarse woody material is retained onsite for long-term soil organic matter supply and nutrient cycling. Woody material retention and managing seasonal operating periods in concert with limiting soil disturbance is expected to maintain long-term productivity.

For an impact to soil resources to be cumulative they must overlap at least twice in both time and space. Considering this constraint, the proposed action presents a low-level risk of cumulative effects to soil resources in the project area.

Soil Mitigations:

- Limit equipment operations to periods when soils are dry (less than 20% soil moisture), frozen or snow covered (12 inches packed or 18 inches unconsolidated) to minimize soil compaction, rutting, vegetative disturbance and maintain drainage features. Control erosion by installing adequate drainage on roads and skid trails.
- Retain all fine litter as feasible and 5-10 tons/acre of large woody debris >3" diameter including 1 large log (>15 inches dbh) per acre greater than 20 feet long as feasible.
- Minimize soil disturbance by general skid trail planning and limit sustained tractor skidding to slopes ≤45% throughout entire project. Limit scarification to 30-40% of the harvest area. Slash would be left in the harvest units where feasible, and distributed on skid trails upon completion of use, for nutrient cycling, to control erosion and to provide shade and moisture retention.
- The locations and spacing of skid trails and landings shall be designated and approved prior to operations and skid trails would not be spaced less than 50 feet apart.
- Install adequate road drainage to control erosion concurrent with harvest activities and new restricted road construction. Provide effective sediment filtration along drainage features near crossing sites. At project closure, the restricted new roads on the State land would be waterbared, seeded and physically closed with slash and debris. Major skid trails would be closed with slash and debris.
- At sale closure, grass seed roads, skid trails (where needed) and landings with an appropriate seed mixture.

- Compliance with Forestry Best Management Practices (BMP's), Streamside Management Zone (SMZ) laws, DNRC Forested State Trust Lands Habitat Conservation Plan (HCP) and applicable DNRC Forest Management Administrative Rules.

WATER QUALITY AND QUANTITY:

Water Quality and Quantity Existing Conditions: The harvest area is located immediately south of the confluence of the South Boulder River and Carmichael Creek. There is an unnamed Class 2 intermittent tributary which divides Units 1 and 2 in Section 28. This stream is intercepted by a ditch and does not contribute to the South Boulder River. Unit 1 is drained by ephemeral draws which show no evidence of a channel or concentrated surface flow.

The South Boulder River is a Class 1 stream and has a known cold-water fishery (rainbow, brown and brook trout). Carmichael Creek is a Class 2 intermittent tributary known to be dry after the spring runoff and rainy period but does contribute to the South Boulder River for six months out of the year. Carmichael Creek has no known fishery.

Access to the harvest area would use existing county roads and new roads constructed on the State parcels. Some segments of the existing county roads do not meet BMP's. Section 27 would require ~0.2 miles of new restricted road and the installation of a temporary ford crossing in Carmichael Creek. Section 28 would require ~0.6 miles of new restricted road to access the remainder of the harvest units.

Water Quality & Quantity	Impact												Can Impact Be Mitigated?	Comment Number
	Direct				Secondary				Cumulative					
	No	Low	Mod	High	No	Low	Mod	High	No	Low	Mod	High		
No-Action														
Water Quality	x				x				x					
Water Quantity	x				x				x					
Action														
Water Quality			x			x			x				Yes	1,3
Water Quantity	x				x				x				Yes	2

Comments:

1. Due to the silvicultural prescription, location of harvest units relative to stream channels, location of new road construction, stream crossing design and implementation of Forest Management BMP's within the project area there is a moderate risk of moderate direct water quality impacts. A low risk of low level secondary and cumulative impacts to water quality exist.
2. Forest stands within the project area are not a major influence on the hydrology and flow regimes of the streams draining the proposed timber sale area. Many of the trees in the proposed harvest units have been affected by spruce budworm. The proposed harvest is not expected to substantially decrease the levels of canopy interception or evapotranspiration potential over that likely to occur in these watersheds under the no action. The levels of harvest proposed are also well below those cumulative levels associated with detrimental increases in water yield. Due to these factors, no direct, secondary or cumulative impacts to water quantity are anticipated under the proposed action.

3. Carmichael Creek would have a 50-foot SMZ established. The South Boulder River and the unnamed intermittent Class 2 stream in Section 28 would have a 100-foot RMZ and SMZ, respectively, established. No harvest within any SMZ or RMZ is proposed. This, along with topographic shading, would provide adequate shade, woody debris recruitment and sediment filtration to protect adjacent and downstream beneficial uses.

Water Quality & Quantity Mitigations:

- Limit equipment operations to periods when soils are dry (less than 20% soil moisture), frozen or snow covered (12 inches packed or 18 inches unconsolidated).
- Establishment of stream and riparian management zones and prohibit equipment operations or timber harvest within these zones.
- Installation of a temporary ford to cross Carmichael Creek to facilitate log hauling while minimizing disturbance within the SMZ and to the streambed and banks. Ford crossing approaches would be reinforced with ~3" lift of native angular rock and rolling dips/grade breaks installed to divert sediment away from the stream. At project closure, the ford crossing approaches would be seeded, physically closed with slash and large logs and "No Motorized Vehicles" signage installed.
- Install waterbars, seed and distribute slash and debris on all restricted new road construction and distribute slash and debris and seed major skid trails where applicable at end of project.
- Compliance with Forestry Best Management Practices (BMP's), Streamside Management Zone (SMZ) laws, DNRC Forested State Trust Lands Habitat Conservation Plan (HCP) and applicable DNRC Forest Management Administrative Rules.

WILDLIFE:

Wildlife Existing Conditions: The project area is dominated by mature encroachment Douglas fir stands at the lower elevations transitioning to Douglas fir mixed with lodgepole pine to more pure stands of lodgepole pine as elevations increase. Much of the existing forested area in the project area is present due to encroachment during the last 150 years. A few large live trees and very few snags are found in the project area. Coarse woody debris amounts are generally low due to the younger age of stands and community types. The project area occurs along a forest grassland ecotone providing habitat for many native song birds, raptors, big game species, and predators. The project area is located on the northern edge of the foothills of the Tobacco Root Mountain Range. Big game summer habitats exist in the project area.

No-Action: No potential for disturbance to wildlife would be anticipated. No timber management activities would be conducted, thus no appreciable changes to existing habitats would occur. No changes in snag or large live tree availability would be anticipated. Continued maturation within existing stands could improve hiding cover and thermal cover for elk and mule deer, and other wildlife species that use forest cover to meet their life requisites. No direct effects would occur and negligible indirect, or cumulative effects would occur.

Action Alternative (see Wildlife table below):

Wildlife	Impact												Can Impact be Mitigated?	Comment Number
	Direct				Secondary				Cumulative					
	No	Low	Mod	High	No	Low	Mod	High	No	Low	Mod	High		
Threatened and Endangered Species														
Grizzly bear <i>(Ursus arctos)</i> Habitat: Recovery areas, security from human activity		X			X				X				Y	1
Canada lynx <i>(Felix lynx)</i> Habitat: Subalpine fir habitat types, dense sapling, old forest, deep snow zone		X			X				X				Y	2
Wolverine <i>(Gulo gulo)</i>	X				X				X					4
Sensitive Species														
Bald eagle <i>(Haliaeetus leucocephalus)</i> Habitat: Late-successional forest within 1 mile of open water		X				X				X			Y	3
Black-backed woodpecker <i>(Picoides arcticus)</i> Habitat: Mature to old burned or beetle-infested forest	X				X				X					4
Black-tailed prairie dog <i>(Cynomys ludovicianus)</i> Habitat: grasslands, short-grass prairie, sagebrush semi-desert	X				X				X					4
Flammulated owl <i>(Otus flammeolus)</i> Habitat: Late-successional ponderosa pine and Douglas-fir forest	X				X				X					4
Gray Wolf <i>(Canis lupus)</i>	X				X				X					5

Wildlife	Impact												Can Impact be Mitigated?	Comment Number
	Direct				Secondary				Cumulative					
	No	Low	Mod	High	No	Low	Mod	High	No	Low	Mod	High		
Habitat: Ample big game populations, security from human activities														
Harlequin duck <i>(Histrionicus histrionicus)</i> Habitat: White-water streams, boulder and cobble substrates	X				X				X					4
Northern bog lemming <i>(Synaptomys borealis)</i> Habitat: Sphagnum meadows, bogs, fens with thick moss mats	X				X				X					4
Mountain plover <i>(Charadrius montanus)</i> Habitat: short-grass prairie & prairie dog towns	X				X				X					4
Peregrine falcon <i>(Falco peregrinus)</i> Habitat: Cliff features near open foraging areas and/or wetlands	X				X				X					6
Pileated woodpecker <i>(Dryocopus pileatus)</i> Habitat: Late-successional ponderosa pine and larch-fir forest	X				X				X					4
Greater Sage grouse <i>(Centrocercus urophasianus)</i> Habitat: sagebrush semi-desert	X				X				X					7
Townsend's big-eared bat <i>(Plecotus townsendii)</i> Habitat: Caves, caverns, old mines	X				X				X					4

Wildlife	Impact												Can Impact be Mitigated?	Comment Number
	Direct				Secondary				Cumulative					
	No	Low	Mod	High	No	Low	Mod	High	No	Low	Mod	High		
Big Game Species														
Elk		X				X				X			Y	8
Whitetail		X				X				X			Y	8
Mule Deer		X				X				X			Y	8
Black Bear		X				X				X			Y	8
Other Species or Issues														
Snags		X				X				X			Y	9
Large Live Trees		X				X				X			Y	9

Comments:

1. The project area lies approximately 34 miles northwest of the GYE grizzly bear recovery zone. Grizzly bear use of the foothills of the Tobacco Root Mountains may occur, however, the project area is outside of the occupied habitat boundary described by Wittinger (2002). Human access levels are presently high due to the multiple public accesses in the project area. Although potential riparian habitat for grizzly bears is found within the project area, cover and habitat connectivity associated with any riparian areas would not be affected. Ample amounts of forest cover would remain after the timber harvest, and no additional open roads would occur as a part of this proposal. Approximately 0.8 miles of minimum standard restricted new road would be constructed to access the proposed harvest units and would be physically closed at project completion. Stand density in harvest unit would be reduced with patchy cover retained for visual screening. Proposed project activities would not occur from April 15 - June 1 to minimize risk to bears in the spring period. The potential for any measurable increases in bear-human conflicts following the project activities are expected to be low. Adverse direct, indirect or cumulative impacts to bears as a result of this project are expected to be minor.
2. Douglas fir forest cover type within the project area does not contain the high horizontal cover comprised of subalpine and spruce bows that provide habitat for snowshoe hares or coarse woody debris that is preferred for denning. Most habitat in the project area is likely best suited as travel habitat or matrix habitat that would facilitate movement, linkage, and provide habitat for secondary prey species such as red squirrels. Under the proposed action ~62.8 treated acres (20%) of existing suitable habitat are proposed for harvest and would be converted to temporary non-suitable habitat. Sub-merchantable and non-merchantable trees and shrubs and patches of advanced regeneration of shade-tolerant trees would be protected and retained where available and practical. Considering preferred lynx habitat is marginal within the proposed project area due to the lack of highly desirable habitat conditions for lynx and their primary prey, snowshoe hares, adverse direct, indirect or cumulative impacts to lynx as a result of this project are expected to be minor.

3. No bald eagle territories or roosting areas are known to occur within 1 mile of the project area (MNHP 2020). However, potential foraging habitat associated with the Boulder River and potential nesting habitat occur on forested sites on the project area and surrounding lands. Following proposed activities, ample large, emergent trees suitable as future nesting structures would remain. Given these considerations, minor direct, indirect and cumulative effects to bald eagles would be anticipated under the proposed action.
4. The project area is either out of the range of the normal distribution for this species or suitable habitat and/or key habitat structures are not present (e.g. documented nest sites or roosting structures etc.). No direct, indirect, or cumulative effects would be anticipated.
5. Some use of the project area by wolves could occasionally occur for breeding, hunting, or other life requirements. Big game species exist in the vicinity of the project area much of the year and some winter range exists in the project area. Any wolves using the area could be disturbed by proposed activities and are most sensitive at den and rendezvous sites, which are not known to occur in the project area or within 1 mile of the project area. Should either a den or rendezvous site be identified within 1 mile of the project area, a DNRC biologist would be consulted to determine if additional mitigations would be necessary. In the short-term, the proposed activities could lead to slight shifts in big game use, which could lead to a shift in wolf use of the area should they be present. Proposed activities would alter canopy closure, summer big game habitat, and big game winter range habitat, which could alter some big game use of the area but would not be expected to alter wolf prey abundance.
6. Cliff features and suitable foraging areas do not occur within 1 mile of the project area. No known nest sites occur within or near the project area. No direct, indirect or cumulative effects to peregrine falcons would be anticipated for the alternatives considered.
7. Section 27 does occur within "general habitat", however, any areas of impacts from the project have been determined of little to no value to sage grouse by the Montana Sage Grouse Habitat Conservation Program. No occurrence records for greater sage grouse exist for the area. However, stands of sagebrush community types do occur within the project area. Activities would be conducted predominately in the forested portions of the sections. Given the type and location of the project, no direct, indirect or cumulative effects to sage grouse would be anticipated.
8. The project area falls within the distribution of elk, white-tailed deer, mule deer and black bear. ~0.8 miles of temporary new road would be constructed and the duration of logging and road activities would be ~6 months. Hiding and thermal cover would be affected on approximately 63 treated acres, and logging disturbance could disturb and displace elk, deer and black bear, however, displacement would likely be short term. Moderate to high quality thermal cover/snow intercept is present in most of the project area due to the density of mature trees. Human access levels in the project area are presently high due to easy public access. No appreciable changes in long-term use of the project area by any of the species would be expected. Due to the scale and short duration of the proposed activities and implementation of mitigations measures, minor adverse direct, indirect, and cumulative effects to elk, deer and black bear would be anticipated.
9. Some large live trees and a few dead snags exist in the project area. While the action alternative would represent a reduction in available large live trees on ~40 acres in the

project area, the proposed activities would retain approximately 4-6 trees per acre greater than 15" in diameter where they are present. Large dead snags would be protected where available. The continued presence of these resources in the project area could facilitate continued use by those wildlife species that use large trees and snags.

Wildlife Mitigations:

- A DNRC biologist would be consulted if a threatened or endangered species is encountered to determine if additional mitigations that are consistent with the administrative rules for managing threatened and endangered species (ARM 36.11.428 through 36.11.435) are needed.
- If a wolf den is found within 1 mile of active harvest units or within 0.5 miles of a rendezvous site, cease operations and consult a DNRC wildlife biologist for appropriate site-specific mitigations before resuming activities.
- Proposed project activities would not occur from April 15 - June 1.
- Prohibit contractors and purchasers conducting contract operations from carrying firearms while on duty.
- Contractors would adhere to food storage and sanitation requirements.
- Snags, snag recruits, and coarse woody debris would be managed according to ARM 36.11.411 through 36.11.414. Retain at least one large down log >15 inches dbh (or largest size available) and >20 feet long per acre where available. Sub-merchantable and non-merchantable trees and shrubs and patches of advanced regeneration of shade-tolerant trees would be protected and retained where available and practical.
- Design harvest units to help with visual screening or topographic breaks that would hide a bear where available and practicable. Where opportunities exist, retain leave trees and retention areas in a clumped fashion to emulate natural disturbance patterns and reduce sight distances for wildlife.
- Major skid trails and new road would be physically closed within the project area at the completion of proposed activities.
- Implementation of SMZ/RMZ requirements to retain cover in association with SMZ/RMZ areas. Cover and habitat connectivity associated with riparian areas would not be altered.
- Compliance with Forestry Best Management Practices (BMP's), Streamside Management Zone (SMZ) laws, DNRC Forested State Trust Lands Habitat Conservation Plan (HCP) and applicable DNRC Forest Management Administrative Rules.

AIR QUALITY:

Air Quality	Impact												Can Impact Be Mitigated?	Comment Number
	Direct				Secondary				Cumulative					
	No	Low	Mod	High	No	Low	Mod	High	No	Low	Mod	High		
No-Action														
Smoke	X				X				X					
Dust	X				X				X					

Air Quality	Impact												Can Impact Be Mitigated?	Comment Number
	Direct				Secondary				Cumulative					
	No	Low	Mod	High	No	Low	Mod	High	No	Low	Mod	High		
Action														
Smoke		X				X				X			Yes	1
Dust		X				X				X			Yes	2

Comments:

1. All burning would be done in accordance to the Montana Idaho Airshed Group guidelines.
2. Dust may be created from logging operations and log hauling on portions of native surface roads. Due to minor amount of dust particulate, remoteness and short duration of project no mitigations for dust would be implemented.

Air Quality Mitigations:

- To minimize cumulative effects during burning operations, burning would be done in compliance with the Montana Airshed Group, reporting regulations and any burning restrictions imposed in Airshed 7.

ARCHAEOLOGICAL SITES / AESTHETICS / DEMANDS ON ENVIRONMENTAL RESOURCES:

Will Alternative result in potential impacts to:	Impact												Can Impact Be Mitigated?	Comment Number
	Direct				Secondary				Cumulative					
	No	Low	Mod	High	No	Low	Mod	High	No	Low	Mod	High		
No-Action														
Historical or Archaeological Sites	X				X				X					
Aesthetics	X				X				X					
Demands on Environmental Resources of Land, Water, or Energy	X				X				X					
Action														
Historical or Archaeological Sites	X				X				X					1
Aesthetics		X				X				X			Yes	2
Demands on Environmental Resources of Land, Water, or Energy	X				X				X					

Comments:

1. A Class III cultural and paleontological resources inventory was conducted of the area of potential effect (APE) on state land. No evidence of a cultural resource site was found on

state land. As such, the proposed project will have No Effect to Antiquities as defined under the Montana State Antiquities Act. A formal report of findings has been prepared and is on file with the DNRC and the Montana State Historic Preservation Officer.

2. The proposed timber permit is visible from the South Boulder and Carmichael Creek county roads. Public access is good and recreation is moderate to heavy in the area. Up to 25% of the landscape of the State parcels would change from their current condition. The harvest units would be much more open post-harvest due to harvest prescriptions. The level of change to the landscape is expected to be moderate and easily visible to the casual observer. Regeneration would be expected in very open areas of the proposed harvest area and the existing regeneration and leave trees would continue to grow, thus reducing the openness of the stands over time.

Mitigations:

- If previously unknown cultural or paleontological materials are identified during project related activities, all work would cease until a professional assessment of such resources can be made.
- The timber harvest would utilize selective harvest methods, unharvested areas and existing sub-merchantable trees to help soften visual impacts. Regeneration would be expected in the open areas of the harvest units and the existing leave trees would continue to grow, reducing the openness of the stands over time.

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.*

None.

Impacts on the Human Population

Evaluation of the impacts on the proposed action including direct, secondary, and cumulative impacts on the Human Population.

Will Alternative result in potential impacts to:	Impact												Can Impact Be Mitigated?	Comment Number
	Direct				Secondary				Cumulative					
	No	Low	Mod	High	No	Low	Mod	High	No	Low	Mod	High		
No-Action														
Health and Human Safety	X				X				X					
Industrial, Commercial and Agricultural Activities and Production	X				X				X					

Will Alternative result in potential impacts to:	Impact												Can Impact Be Mitigated?	Comment Number	
	Direct				Secondary				Cumulative						
	No	Low	Mod	High	No	Low	Mod	High	No	Low	Mod	High			
Quantity and Distribution of Employment	X				X				X						
Local Tax Base and Tax Revenues	X				X				X						
Demand for Government Services	X				X				X						
Access To and Quality of Recreational and Wilderness Activities	X				X				X						
Density and Distribution of population and housing	X				X				X						
Social Structures and Mores	X				X				X						
Cultural Uniqueness and Diversity	X				X				X						
Action															
Health and Human Safety		X			X				X					Y	1
Industrial, Commercial and Agricultural Activities and Production	X				X				X						
Quantity and Distribution of Employment	X				X				X						
Local Tax Base and Tax Revenues	X				X				X						
Demand for Government Services	X				X				X						
Access To and Quality of Recreational and Wilderness Activities		X				X			X					Y	2
Density and Distribution of population and housing	X				X				X						
Social Structures and Mores	X				X				X						
Cultural Uniqueness and Diversity	X				X				X						

Comments:

1. Normal risks would be involved with the operation of log truck traffic on the South Boulder and Carmichael Creek County Roads.

2. The State parcels can be accessed from the South Boulder and Carmichael Creek County Roads allowing public recreation in the area. Public access to the harvest area would be restricted for the duration of the project. After the project has been completed, the harvest units would have a more open appearance than the surrounding forest.

Mitigations:

- Hauling activities would be restricted with no log hauling activities on weekends and major holidays. Haul routes would have warning signs posted indicating that log truck traffic is present in the area and safe speeds would be observed. The county roads have posted speed limits. If necessary, a slower speed limit may be imposed under the timber harvest contract.
- Regeneration would be expected in the open areas of the harvest unit and the existing leave trees, unharvested areas and residual non-merchantable trees would continue to grow, reducing the openness of the stands over time.

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.*

None.

Other Appropriate Social and Economic Circumstances:

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. The estimated stumpage is based on transactional data. This method uses current stumpage prices for delivered sawtimber and associated sawtimber harvest costs to find a market value for the sawtimber stumpage to be sold.

No Action: The No Action alternative would not generate any return to the trust at this time and an opportunity to generate revenue for the Common Schools trust would be missed.

Action: The timber harvest would generate additional revenue for the Common Schools Trust. The estimated return to the trust for the proposed harvest is \$24,375 based on an estimated harvest of 500 thousand board feet (3250 tons) and an overall stumpage value of \$7.50 per ton. The estimated return to Forest Improvement for the proposed harvest is \$4,582.50 based on an estimated harvest of 3250 tons and an FI fee of \$1.41 per ton.

References

- DNRC, 1996. State Forest Land Management Plan: Final environmental impact statement (and appendixes). Montana Department of Natural Resources and Conservation, Forest Management Bureau, Missoula, Montana.
- DNRC, 2010. Montana Department of Natural Resources and Conservation Forested State Trust Lands Habitat Conservation Plan: Final EIS, Volume II, Forest Management Bureau, Missoula, Montana.
- DNRC, 2011. DNRC compiled soils monitoring report on timber harvest projects, 2006-2010, 1st Edition. Department of Natural Resources and Conservation, Forest Management Bureau, Missoula, MT.

DNRC, 2016. Montana DNRC Trust Lands Forest Management Old Growth Handbook, 2016 revision. Department of Natural Resources and Conservation, Forest Management Bureau, Missoula, MT.

Fischer, William C., Clayton, Bruce D. 1983. Fire Ecology of Montana Forest Habitat Types East of the Continental Divide, USDA Forest Service General Technical Report INT-141, Ogden, Utah.

Pfister, Robert D., Kovalchic, Bernard L., Arno, Stephen F., Presby, Richard C. Forest Habitat Types of Montana, USDA Forest Service General Technical Report INT-34 Ogden Utah 1977

MNHP. 2020. Montana Natural Heritage Program Environmental Summary Query and Species Occurrence Report. April 2020.

Does the proposed action involve potential risks or adverse effects that are uncertain but extremely harmful if they were to occur?

No

Does the proposed action have impacts that are individually minor, but cumulatively significant or potentially significant?

No

Environmental Assessment Checklist Prepared By:

**Name: Chuck Barone
Title: Bozeman Unit Forester
Date: 05/22/2020**

Finding

MEASURES RECOMMENDED TO MITIGATE POTENTIAL IMPACTS

- 1) Compliance with Forestry Best Management Practices (BMP's), Streamside Management Zone (SMZ) laws, Montana DNRC Forested Trust Lands HCP, applicable DNRC Forest Management Administrative Rules, the Montana/Idaho Airshed Group and the Montana Department of Environmental Quality.
- 2) When working off of established roads, limit equipment operations to periods when soils are dry (less than 20% soil moisture), frozen to a depth of 4 inches or a depth that will support machine operations (whichever is greater) or snow covered to a depth of 18 inches or a depth that will prevent compaction, rutting, or displacement (whichever is greater) to minimize soil compaction, rutting, vegetative disturbance and maintain drainage features. Control erosion by installing adequate drainage on roads and skid trails.

- 3) The Forest Officer shall approve a plan for felling, yarding and landing location in each harvest unit prior to the start of operations in the unit. The locations and spacing of skid trails and landings shall be designated and approved by the Forest Officer prior to operations and skid trails will not be spaced less than 50 feet. Retain all fine litter as feasible and 5-10 tons/acre of large woody debris >3" diameter. Minimize soil disturbance by general skid trail planning and limit sustained tractor skidding to slopes $\leq 45\%$. Limit scarification to 30-40% of the harvest area. Slash would be left in the harvest units where feasible and distributed on main skid trails upon completion of use, for nutrient cycling, to control erosion and to provide shade and protection for seedlings.
- 4) Install adequate road drainage to control erosion concurrent with harvest activities. Provide effective sediment filtration along drainage features near crossing sites. At project closure, the restricted new road would be waterbared, seeded and physically closed with slash and debris. Major skid trails on State lands would be closed with slash and debris and/or barriers, and have adequate drainage provided.
- 5) Establishment of stream and riparian management zones and prohibit equipment operations or timber harvest within these zones.
- 6) Ford crossing approaches would be reinforced with ~3" lift of native angular rock and rolling dips/grade breaks installed to divert sediment away from the stream. At project closure, the ford crossing approaches would be seeded, physically closed with slash and large logs and "No Motorized Vehicles" signage installed.
- 7) All road and logging equipment would be power washed and inspected prior to being brought on site. Sale area would be monitored for weeds following harvest and a treatment plan would be developed and implemented for 3-5 years.
- 8) At sale closure, grass seed roads, landings, skid trails (where needed) and other disturbed sites with an appropriate seed mixture.
- 9) Two snags and two snag recruits per acre, of the largest diameter class, would be retained where available and applicable. Cull live trees and cull snags would be retained where applicable.
- 10) Sub-merchantable and non-merchantable trees and shrubs would be protected and retained where applicable. Retain patches of advanced regeneration of shade-tolerant trees (grand fir, subalpine fir, and spruce) where available, as a component of commercial harvest prescriptions. Cover of the retained patches should not exceed 10 percent of the stand area. Emphasize the retention of downed logs of 15-inch diameter and 20-feet long or larger per acre where available.
- 11) On blowdown salvage projects, 1 percent of the blowdown area would be left unsalvaged. The material would preferably be retained in a nonlinear patch or patches.
- 12) Retain live, healthy older trees and stand attributes suitable for old growth development where available and applicable.
- 13) Hauling activities would be restricted on weekends and major holidays. Warning signs would be posted indicating that log truck traffic is present in the area.
- 14) Contact DNRC wildlife biologist should any threatened or endangered species be encountered within the proposed project area. If a wolf den is found within 1 mile of active harvest units or within 0.5 miles of a rendezvous site, cease operations and

consult a DNRC wildlife biologist for appropriate site-specific mitigations before resuming activities.

- 15) If previously unknown cultural or paleontological materials are identified during project related activities, all work would cease until a professional assessment of such resources can be made.
- 16) Human or pet food, livestock food, garbage, and other attractants would be stored in a bear resistant manner. Burnable attractants (such as food leftovers or bacon grease) would not be buried, discarded, or burned in an open campfire. Written brochures that describe risks and concerns regarding humans living and working in bear habitat would be provided to contractors and their employees conducting forest management activities prior to start of operations.
- 17) Clearcut and seed tree cutting units would be designed in a manner that requires any point within a unit to be within 600 feet of visual screening cover in at least one direction.
- 18) Forest management activities would be prohibited during the spring period of April 15 through June 1 to minimize risk of disturbance to bears, calving areas and nesting birds.
- 19) DNRC employees and contractors and their employees would be prohibited from carrying firearms while on duty, unless the person is specifically authorized to carry a firearm under DNRC Policy 3-0621.

Alternative Selected

Action Alternative: Under the action alternative, a commercial harvest of approximately 500 MBF of Douglas-fir sawtimber from ~63 treated acres would occur. The proposed project would construct approximately 0.8 miles of minimum standard temporary new road and install a temporary ford crossing to access the harvest areas. At project closure, the new road would be waterbared, seeded and physically closed with slash and debris. Skid trails would be seeded and closed with slash and debris. Ground based harvest systems would utilize shelterwood, selection and seed tree (6-12 leave trees per acre depending on availability) harvests. Treatment would generate revenue for the Common Schools Trust while improving the health, vigor, and productivity of the forest stand.

Significance of Potential Impacts

I have determined that none of the anticipated environmental impacts outlined in the EA are significant according to the criteria outlined in *ARM 36.2.524*. I find that no impacts are regarded as severe, enduring, geographically widespread, or frequent. Further, I find that the quantity and quality of various resources, including any that may be considered unique or fragile, will not be adversely affected to a significant degree. I find no precedent for future actions that would cause significant impacts, and I find no conflict with local, State, or Federal laws, requirements, or formal plans. In summary, I find that the identified adverse impacts will be avoided, controlled, or mitigated by the design of the project to the extent that the impacts are not significant.

Need for Further Environmental Analysis

EIS

More Detailed EA

No Further Analysis

Environmental Assessment Checklist Approved By:

Name: Craig Campbell

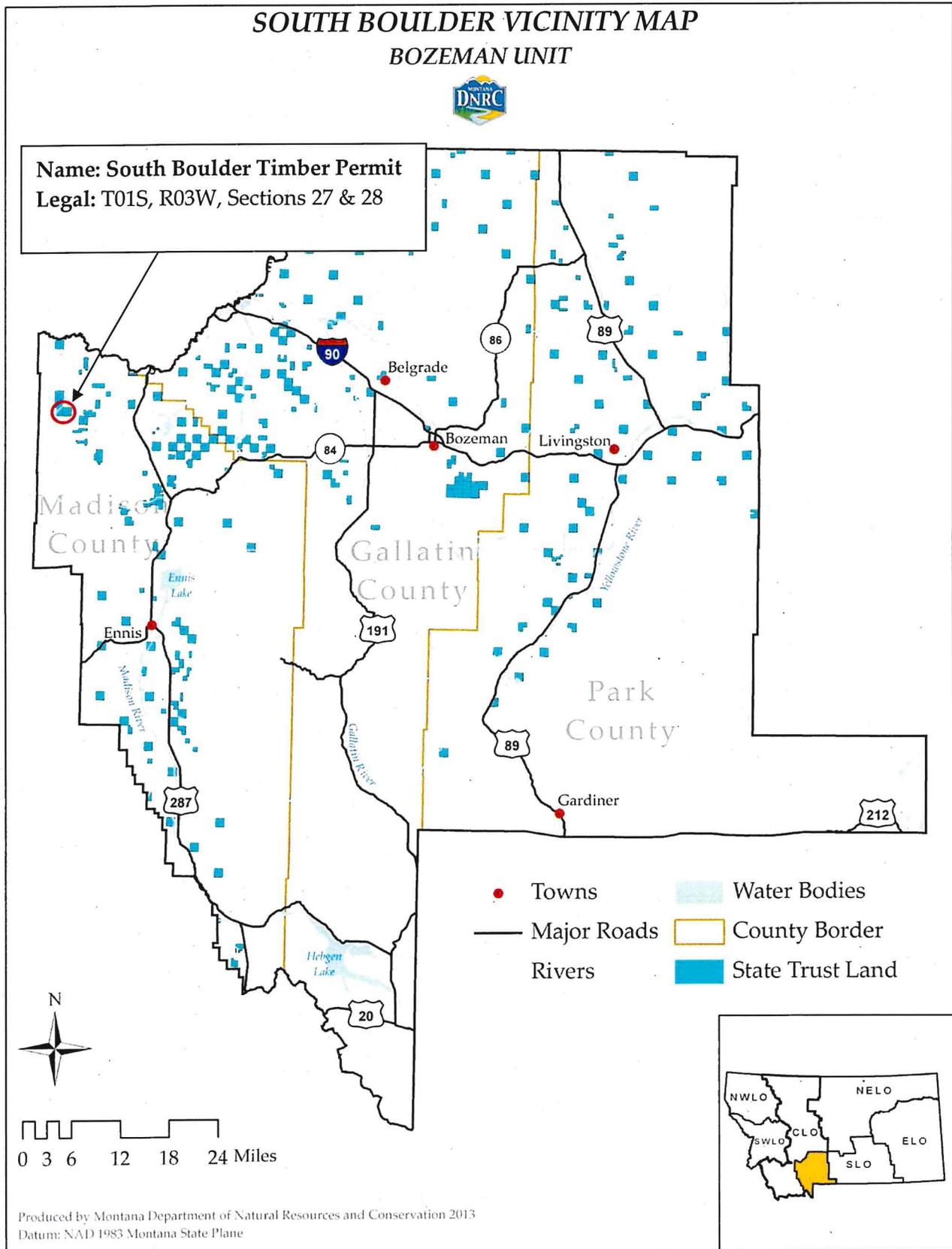
Title: Bozeman Unit Manager

Date: 05/27/2020

Signature: Craig Campbell 

Attachment A - Maps

A-1: Timber Permit Vicinity Map



A: Timber Permit Harvest Units

