File Code: 1940 Monitoring **Date:** 5/5/16

To: Bozeman District Ranger

Subject: Elkhorn Allotment Implementation and Effectiveness Monitoring Review

On August 11, 2015 an Implementation and Effectiveness Monitoring Review was held to evaluate the Elkhorn Allotment on the Bozeman Ranger District. The Elkhorn Allotment is managed based on the Allotment Management Plan for the Elkhorn Cattle and Horse Allotment which is intended to cover the period 2008-2017. The monitoring review team included Lisa Stoeffler, Reggie Clark, Bruce Roberts, Susan Lamont, and Dale White.

The objective of the review was to evaluate the implementation and effectiveness of the Allotment Management Plan. The review process consisted of identifying objectives, standards, and actions prescribed by the EIS, Record of Decision, and Allotment Management Plan, conducting a field review of the project area, rating objectives, standards, and actions for application and effectiveness, and making recommendations for future similar projects.

EVALUATION PROTOCOL

This implementation and effectiveness review was conducted using a modified form of the Forestry BMP review protocol developed by the Montana DNRC. The application and effectiveness rating system consisted of the following scoring system:

Implementation	**4 points**. Operation meets requirements of objective or measure
	3 points. Minor departure from objective or measure, requirements mostly met
	2 points. Major departure from objective or measure, requirements marginally/barely met
	1 point. Gross neglect of objective or measure, requirements not met at all
Effectiveness	**4 points**. Adequate Protection of resources, effective
	3 points: Minor & temporary impacts on resources, moderately effective
	2 points: Major & temporary or minor & prolonged impacts on resources, slightly effective
	1 point: Major and prolonged impacts on resources, not effective

EVALUATION WORKSHEET

Elkhorn Allotment				
Rating item	*Source*	*Implem.*	*Effect*	*Comments*
1. Adaptive management: The allotment will be managed by adaptive management. Based on the results of monitoring and comparing these results to specific objectives, a multi-disciplinary allotment management team will provide	EIS ROD AMP	NA	NA	Monitoring has been carried out but corrective actions have not been necessary

management action recommendations to the District Ranger. District Ranger will decide which management action(s) implement.				
2. Annual Operating Plan Compliance (Objective): Attain Annual Operating Plan compliance from permittee by 2009.	EIS ROD AMP	4	4	
3. Riparian condition (Objective): Maintain those riparian systems currently in properly functioning condition. Establish a positive trend toward full restoration by 2015 for those systems that are functioning-at-risk or are non-functioning.	EIS ROD AMP	3	3	Long term monitoring report (2015) reported a slightly negative overall trend due to a beaver dam wash-out and flooding in 2011 which resulted in stream incision. The incised channel appears to be widening out and will (likely) eventually develop an inset floodplain. This is the natural recovery/ response process for incised channels. Cattle impacts do not appear to be impeding the natural recovery process – this is likely due to low stocking rate.
4. Native plant communities (Objective): By 2015, establish a positive trend of maintaining and restoring native plant communities across the landscape.	EIS ROD AMP	2	2	This objective was not met by 2015. The review team determined that this objective would likely be unachievable at the landscape scale in the defined timeframe and be very difficult to measure conclusively. Based on observations made since 2008 by the Rangeland Management Specialist the native plant community on this allotment is trending towards a static condition, due to the amount of timothy on the allotment. Timothy is an invasive, exotic, but is not noxious, fluctuates with weather conditions and is

				favored by late turn on dates (July).
5. Noxious weed control (Objective): Reduce established weed populations by 50 percent, eliminate infestations of new weed species, and maintain weed-free areas by 2015.	EIS ROD AMP	2	2	This objective was not met by 2015. The review team determined that this objective would likely be unachievable at the landscape scale in the defined timeframe and be very difficult to measure conclusively. Based on observations made since 2008 by the Rangeland Management Specialist the extent of noxious weed infestation on this allotment appears to be static.
6. Stream condition (Objective): Bring all streams into fully functioning condition (PFC) by 2025.	EIS ROD	NA	4	A PFC rating for Snowslide Creek has not been determined, however it is likely (based on IDT team inspection) that the stream is presently in Proper Functioning Condition. Thus, action has not been necessary.
7. Comply with Upland Vegetation Utilization Standards (Standard): The utilization standards for upland suitable range defined in the R1 Range Analysis Handbook (FSH 2209.21) are a maximum of 50% on season long ranges in good condition.	AMP	4	4	Utilization on 9/9/08 determined to be 50-60%. Action: directed owner of unauthorized cattle to remove cattle and fix fence. Utilization on 8/13/09 was below 45% based on ocular estimate. Utilization on 8/17/10 determined to be 15-20%. Utilization on 9/27/14 determined to be 34%-44%.
8. Comply with Riparian Utilization Standards (Standard): Riparian Vegetation Allowable Use – For Functioning Stream Reaches (continuous use ranges in good condition) Grass/Grass-like Forb: 40% Willow/Grass/Grass-like and Willow/Forest: 55%	AMP	4	3	Moderate use noted above creek on 9/27/12, may have met or exceeded allowable (55%).

9. Comply with Streambank Alteration Standards (Standard): An annual stream bank alteration standard of no more than 30% using Beaverhead-Deerlodge protocols (standard may change depending on accepted Region 1 protocol) would be implemented along National Forest segments of Snowslide Creek.	EIS ROD AMP	4	4	Streambank alteration was assessed in 9/2008, 8/2009, 8/2010, and 9/2014. On some occasions the Region 1 protocol was used to assess streambanks, while on some occasions the B-D protocol was utilized. The R1 protocol results in higher "% alteration" scores than the B-D method. In all cases streambank alteration was found to be within standards. Streambank alteration has improved over time due to fewer permitted cattle and less unauthorized use.
10. Improvements (Action): All improvements must be functional before cattle are turned onto the allotment.	AMP	3	4	Boundary fence between Elkhorn allotment and Troy (adjacent) allotment was in poor condition in 2008. Adjacent permittee contacted to remove cattle and fix fence. This work was completed by the permittee. Other improvements on the allotment have remained functional.
11. Corrective action when utilization standards are reached/exceeded (Action): Once utilization standards are met livestock would be moved to another area of the pasture or off the allotment.	AMP	4	3	Riparian and upland standards exceeded in 2008 but this was discovered too late in the year to take corrective action (end of season).
12. Corrective action once streambank alteration standard is reached/exceeded (Action): Cattle will need to be moved out of the area, out of the pasture or off of the allotment when bank alteration levels are met.	EIS ROD AMP	NA	NA	Streambank alteration standards have not been exceeded in recent years
13. Control noxious weed expansion (Action): 1. Check areas of concentrated livestock use for weed establishment and treat new infestations. 2. Avoid driving vehicles through weed infestations.	EIS ROD AMP	2	2	This action was not fully implemented. The following notes pertain to the three specific requirements: 1. Due to the remoteness of this allotment, noxious weeds haven't

3. Feed certified weed-free feed to livestock for several days prior to moving them onto the allotment to reduce the introduction of new invaders and spread of existing weed species.				been mapped. Currently, Canada thistle and houndstongue are known to occur. If other more aggressive noxious weeds are found, like knapweed, spurge or hawkweeds, they would be treated. Houndstongue and thistle are found throughout the Bridger Range. Treating the allotment for houndstongue and thistle would be costly and ineffective because weeds would readily recolonize from adjacent infected areas. 2. There is no vehicle access to this allotment. 3. This has not been a condition of the permit. Permittees feed whatever they have on hand but are usually conscientious about not haying or feeding noxious weeds. This requirement is potentially very difficult to enforce.
14. Locating salt supplements (Action): Keep salt supplements out of riparian areas and wetlands.	AMP	4	4	
15. Rehab road crossing (Action): The old road crossing (presently being used as a cattle crossing) near the upstream end of section 12 will be hardened using appropriately sized rock.	ROD	2	3	Managers decided to hold off on this action due to the remote nature of the site and lack of local materials. Significant natural recovery has occurred. Current plan is to utilize willow plantings and large woody debris to stabilize eroding bank.

16. Required monitoring items (Action): The following will be items will be monitored starting with implementation of the decision. • Upland livestock distribution • Compliance with annual operating plan • Number of functioning range improvements • Stream Channel form and function • Streambank disturbance • Riparian vegetation health Economic Impacts on the permittee	EIS ROD	4	4	Not all factors were monitored exactly as prescribed in the ROD, but the monitoring effort was targeted appropriately and was sufficient to determine whether standards were met.
17. Upland utilization monitoring (Action): Annual utilization measurements throughout the pasture would be taken to ensure that upland utilization standards are not exceeded.	AMP	3	4	
18. Riparian utilization monitoring (Action): Monitoring of the riparian utilization may include stubble height, forage utilization and woody plant utilization. Utilization levels would be measured monthly to determine if use levels are being met and to document the trend of the stream in reaches where we have identified problems and where utilization (including stubble height) is considered a critical parameter to meet objectives. The most current R1 methodology would be used to measure use.	AMP	3	4	Riparian utilization was measured when use was thought to be approaching allowable. This allotment is difficult to access.
19. Stream PFC Assessment (Action): A proper functioning condition assessment would be completed every 5th year on long-term monitoring plots and on an annual basis for those reaches of streams where streambank trampling standards are proposed.	EIS	NA	4	Long term monitoring has been carried out in Snowslide Creek every 5th year. The long term monitoring protocol is more intensive than a PFC rating but does not include PFC rating determination. PFC ratings have not been determined.
20. Long term monitoring (Action): Long term monitoring will be done for riparian areas and for upland vegetation. Permanent monitoring stations (one upland and one riparian) are established so measurements can be more accurately compared.	AMP	4	4	

PHOTOGRAPHS

Photo 1. Upper end of road crossing of Snowslide Creek and view of Elkhorn Allotment.

Photo 2. Lower end of road crossing of Snowslide Creek and view of Elkhorn Allotment.

Photo 3. Willows along Snowslide Creek upstream from road crossing.

Photo 4. Willows along Snowslide Creek downstream from road crossing.

Photo 5. Cattle and wildlife trail in vegetated draw, upper reaches of Snowslide Creek.

Photo 6. Vegetated draw in upper reaches of Snowslide Creek.

OBSERVATIONS AND CONCLUSIONS

1. Vegetative cover and vigor appeared quite good indicating that the stocking rate is likely appropriate for the area. Native shrubs such as willows and sagebrush appear to be in good condition. Invasive weeds (most notably thistle) were extremely common in many of the areas examined, particularly near the stream. Snowslide Creek supports a healthy riparian area with thick willow growth in the area near the road crossing (Photos 2-4). A few localized areas were clearly impacted by cattle and wildlife use (Photo 5) but for the most part the riparian and upland areas examined were in good condition.

2. The road crossing on Snowslide Creek, which was slated to be "hardened" in the Record of Decision (2007), has not yet been modified. Natural recovery has significantly improved conditions at this site but it would likely benefit from some willow plantings with accompanying woody debris (to protect the raw streambank from erosion and the willow plantings from browsing).

3. Incision which occurred downstream of the road crossing in the 2011 flood is likely to take many years to recover naturally. The typical sequence of events would be for the incised channel to widen out (there is evidence of this widening being underway) through bank erosion/sloughing and for an inset (lower elevation) floodplain to develop within the incised area. This process is likely to take many years to complete.

4. Monitoring: Monitoring has not been carried out exactly as prescribed in the ROD, but in general the monitoring effort was targeted appropriately and has been sufficient to determine whether standards are met and inform the adaptive management process. The one exception is that PFC ratings have not been routinely done in conjunction with long term monitoring.

5. Objectives: Several of the declared objectives listed in the planning documents (e.g., "bring all streams into fully functioning condition by 2025"), were determined to be unrealistic/infeasible considering the scope and landscape level of allotment management, the numerous variables affecting resources within allotments (including natural disturbance agents like flooding), the timescale required for landscape-level change, and severe limitations in budget and personnel required to effect change.

RECOMMENDATIONS

1. Objectives, etc, within planning documents and Allotment Management Plans should focus on attainable goals and should take into account the possibility of future natural disturbance, the timescale required for landscape-level change, and current limitations in budget and personnel required to effect (and monitor) change.
    - Consider focusing on establishing/maintaining upward trends rather than hard targets (e.g., "bring all streams into fully functioning condition").
    - Avoid declaring hard deadlines (e.g., "by 2025") for accomplishments.
    - Consider the level of monitoring effort required to determine compliance with standards and/or meet objectives and how (and *whether*) such monitoring can be accomplished in existing and

future budget environments.

2. If accelerated recovery is desired at the road crossing location consider having a hand crew install willow plantings and accompanying woody debris (to protect the raw streambank from erosion and the willow plantings from browsing).

3. Monitor the natural recovery of the incised portion of Snowslide Creek to ensure that cattle impacts do not delay or interfere with that recovery. Adjust stocking rates and/or timing, or provide physical exclusion of cattle, as necessary to allow natural recovery to progress to completion. Currently, allotment management action is not necessary because livestock use does not appear to be impeding the recovery of the stream.

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