

Darroch Eagle Timber Sale Implementation Monitoring Review

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On June 28, 2007, a multi-disciplinary team conducted an implementation monitoring review of the Darroch Eagle Timber Sale. The objectives of the review were to:

- 1) Evaluate the implementation and effectiveness of the Darroch Eagle Timber Sale goals, objectives, standards and guidelines in the form of EA mitigation measures, contract clauses, BMP's, or other applicable sources.
- 2) Provide recommendations and a feedback loop from the Darroch Eagle Timber Sale for future projects concerning appropriateness of standards, guidelines, EA measures, and contract provisions.

The Darroch Eagle Timber Sale EA (second revision) was released on in January 2004 after the original EA and contract were stayed by litigation. The Darroch Eagle sale contract #03-018123 was authorized in a Decision Notice and FONSI in April 2004, and awarded on 8/21/2004. The Sale contractor is RY Lumber Inc. of Townsend, Montana. Kelly Logging of Drummond, Montana and Osler Logging of Belgrade did the skyline and tractor harvesting. The sale contract terminates during the fall of 2007 when contract provisions are completed. Total sale volume in the DN was 1.5 MMBF on 195 acres with the logging being done in 12 tractor units, 3 skyline (cable) units. The road work includes about 0.9 miles of temporary road construction and 3.6 miles of road reconstruction (shaping, some new drainage structures, and realignment of road junctions).

The purpose of the Darroch Eagle Timber sale (EA and DN) is to:

- 1) Contribute to the repayment of borrowed funds to complete the acquisition of the 2 remaining sections of private land in the Taylor Fork area previously owned by BSL.
- 2) Contribute to the flow of wood products (sawlogs and firewood) from National Forest on suitable lands.

The process for this review consisted of the following:

- 1) Identification and listing of soil and water BMP's, wildlife, administrative layout, and fuels evaluation items for the review. Sources included the Darroch Eagle Timber sale EA and DN, sale contract, Montana Forestry BMP's, and R1/R4 Soil and Water Conservation Practices (BMP's) from the Timber Sale EA.
- 2) Field review of units Team ratings (consensus) for application and effectiveness of BMP's observed at the reviewed units and road segments.
- 3) Team recommendations for future GNF timber sale projects.

Rating items, application and effectiveness items include:

BMP Application

- 5- operation exceeds requirements of BMP
- 4- operation meets requirements of BMP
- 3- minor departure from BMP
- 2- major departure from BMP
- 1- gross neglect of BMP

BMP Effectiveness

- 5- improved protection of soil and water resources over pre-project condition
- 4- adequate protection of soil and water resources
- 3- minor and temporary impacts on soil and water resources
- 2- major and temporary or minor and prolonged impacts on soil and water resources
- 1- major and prolonged impacts on soil and water resources

BMP Definitions (for Timber Harvesting and Specified Road BMP's)

- Adequate - small amount of material eroded, does not reach draws, channels, or floodplain
- Minor - erosion and delivery of material to draws but not stream
- Major - erosion and subsequent delivery of sediment to stream or annual floodplain
- Temporary - impacts lasting 1 year or less, no more than 1 runoff season
- Prolonged - impacts lasting more than 1 year

Evaluation Item - BMP	source	Applic	Effect	Comments
Timber Harvesting BMP's				
1. suitable logging systems for topography, soils, and season	Montana Forestry BMP's	3	3	unit 1B tractor unit too steep in sections
2. no riparian harvesting	EA Apx D-6 BSL planning criteria	4	4	unit 13 and bottom of unit 9 needed some SMZ boundary marking and some SM boundary relocation
3. no rubber tire tractor skidding on slopes < 35%	CT6.4 Conduct of Logging	3	3	unit 9 and 13 had tractor skidding > 35% in lower sections
4. tractor skid roads 75' apart except where converging	CT6.4 Conduct of Logging	4	4	considerable disturbance at skid trail convergences
5. skidding not within 50' of streams and not in live or intermittent stream courses	CT6.6 Erosion Prevention and Control	4	4	thorough compliance with the 50' and stream protection contract provisions
6. no side casting of road material into streams. Enter SMZ only as needed to construct crossings	Montana Forestry BMP's	4	4	
7. no slash in streams	Montana Forestry BMP's	4	4	good compliance, some slash removed from eph draw in unit

				1B but not an SMZ
8. design and locate skid trails to avoid concentrating runoff, adequate drainage for skid trails	Montana Forestry BMP's	4	4	several skid trails were heavily slashed which prevented surface erosion. Augmented drainage not necessary on skid trails due to heavy slash or infrequent disturbance.
9. exclude handling, storage, application, of hazardous/toxic material in SMZ in a manner that pollutes/damages water	Montana Forestry BMP's Practice 15.11 CT6.341 Sanitation and Servicing	4	4	
10. seed exposed areas on skid trails, landings, temp roads. 36# of seed/acre	C6.601, Practice 13.04	4	na	seeding completed per C6.601. Too early to judge seed establishment
11. skidding operations minimize soil compaction & displacement	Montana Forestry BMP's	4	3	considerable soil displacement in places as this sale had more harvest volume than usual
12. adequate drainage for skid trails	Montana Forestry BMP's	4	4	augmented drainage not needed due to slash protection in skid trails
13. suitable location, size, and number of landings; landings >100' from streams & riparian areas; adequate drainage of landings	Montana Forestry BMP's	4	4	several of the landings were quite large
Soils				
1. tractor skid roads 75' apart except where converging	CT6.4 Conduct of Logging, EA 2-27	4	3/4	considerable disturbance at skid trail convergences
2. scarify skid trails to 6" unless harvested on snow depth 8" or frozen 4"	EA 2-27	2	4	not in sale contract. skid trails not ripped due to extensive ground slash. Adequate erosion protection provided.
3. mechanical site preparation off established skid trails only if frozen or snow covered	EA 2-27	na	4	not implemented. not contract. this mitigation not logical
Roads				
1. minimize number of roads necessary, minimum standard to	Montana Forestry BMP's	4	4	most roads predated the DE sale. 0.9 miles

accommodate use	Practice 15.02			of temporary roads
2. road locations avoid high-hazard sites (wet areas, unstable slopes)	Montana Forestry BMP's Practice 15.02	4	4	road locations stable
3. provide effective sediment control on erodible fill slopes	Montana Forestry BMP's	4	4	
4. maintain erosion control features (dips, ditches, culverts on roads 493, 6976, 6976A, 6976B, 6976D, 3243, 3243A, 3243C, 3243I, 3245)	Montana Forestry BMP's Practice 15.07 CT5.4, CT15.21	3	3	Insufficient erosion dips to prevent some rutting from fall 06 and spring use. final blading not completed at the time of this review
5. Ditches and culverts kept functional during and following roadway use	CT6.6	4	4	some slashed culverts cleaned
6. avoid use of roads during wet periods and spring breakup	Montana Forestry BMP's	4	3	see #4 above
7. during heavy runoff, purchaser inspects and opens culverts, and construct cross ditches for road runoff.	CT 6.6	4	4	
8. scarify temporary roads 4" to 14" not when wet or frozen	C6.622 Practice 15.25	2	3	temp roads were very dusty and not scarified in 9/06.
9. temporary roads obliterated by draining, blocking, revegetation; side slopes reshaped and stabilized	Practice 15.25 (not in contract)	4	4	most of the temp road obliteration to be done by GNF. Some temp road segments could use more slash
Recreation				
1. Timber sale contractual equipment precluded from 12/1 to 5/1. Darroch Creek side	EA 2-26	4	4	
2. Timber sale contractual equipment precluded from 10/16 to 6/1. Eagle Creek side	EA 2-26	4	4	
Weeds				
1. off road vehicles (skidders, dozers) cleaned on undercarriage before traveling to the sale area	CT6.361, EA 2-26, DN 7	4	4	
2. designate seed mix with native plant species	EA 2-24	2	na	not in sale contract
Wildlife				
1. Grizzly Bear attractants made unavailable	EA 2-25, C6.251	4	4	Sale contractor camped off site below the sale area
2. non-broadcast burning harvest	EA 2-26			average of 3 snags left

units leave average of 30 snags (>18' high and 10" dbh) per 10 acres.		4	4	per acre but not optimum wildlife cover. clumps more effective.
3. seasonally (10/15 to 6/30) close 3 miles of roads in Upper Bear Creek HAU, and 3.6 miles in Palmer Mountain HAU	DN-7	4	4	directed by court case. gates closed to Bald Mtn. and Bear Fork by 10/15. now a permanent mitigation
4. leave Whitebark pine in units 1 & 9	EA 2-17 DN 10	4	4	experimental mitigation designed to retain Whitebark pine



Temporary road into unit 14. This road was closed in September of 2006. At the time of the road closing the road was covered with several inches of road dust and was not ripped. The road was seeded and slashed. Re-vegetation would likely improve if the road had been ripped.



Unit 15 (and all of the tractor units) were harvested with a feller buncher which cut trees near ground level and deposited slash through much of the sale unit. This resulted in very little exposed soil and limited erosion increase potential.



Skid trail in unit 15. In all of the tractor units reviewed, most of the skid trails were covered with a layer of slash and logs. Skid trail seeding was generally not necessary. Ripping and waterbars were judged to not be needed to achieve satisfactory erosion protection.



Skyline unit 1C. This unit was harvested in October and November of 2006 with partial suspension. The operator was given authorization to fall trees first then determined and secured approval for the exact corridor locations. Skyline corridors were maintained 75' apart except at convergence zones near the landings.



Tractor harvest unit 13. Parts of this unit exceeded 35% and resulted in localized areas of skid trail impact. The skid trails were slashed during skidding operations and also after skidding was completed.



SMZ in the upper part of unit 13. Only part of the stream courses in this unit were shown on the sale area map as protected stream courses (BT6.5, CT 6.51). The sale administrator marked the additional stream courses with SMZ flagging. The stream courses were adequately protected.

Conclusions

1. Overall, the Darroch Eagle Timber Sale provided adequate erosion protection. The feller buncher equipment created very little exposed soil and much of the skid trail areas were slashed during and after operations. The skyline units had virtually no evidence of exposed soil.
2. Although not directly measured, the USFS R1 15% soil disturbance standard was probably not met in all of the units examined. Although skid trails were separated by at least 75' in tractor units (except for convergence areas near landing) feller buncher equipment needed to move off of designated skid trails to harvest trees. Potential soil disturbance (compaction, displacement, smearing) may have exceeded 15% in some of the units, particularly parts of unit 1 and 13 which exceeded 35% slope.

3. No direct evidence of water quality impacts occurred from the Darroch Eagle Timber Sale. Water quality protection BMP's (no riparian harvesting, no side casting of road material into streams, no slash in streams) were effective. Some sediment may have occurred from open roads during snowmelt or precipitation events.
4. Although road closures were implemented according to DN and contract provisions, some road rutting and outwash occurred in the fall of 2006 and spring of 2007.
5. Several of the EA, DN, and BA mitigation measures and provisions were not reflected in the Darroch Eagle Timber Sale contract – particularly soils and wildlife. Some of these measures are more appropriate for layout and design and several have no available contract provisions.
6. The DE contract specified a leave tree pattern of individual trees or small groups of trees. These leave trees did not provide much wildlife security cover. Many of the individual leave trees are subject to windthrow.
7. Some of the EA and DN mitigation (ripping skid trails and constraining site preparation off established skid trails only if frozen or snow covered) was not judged to be practical.

Recommendations

1. Temporary roads should be thoroughly ripped when closing since soil compaction in temporary roads can be deep and persistent. If sufficient slash and tree trunks are not available for slash coverage consider cutting a few adjacent trees to augment available slash. The additional organic materials help maintain soil moisture, improve revegetation microenvironments, and reinforce road closure intent.
2. Many of the reconstructed roads in the Darroch Eagle Timber Sale had minor erosion on the road surface from snowmelt runoff and spring 2007 rain. A requirement for more frequent spacing for rolling dips would be useful to direct water off the road more frequently. The dips can be constructed in an elongated fashion to reduce speed constraints on logging trucks.
3. Leaving temporary roads open in the sale contract and depending on decommissioning funds from other sources (CMRD or NFVW), after the timber sale contract is not a secure procedure to insure temporary road closure. Temporary road use by firewood cutters could be concentrated soon after firewood availability then temporary roads decommissioned via the sale contract.
4. Leave islands and trees were intended to meet snag standards; however larger leave patches (greater than 2 acres) could serve additional purposes besides snag retention for wildlife habitat security.
5. Since road mileage and closures were an important issue in the Darroch Eagle Timber sale NEPA and subsequent litigation, road decommissioning compliance and closure effectiveness monitoring are important.
6. The Whitebark pine leave trees in units 9 & 14 provide an opportunity to monitor this type of leave tree mitigation for potential use in future vegetation projects. Monitoring these leave trees could help determine if the leave trees in these units facilitate meeting Whitebark pine restoration objectives by removing competing trees and providing conditions favorable for reproduction.

7. In future sales, local wildlife data and information (lynx, goshawk, snowshoe hare, moose etc.) may be useful in sale design and layout and mitigation measures to further reduce sale habitat impacts.

8. In future sales and vegetation NEPA projects, mitigation measures should be more thoroughly reviewed for applicability and practicality. The sale administration and sale preparation staff should review mitigation measures and work with the NEPA IDT in project design and provide guidance on logging systems and roads. Key specialists (wildlife, soils, water, visuals etc.) should be involved with contract preparation to insure that critical mitigation measures are practical and included in the sale layout and design and/or sale contract.