



File Code: 1950
Date: April 27, 2015

To: Interested Party

The Mountain Pine Beetle Response (PBR) Project Record of Decision (ROD) was signed in December of 2012. As an adaptive project, it provides a timely and effective response to the current mountain pine beetle infestation on the Black Hills National Forest.

Enclosed is the annual monitoring and evaluation report (Fiscal Year 2014) for the Mountain Pine Beetle Response Project. This report contains sections on the monitoring items developed by PBR Interdisciplinary Team (ID Team) Specialists for their resource based on the analysis of the PBR Environmental Impact Statement (EIS), ROD, and Specialist Implementation Field Guides. This report includes finding on the effectiveness of treatments and conservation measures and recommendations for changes, if needed. If monitoring finds resource protection objectives are not being achieved, then:

- Vegetation treatment operations can be modified or reduced and/or
- Resource protection measures can be improved or changed
- Monitoring to determine the source of impact and apply appropriate mitigation can be improved or increased.

All activities completed and initiated in Fiscal Year 2014 were consistent with the project's ROD and EIS. There are several recommendations regarding cut-and-chunk operations contained within this annual report.

If you have questions, comments or need further information, please contact Dave Mertz, Natural Resource Staff Officer at (605) 673-9206.

Sincerely,

CRAIG BOBZIEN
Forest Supervisor

Enclosure:
Mountain Pine Beetle Response Project
Monitoring Report – Fiscal year 2014



FY2014 MONITORING REPORT MOUNTAIN PINE BEETLE RESPONSE PROJECT

Prepared by: Edward Fischer Date: 4/23/15
Edward Fischer, Monitoring Coordinator

Reviewed by: David Mertz Date: 4/23/15
David Mertz, Natural Resources Staff Officer

Approved by: Craig Bobzien Date: 4-27-15
Craig Bobzien, Forest Supervisor

FY2014 PBR Monitoring Report

INTRODUCTION

On December 10, 2012, Black Hills National Forest Supervisor Craig Bobzien signed the Record of Decision (ROD) approving the Mountain Pine Beetle Response Project (PBR, or the Project). The decision approved commercial and non-commercial landscape-scale actions on up to 122,000 acres of the Forest to reduce the threat to ecosystem components, including forest resources, from the existing mountain pine beetle (MPB) epidemic and help protect local communities and resources from large scale, severe wildfire.

The Project was conducted under the authority of the Healthy Forests Restoration Act (HFRA) of 2003. An integral part of the decision includes adaptive design features intended to more quickly address beetle populations and reduce hazardous fuels. The ROD included a commitment to produce and issue an annual monitoring report, to provide feedback on which design features were implemented, the degree to which they were effective, and whether adaptations are needed to treatment design to make them more effective. Specifically, the ROD required that ten percent of the sites for each type of treatment activity would be monitored each year. (ROD, pg. 20).

This Fiscal Year 2014 monitoring report details the monitoring conducted in 2014, and the results of that monitoring. Implementation monitoring measures whether applicable design criteria, best management practices, and Forest Plan standards and guidelines were correctly implemented. Effectiveness monitoring measures the degree to which treatments were effective at protecting resources as well as reducing risk of further MPB infestation.

SUMMARY OF EVALUATIONS AND ADAPTIVE MANAGEMENT RECOMMENDATIONS

This report is organized by resource area. Specialist evaluations involved both pre-field and field reviews. Pre-field reviews were conducted by resource area and consisted of the review of unit summaries, marking guidelines, and other implementation notes along with applicable design criteria, Best Management Practices and Forest Plan standards and guidelines. The timing of these pre-field and field reviews varied by activity and resource area, but occurred primarily between July and November 2014. More specific information on the timing of reviews is contained in the Resource Area Highlights section.

In 2014 the Rose Petal Project on the Mystic District was completed. Three timber sale units and a total of 67 acres were treated in this project. Resource specialists completed pre-field and field visits to at least one unit in this project area, thus the required monitoring of ten percent of activity areas was exceeded. Cultural resource and hydrology specialists did not visit the Rose Petal project area because pre-field review found that no cultural resources or water were found in the area.

Monitoring protocols are not presented here, but may be found in individual reports and other sources. This section summarizes recommendations, including any that are common between resources and any that may conflict. Recommendations for change, based on observations, are presented at the end of each resource section.

FY2014 PBR Monitoring Report

Implementation Monitoring

Whole-tree yarding was the preferred method expressed in several resource reports to address infested forest stands. Though only one timber sale was monitored, with three units, the Wildlife section concluded woody material left after harvest operations met Forest Plan direction.

Resource specialists evaluated the implementation of the project. The Rose Petal Timber Sale implemented commercial thinning prescriptions reducing basal area as needed to reduce the probability of attack by mountain pine beetle. The same was done in add-on units in three other sales, but these were not monitored this year. Cut-and-chunk treatments were implemented primarily in the Buck Mountain Timber Sale area. Design criteria were applied as prescribed. (Botany, Fire/Fuels, Cultural Resources, Range). Activity fuels were whole-tree yarded and piled. (Fire/Fuels). Field survey was completed as required. (Cultural resources). The downed log requirement appears to have been met, but it could not be determined if any existing snags had been cut for safety reasons. (Silviculture, Wildlife).

Effectiveness Monitoring

Resource specialists evaluated the effectiveness of project implementation. The Rose Petal Timber Sale, with three harvest units, commercially thinned 67 acres and reduced stand basal area to reduce the likelihood of beetle attack. Some trees in the area were attacked and killed by beetles before the treatments could be implemented. (Silviculture). Mitigations were found to have been effective. (Botany, Range/Weeds). Range improvements were protected. Ground and skid trails showed little disturbance, but some weed species were found in disturbed areas, and follow-up treatment may be required. (Range/Weeds). A high scenic integrity objective was achieved on a highway stretch adjacent to the treatments. (Scenery). Soil disturbance was within prescribed limits. One adjustment to a design criterion was proposed to allow tracked vehicles into the streamside zone on a case-by-case basis. (Hydrology/Fish/Soils). In cut-and-chunk treatment areas residual fuel loads were found to be higher than desired. (Fire/Fuels). Cut-and-chunk treatments were found to have been most effective when conducted in October and November, rather than in later winter months. (Timber). Several specialists recommended that the cut-and-chunk treatments be used only in small areas, and that they be followed by other treatments.

FY2014 PBR Monitoring Report

Status of activities subject to monitoring by all resources.

Year Begun	Project Name	District*	Treatment and Acreage**	Remarks
2013	Rose Petal	My	GBL -- 67 -- 3 units	Sale Completed 2014
2013	Fox Ridge	HC	GBL -- 215	Under Contract 2014
2013	Deer Springs Add-on	HC	GBL -- 157	Under Contract 2014
2013	Dry Beaver Add-on	HC	GBL -- 383	Under Contract 2014
2013	McInerny Add-on	HC	GBL -- 321	Under Contract 2014
2013	Buck Mountain Cut and Chunk		Cut/chunk -- 841	Activities Completed 2013
2014	Buck Mountain	My	GBL -- 1276	Under Contract 2014
2014	Custer Gap	My	GBL -- 779	Under Contract 2014
2014	Viento	NH	GBL -- 60	Under Contract 2014
2014	Lager POL Stewardship	NH	GBL -- 114	Under Contract 2014
2014	STAR Academy	HC	GBL -- 173	Under Contract 2014
2014	Cut and Chunk		Cut/chunk -- 912	Activities Completed 2014
2014	Tree spraying	Forestwide	Tree spraying with carbaryl -- 3400 trees	Activities Completed 2014 -- Included campgrounds, recreation sites and legacy trees****

* District -- BL=Bearlodge; HC=Hell Canyon; My=Mystic; NH=Northern Hills

** Treatments -- GBL=ground-based logging under timber sale contract; Cut/chunk= cut-and-chunk;

*** Tree spraying activities in 2014 were not monitored by resource specialists. These activities were accomplished under service contracts. Contracts included specifications deriving from design criteria, and were administered to specification.

FY2014 PBR Monitoring Report

RESOURCE AREA HIGHLIGHTS

BOTANY

The Rose Petal Timber Sale project area was monitored. Areas identified as meadows in the botany field guide were needed as landing sites, so the Mystic District botanist was consulted and the sites were approved. Design criteria were met, and mitigations were effective. Ground disturbance was evident when the area was visited in July 2014, but skidder and forwarder trails were recolonizing with vegetation species from the surrounding understory.

Recommendations: No changes to the Field Guide or design criteria appear to be necessary at this time. The botanists have re-evaluated what qualifies as a meadow that may be considered rare plant habitat; however, many other specialists weigh in on how meadows are identified and treated under the PBR project.

FIRE/FUELS

Monitoring personnel visited the Buck Mountain Cut and Chunk project area and Buck Mountain Timber Sale area in July 2014. In the cut and chunk units fuel loadings ranged from 50-257 tons per acre. The average was 102.8 tons per acre, which equated to 0.66 tons per tree. Based on the data collected, approximately 30 trees (8 inches DBH and greater) on the ground would result in 20 tons per acre of downed woody debris.

In the Buck Mountain Timber Sale area where cut and chunk activities were followed by commercial thinning, the distribution of fuels was changed when logging equipment traveled through the pockets of fuel and crushed or dispersed it. In those areas design criteria were met and management evaluation points were not exceeded.

Monitoring personnel visited the Rose Petal and Fox Ridge Timber Sale areas in September 2014. Activity fuels from these projects were whole-tree yarded and piled for burning at a later date. As a result of that method there are no fuels concerns with those project areas. Implementation field guide protocols were followed and design criteria met.

Recommendations: Commercial treatment with whole-tree yarding is the preferred method for dealing with beetle-infested areas. Utilize cut and chunk as a last resort when commercial treatment is not an option. Employ this method on a small scale to keep residual fuel loading to a minimum. If the trees in the pocket to be cut are 8" DBH or larger, keep patch size to 30 trees or less. If the trees are less than 8" keep the patch size to 50-75 trees, as recommended by Kurt Allen, USFS, and John Ball, SD Department of Agriculture, to be most effective at making a difference in the beetle population. If the activity results in a fuel loading that exceeds 20 tons/acre or doesn't meet design criteria, consider follow-up treatment utilizing methods such as machine piling and burning or mastication of fuels. If it is estimated that design criteria will not be met or management evaluation point limits will be exceeded due to the number of trees to be

FY2014 PBR Monitoring Report

cut or the size of the patch, it is recommended that this type of method not be used unless funding for follow-up treatment is available.

No changes to the Field Guide or design criteria are needed at this time.

HERITAGE

The monitoring strategy for cultural resources identified within the boundaries of MPBR projects focusses primarily on those historic properties that the Forest has identified as Priority Heritage Assets (PHAs).

The Rose Petal Timber Sale is the single PBR project that was fully completed in FY14. Archaeological field survey was completed for this project in 2013 and consultation was completed the same year pursuant to the 36 CFR §800 regulations. No cultural resources were identified in the area of potential effects, therefore the determination of effect for this project was "No Historic Properties Affected". Consequently, there was no need to complete post-activity monitoring of historic properties.

Recommendations: No changes to the Field Guide or design criteria appear to be necessary at this time.

HYDROLOGY/FISHERIES/SOILS

Since varying activities to be implemented were expected to have different effects and expected levels of effects to soil, water and fish resources, two implementation guides were developed for the various activities authorized under the MPBRP ROD:

1. Mountain Pine Beetle Response Project Soil, Water and Fisheries Design Criteria Field Guide (for areas of greater levels disturbance such as for projects identifying the use of commercial thinning and road construction)
2. Mountain Pine Beetle Response Project Soil, Water and Fisheries Design Criteria Checklist Non-Ground Disturbing Activities (Non-Mechanized)

In fiscal year 2014, some adjustments continued to be made to the MPBRP Soil, Water and Fisheries Project Implementation Guides. These factors included, but were not limited to text changes for increasing implementation clarification, as well as addressing differing site characteristics and components as compared to previous MPBRP implementation sites.

Due to the lack of sites to monitor for effects on water, at this point in time no adjustments need to be made for Implementation and Monitoring Guides. One design criterion has been proposed for adjustment; that is the "no wheeled or tracked equipment for 0-50 feet from the stream". Depending on the topography and other site conditions, this criterion may be adjusted on a site specific basis to allow a tracked feller into this zone. Coordination with the Hydrologist will determine which site locations this may occur at. The No wheeled equipment for 0-50 feet from the stream will still be implemented.

FY2014 PBR Monitoring Report

No adjustments will be made at this time for the Implementation and Monitoring guides for the soil, water and fish resources.

On July 22, 2014, a soil disturbance assessment was completed on Rose Petal Timber Sale, Unit #2. This resulted in attaining the 10% minimum of MPBRP projects being monitored. The majority of transect observation points were assigned a soil disturbance class of undisturbed (Class 0) for Rose Petal Unit #2. Disturbance Class 1 was assigned to a single transect observation point (also not considered to be disturbances to that of a detrimental level). Disturbance category classifications of Class 2 or Class 3 were not assigned to any of the transect sample points in Rose Petal Unit #2. Therefore, the soil disturbance assessment information collected for Rose Petal Unit #2 has indicated that the activity area conditions are within those specified in the Forest Service Manual, the Watershed Conservation Practices Handbook and the direction in the Forest Plan.

Recommendations: There are no recommendations for field guide or monitoring adjustments at this time for soil, water or fisheries resources.

RANGE/WEEDS

Range Monitoring of the Rose Petal Timber Sale area was conducted on November 6, 2014. Monitoring revealed that range improvements were protected during timber harvest activities, and design criteria were met. No adverse impacts to rangeland vegetation or improvements were noted during this visit, and none were reported by either of the two term grazing permittees. Mitigations appear to have been effective, and the lack of lop and scatter slash and subsequent effects on livestock grazing were notable.

Weeds Monitoring of the Rose Petal Timber Sale area was conducted on November 6, 2014. It appeared the unit had been logged in the winter since the ground and skid trails showed little disturbance. It appeared that mitigations had been moderately successful. When the piles are burned, the burned area needs to be seeded with weed free seed as soon as the piles are scarified to prevent the weeds from taking over the treated areas.

It was unknown if logging equipment had been washed before treatment began. Skid trails were seeded after disturbance, but weeds such as Canada thistle and Common mullein were found within some of the disturbed areas. Follow-up treatment may be necessary on skid trails in some locations. Overall the area looked good with little apparent ground disturbance.

Recommendations: With respect to the range resource, whole-tree yarding is still the preferred harvest method, to minimize obstruction of livestock access to secondary rangelands. It is recommended that, where possible, winter logging with snow cover be adopted. This design criterion is already listed for invasive weeds in the FEIS, Appendix B, pg. B-3.

FY2014 PBR Monitoring Report

With respect to noxious weeds, no further recommendations are offered. It would be helpful, however, if specialists were notified once the sale is closed so they might conduct a field evaluation at that time.

RECREATION

A Recreation/Special Uses Implementation Guide was developed to assist with the implementation of PBR activities.

No monitoring was reported in FY2014. No recommendations were received regarding the Implementation Guide or Field Guide.

SCENERY

The Rose Petal Timber Sale area was monitored. This mechanized, ground disturbing activity was fully completed in Fiscal Year 2013. Field monitoring occurred in November, 2013, prior to the treatment of three slash piles. The HIGH Scenic Integrity Objective for the foreground along US Highway 385 – where the result of management activities should maintain a natural appearing landscape – was achieved. The Design Criteria Guide was the catalyst that facilitated the dialog between the Timber Sale Administrator and the Landscape Architect, to gain a mutual understanding of the Scenic objectives, and this proved the best way within the timber sale contract to achieve them.

The Buck Mountain cut and chunk project area was also visited. This non-mechanized, non-ground disturbing activity was fully completed in Fiscal Year 2013. Field monitoring occurred in October and November of 2013, while the needles of cut trees were still green. Initial findings showed that effects from the activities appear similar to areas where beetle-killed trees have fallen and are lying on the surface of the ground across the landscape. However, with the cut and chunk treatment method, there initially appears to be less down material due to the early intervention, before the beetle became established within the vegetation across the landscape. Although the results on the ground are in line with the expectations identified in the EIS, the result of this one project, in limited areas, is not conclusive evidence at this point.

Recommendations: Recommendations in FY2014 are the same as those in FY2013, as follows:

1. Continue to monitor projects to determine whether early findings are in fact valid across the Forest.
2. Continue to use the Design Guide, as the dialog it is fostering appears to be having positive results on the Scenic Resource.
3. There are no recommendations for field guide or monitoring adjustments at this time.

SILVICULTURE

In FY2014 one timber sale project was completed under the PBR decision. The Rose Petal Timber Sale on Mystic Ranger District, at 67 acres, is the first timber sale completed under PBR.

FY2014 PBR Monitoring Report

Completion of a commercial timber sale is defined as sale closure through the Timber Sale Statement of Accounts (TSSA) system. There were 3 harvest units. The sale implemented commercial thinning prescriptions reducing basal area to minimize mountain pine beetle attack. There are some standing dead trees remaining in the area which were killed by mountain pine beetle. Timber sale preparation and logging operations were not timely enough to harvest all trees prescribed to be thinned which resulted in the standing dead trees.

The PBR decision also approved treatment within three active timber sales -- Deer Spring, Dry Beaver and McInerny. These sales had some additional volume designated by contract modification to include additional green-hit trees while the timber purchaser was operating. The additional timber harvesting of green-hit trees results in lower residual basal area. This reduced stand density, further reducing the probability of mountain pine beetle attack.

The Mongoose Timber Sale had 272 acres approved for treatment by PBR, within the total sale acreage of 1,168 acres. In addition, active timber sales Fox Ridge, Buck Mountain, Viento, Custer Gap, Star Academy and Lager POL Stewardship are all being implemented from the PBR decision. These sales all focus on stand density reduction to a basal area of 60. These sales total 3,750 acres of treatment.

In FY14 cut and chunk activity was primarily implemented in the Buck Mountain Timber Sale area. Forest Service and State of South Dakota officials reviewing cut and chunk activity on the Forest concluded that use of cut and chunk works best when it is done in conjunction with other treatments that reduce stand density. (Silviculture report, Appendix C). This treatment action is designed for use on small areas in isolated pockets of beetle infestation. When this treatment is used alone, pockets of 50-75 trees are about the extent for which it can be effectively applied.

Recommendations: One of the highest priorities for treatment should be removal of standing dead (including green-infested trees) from along heavily used roads. Presently, many of the areas that have been attacked over the past 10 years are starting to break up and fall down. As they fall these trees are blocking many high use gravel roads. Clearing the dead trees from along roadways would avoid potential conflicts with roads being blocked or even a tree potentially falling and hitting a passing vehicle.

It is believed that changing treatment areas each year and not checking back on prior years' investments is leading to much reduced treatment effectiveness. Based on this, it is recommended that cut and chunk activities on the National Forest should be continued primarily in areas within 300 feet of private land boundaries where land owners treat their own infested trees; along roads and recreation areas; mopping up within and adjacent to recently closed timber sales; and returning to previously treated areas to retreat as necessary. See Silviculture report, Appendix C for more details. Preferably the chunks would be utilized for firewood, to reduce residual fuel levels as well as the risk of beetle flight. It is further recommended that cut and chunk activity be limited to areas of less than 30 trees per acre to accommodate concerns of entomologists for beetle spread, and concerns of US Forest Service fuels specialists to minimize post-treatment fuel loading.

FY2014 PBR Monitoring Report

Regarding timber outputs, the PBR decision includes adaptive design features intended to allow managers to more quickly address beetle populations and reduce hazardous fuels. It has been 2 years since PBR decision and to date one 67-acre timber sale has been completed. This level of completed acres would not appear to be what was predicted to be completed at this point in time. Reasons for the slower pace are:

1. resource surveys and clearance are taking longer than predicted
2. some PBR polygons are not in the suitable timber lands base hence are not lands for timber sale harvest
3. some polygons in the PBR analysis had been excluded from previous timber harvest analyses for reasons such as no legal access, rocky ground, steep slopes and low volume per acre and are subsequently excluded again for the same reasons
4. stands have already been hit by mountain pine beetle and/or trees are dead

At the demonstrated pace of moving PBR stands into timber sales it will be difficult to keep the Timber Sale Schedule full with two years of approved NEPA decision acres. In order to sustain the present 5-Year Timber Sale Schedule it is recommended that the Forest review future planning areas and initiate further project analysis immediately.

There are no recommended silviculture adaptive changes to treatment or mitigation design criteria.

TIMBER

The Rose Petal Timber Sale was completed on September 10, 2014. Visual marking had been used in Unit 1 along Highway 385 which is normal protocol. One individual tree was cut by mistake while implementing visual marking. This problem has occurred occasionally in other timber sale areas. The issue is being presented to Forest leadership for further review.

Following are some status observations on other timber sales (TS) currently in progress but not yet closed.

1. Fox Ridge TS -- Not yet completed as per sale administer notes dated 9/17/2014.
2. Active Timber Sales Deer Springs, Dry Beaver and McNerny had over 861 acres of PBR polygons that existed within their sale boundaries that were evaluated and added to the sales. Only add-on Units within Dry Beaver have active logging at this time. No logging has occurred in either McNerny or Deer Springs.
3. Buck Mountain Timber Sale – Sale not yet completed as per sale administer notes dated 10/9/2014. One Design Criteria that has been modified to allow an adjustment is the one specifying “no wheeled or tracked equipment for 0-50 feet from the stream”. For Unit 13 a tracked feller was allowed within the zone to cut 13 trees before weather conditions changed and operations suspended. Coordination was done with the Hydrologist.
4. Viento Timber Sale. All sale work has been completed to date and is pending sale closure.
5. Star Academy Timber Sale – Sale sold June 9 of 2014. All sale work has been completed to date and is pending sale closure.
6. Mongoose Timber Sale – Sale sold September 15 of 2014. No active logging to date.

FY2014 PBR Monitoring Report

7. Custer Gap Timber Sale – Sale sold August 4 of 2014. No active logging to date.
8. Lager POL – Sale sold September 3 of 2014. No active logging to date.

Recommendations: There are no recommended timber adaptive changes to treatment or mitigation design criteria. It should be noted that the addition of recent beetle hit trees to existing timber sales (add-on volume) is very effective in reducing the spread of beetle infestations.

Regarding the non-commercial work, it appears that the most effective cut and chunk treatments to date have been done in October and November within small areas where the infestations were less than one-half-acre and had less than 100 trees.

TRANSPORTATION

The Rose Petal Timber Sale area was visited on November 7, 2014. Monitoring revealed that existing roads were used for the project, that no changes were made to the transportation system to implement the sale, and that no road damage occurred as a result of sale implementation. Temporary road U13002 was used only during dry or frozen periods, as prescribed. Design criteria were applied, and mitigations were found to be effective.

Recommendations: No changes to the Field Guide or design criteria appear to be necessary at this time.

WILDLIFE

Rose Petal Timber Sale was the only PBR project completed in 2014. The wildlife Implementation Field Guide was completed and reviewed in 2013. Requirements in the Field guide were compared to post-activity conditions on the ground in 2014.

No raptor nests, snail colonies or other wildlife issues were discovered during project implementation. Only small aspen occur in the units. It could not be determined if any had been cut for safety reasons.

There is an abundance of snags in some areas from beetle killed trees. Other areas have few snags. It could not be determined if any existing snags had been cut for safety reasons. Several beetle killed trees have already fallen in some areas, leaving some downed logs. Where beetle killed trees have fallen there is an abundance of downed logs. Some old logs likely present prior to treatment were pushed to the side of skid trails, but are still in place. Other areas have few downed logs at this time, but the downed log requirement appears to have been met.

Recommendations: The Wildlife Field Guide was used on several MPBR activities in 2014. The Field Guide appears to work well since changes were made in 2013. No additional changes

FY2014 PBR Monitoring Report

are needed to the Field Guide at this time, nor are any changes recommended to project activities.

-- END --