

Terms and Conditions Monitoring Report

Bull Trout Biological Opinions for Post-fire Salvage Operations Flathead National Forest

2007-2009



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Introduction

This report contains information that is required by several terms and conditions that were identified in Biological Opinions issued by the US Fish and Wildlife Service for the following projects.

1. Spotted Beetle Resource Management Project
2. Moose Post-fire Salvage Project
3. 2003 Road Maintenance BMPs Project
4. Westside Reservoir Post-fire Salvage Project

The specific terms and conditions related to bull trout were extracted from the Biological Opinions and contained in this report. Each term and condition is followed by a discussion about how it was addressed by the Forest Service. In March of 2007 a similar report was prepared by Rick Stevens and Craig Kendall that addressed actions implemented in 2006. This subsequent report summarizes actions that occurred in 2007, 2008, and 2009.

Spotted Beetle Resource Management Project

- A. The Forest Service shall ensure through yearly inspections that roads closed by gates or berms have properly functioning culverts and effective surface drainage to minimize surface erosion. Culvert maintenance and roadbed restoration shall be accomplished as soon as practicable to prevent large erosive events from occurring.

FS Response: The Flathead National Forest employs a seasonal crew that surveys road and culvert conditions behind gates and berms annually. Appendix A includes road and culvert data collected across the forest between 2007 and 2009, including data that was collected in the Spotted Beetle project area.

- B. The Forest Service shall monitor road management and timber harvest activities to ensure state and Forest Service best management practices are being met during implementation using a qualified staff biologist or technician. Revegetation of stream banks, stream crossings and riparian areas will be sufficiently monitored to ensure Forest Service standards regarding successful establishment of mature vegetation beyond initial planting are met and results reported to the Service on a yearly basis.

FS Response: All timber harvest activities related to this project have been completed. Ongoing road decommissioning actions are monitored by qualified biologists, engineers, or technicians to ensure that streams and vegetation are recovering after decommissioning activities. Appendix B includes photo documentation of typical stream crossings that have been restored on decommissioned roads to illustrate technique and effectiveness.

- C. The Forest Service shall develop and implement a sediment monitoring plan and provide it to the Service for review and approval prior to implementation of any activities within the Clark Creek Watershed. The monitoring plan shall monitor the anticipated sediment budget in the Clark Creek watershed. The duration of the plan should extend beyond the completion of the proposed action and be sufficient to observe trends.

FS Response: The development of a sediment budget involves the quantification of bedload and suspended sediment inputs, outputs, and storage within a stream reach. It requires long term stream gaging and regular sampling of bedload and suspended sediment. Sediment data is then correlated with discharge data to develop the sediment budget. This requires several years of data collection, and correlations between sediment and discharge are quite variable. In the previous monitoring report (Stevens and Kendall, 2007), it was stated that a cross-section was established in Clark Creek in 2006 to monitor any changes in channel morphology, which was considered a surrogate for a sediment budget. Recent discussions among the district fisheries biologist, hydrologist, and timber operations supervisor determined that there was some confusion about whether or not this cross-section was ever established. At this point, there is no known cross-section data for Clark Creek. However, several on-site inspections of the stream do not indicate any visible signs of channel adjustment. The results of the road decommissioning work appear to be representative of other projects implemented in similar conditions.

- D. To the maximum extent practicable, the Forest Service shall ensure that culvert removals on intermittent streams be conducted when the stream channels are dry.

FS Response: Culvert work typically occurs between in July and August when most intermittent streams are dry. The 2008 Roads Programmatic BO requires that sediment

producing activities be avoided between September 1 and May 15. In all cases, it should be recognized culvert removals will always generate some level of sediment, but the amount is minimized by timing of the work and implementation of BMPs.

- E. Following culvert removal, to the maximum extent practicable, the Forest Service shall reconstruct the stream channel to the natural streambed configuration and function. The stream channel should mimic the upstream and downstream channel morphology and function.

FS Response: This is a standard operating procedure on the Flathead National Forest that was followed between 2007 and 2009 during all culvert removals. An engineer, hydrologist, or fisheries biologist, all of whom have received training in the principles of geomorphology, inspected all stream reconstruction sites to ensure sufficient continuity of channel morphology. Appendix B contains some photos of typical crossing sites that have been restored. These photos illustrate how the Forest Service reconstructs channels and attempts to mimic the dimension and profile of upstream and downstream reaches.

- F. The Forest Service shall minimize, to the maximum extent practicable, the use of hard armoring techniques such as riprap wherever rock, logs, and vegetative bank stabilization techniques would be more appropriate to minimize potential bank erosion.

FS Response: Hard armoring techniques are typically only used in high gradient stream channels where such materials mimic natural channel material and/or provide grade control. Installation of rock weirs is a common practice used to provide grade control and channel stability during the natural recovery period. The intent is to provide for some level of channel stability until vegetation and woody material become established. Traditional engineering approaches to channel stabilization are avoided. Appendix B includes photos of typical stream crossing sites that have been restored.

- A. The Forest shall assure the consistent implementation of measures and standards specified in the Aquatic Conservation strategies as indicated in the *1998 Biological Opinion for the Effects to Bull Trout from the Continued Implementation of Land and Resource Management Plans and Resource Management Plans as Amended by the Interim Strategies for Managing Fish Producing Watersheds in Eastern Oregon and Washington, Idaho, Western Montana and portions of Nevada (INFISH) and the Interim Strategy for Managing Anadromous Fish-producing Watersheds in Eastern Oregon and Washington, Idaho, and portions of California (PACFISH)*.

FS Response: The NEPA document, project files, and contracts contain information on how INFISH was incorporated into the project design and implementation.

- A. The Forest Service shall prepare and submit a post-construction report to the Service no later than December 31, for each year construction or restoration occurs. The report will include but is not limited to: date construction began and was completed for the previous calendar year; any problems or deviations from the proposed action and any conservation measures or recommendations implemented.

FS Response: All road decommissioning work in the project area has been completed.

- B. No later than April 30, The Forest Service shall prepare and submit to the Service a schedule of actions for the upcoming calendar year specifically detailing locations of culvert removals and miles of expected road reclamation, as well as any additional clarifying information.

FS Response: Each year, the forest submits the annual road maintenance plan that includes roads scheduled for decommissioning. This is a result of the roads programmatic BO for Western Montana.

- C. Upon locating dead, injured or sick bull trout or upon observing destruction of redds, notification must be made within 24 hours to the Service's Montana Field Office at 406-449-5225. Record information relative to the date, time, and location of dead or injured bull trout when found, and possible cause of injury or death of each fish and provide this information to the Service.

FS Response: No dead, injured, or sick bull trout were observed between 2007 and 2009.

- D. Within 90 days of the end of the calendar year, the Forest Service will provide a written report or letter to the Service indicating the actual number of bull trout taken, if any, as well as any relevant biological/habitat data or other pertinent information on bull trout that was collected.

FS Response: No bull trout were taken between 2007 and 2009. It should be noted that a catch and keep permit fishery for bull trout has been instituted in Hungry Horse Reservoir.

- E. During project development and operation the Forest shall ensure the Service is promptly notified of any emergency or unanticipated situations arising that may be detrimental for bull trout relative to the proposed activities

FS Response: No emergency situations developed between 2007 and 2009 related to any project activity.

Moose Post-Fire Salvage Project

1. During all road management and timber harvest activities, the Forest shall implement soil and water Best Management Practices (BMPs) and the specific minimization measures identified for each activity as developed in the *Biological Assessment of Road Related Actions on Western Montana's Federal Lands that are Likely to Adversely Affect Bull Trout* (USDA 2001b). The Forest shall monitor these activities at a frequency adequate to ensure state and Forest Service BMPs are being met during implementation using a qualified staff biologist or technician.

FS Response: This project is complete, as stated in the 2007 report. The forest is now operating under the *Biological Opinion for the Effects to Bull Trout and Bull Trout Critical Habitat from Road Management Activities on National Forest System and Bureau of Land Management Lands in Western Montana*.

2. The Forest shall assure the consistent implementation of measures and standards specified in the aquatic conservation strategies as indicated in the *1998 Biological Opinion for the Effects to Bull Trout from the Continued Implementation of Land and Resource Management Plans and Resource Management Plans as Amended by the Interim Strategies for Managing Fish Producing Watersheds in Eastern Oregon and Washington, Idaho, Western Montana and portions of Nevada (INFISH)* and the Interim Strategy for Managing Anadromous Fish-producing Watersheds in Eastern Oregon and Washington, Idaho, and portions of California (PACFISH; USDI 1998c).

FS Response: The NEPA document, project files, and contracts contain detailed information how INFISH was incorporated into the project design and implementation.

3. The Forest shall ensure that roads closed year-long by gates or berms have properly functioning culverts and effective surface drainage to minimize surface erosion. The Forest shall implement monitoring of culverts on these roads according to monitoring components 1-5 as outlined in the September 19, 2002 letter from the Forest to the Service, "Moose Post-Fire Project EIS, Additional Information Regarding Culverts on Bermed Roads." Additionally, culverts identified as high risk of failure during monitoring shall either be replaced or fill shall be removed to the extent practicable and an overflow design shall be implemented prior to high water the following year. A report of monitoring activities shall be submitted by the Forest fisheries biologist to the Service, in a format agreed upon by the Forest and the Service, by January 31 of each year for the previous year's activities. This report shall include, but is not limited to the size of pipe and amount of fill. If the Forest fails to turn in the monitoring report to the Service, consultation shall be reinitiated.

FS Response: The Flathead National Forest employs a seasonal crew that surveys road and culvert conditions behind gates and berms annually. Appendix A includes a summary of all road and culvert surveys completed between 2007 and 2009. In addition, several documents are on file at the Hungry Horse/Glacier View Ranger District that contains culvert monitoring information that dates back to 2002.

4. For the 10 culverts to remain on decommissioned roads 315, 1692, 5286 and 316E, fill shall be removed to the extent practicable and an overflow design shall be implemented. The design shall be reported to and agreed upon by the Service prior to decommissioning. These culverts shall be monitored and reported in the same manner established in term and condition 3.

FS Response: Previous litigation has hindered our response to implementing these actions and a new lawsuit was recently filed. The forest plans to move forward with design and implementation, unless enjoined by the court. These road segments are to remain open to snowmobile use during the winter, as defined in Forest Plan Amendment 24. Design work is currently underway, and the Forest Service hopes to secure funding to implement in 2010. The approximate cost per culvert is \$80,000 - \$100,000, so it is unlikely that all ten culverts would be funded in the same year. It may take a few years to secure enough funding to complete all 10 culverts.

5. Prior to salvage harvest treatments, along perennial, intermittent and ephemeral streams within areas of moderate and high fire intensity, the Forest shall verify that RHCAs of an appropriate width have been identified on the ground in a visible manner and that landslide prone areas, areas with high potential to deliver excessive sediment to occupied bull trout streams and other sensitive areas have been incorporated into RHCAs.

FS Response: RHCAs were identified on the ground, and incorporated into project design. Harvest activities are now complete.

6. To the maximum extent practicable, the Forest shall ensure that culvert removals on intermittent streams be conducted when the stream channels are dry.

FS Response: Culvert work on nearly all projects occurs in July and August. Most intermittent streams are dry in this forest during these dates. If this isn't the case, but drying is anticipated, work is usually held off until flow stops. The 2008 Roads Programmatic BO requires that sediment producing activities be avoided between September 1 and May 15

7. The Forest shall avoid, to the maximum extent practicable, the use of hard armoring techniques such as riprap where rock, logs and vegetative bank stabilization techniques would be more appropriate to minimize potential bank erosion.

FS Response: Hard armoring techniques are typically only used in high gradient stream channels where such materials mimic natural channel material and/or provide grade control. Installation of rock weirs is a common practice used to provide grade control and channel stability during the natural recovery period. The intent is to provide for some level of channel stability until vegetation and woody material become established. Traditional "engineering" approaches to channel stabilization are avoided. Appendix B includes photos of typical stream crossing sites that have been restored.

8. The Forest shall establish, or contract with Montana Fish, Wildlife, and Parks (MFWP) to establish, two additional McNeil core sample sites in areas of spawning habitat. The Forest shall establish the sites in concurrence with MFWP and agreed upon by the Service. These additional sites shall be sampled for at least two years after the completion of all activities above or adjacent to spawning habitat. Sample results shall be included in the report established in term and condition 3.

FS Response: The Forest Service has contacted MFWP about the establishment of 2 additional monitoring sites. Forest Service hydrologists and fisheries biologists have discussed the sensitivity of core sampling to management activities, and concluded that it is very unlikely that establishment of these sites and monitoring for a period of two years is

very unlikely to produce meaningful results. Core sample data in the North Fork Flathead system show that particle size distributions are not substantially affected by forest fire and post-fire activities. A report that summarizes all core sample data on the Flathead National Forest is available in the Supervisors Office. In addition, Appendix C contains a report that discusses the results of several post-fire monitoring efforts in the Moose Fire area.

9. Following the implementation of road management and timber harvest activities and until such time as the area disturbed by these activities has been stabilized, the Forest shall monitor action areas to ensure reclamation efforts are effective and treated portions of decommissioned roads are not contributing sediment to streams. Should substantial sediment sources be identified, the Forest shall arrest these sources in a timely manner.

FS Response: Informal monitoring of restored stream crossing sites indicates that treatments are very effective. Appendix B contains photos of typical sites that have been restored.

10. During the implementation of salvage harvest treatments, the Forest shall monitor RHCAs to ensure they are not compromised by management activities or climatic events influencing buffer efficacy.

FS Response: Based on field reviews, RHCAs were left intact following harvest activities.

11. Upon locating dead, injured or sick bull trout or upon observing destruction of redds, notification must be made within 24 hours to the Service's Montana field office at 406-449-5225. Record information relative to the date, time and location of dead or injured bull trout when found, and possible cause of injury or death of each fish and provide this information to the Service.

FS Response: Dead or injured bull trout were not observed between 2007 and 2009.

2003 Post-fire Road Maintenance (BMPs) Project

All activities related to this project have been completed and reported to the Service. Remaining road improvement activities associated with the 2003 fires are part of the decisions authorizing timber salvage and will be reported in the respective sections below. Monitoring and replacement of high risk culverts in areas burned in 2003 continues on the Flathead National Forest. Appendix A contains a summary of all roads and culverts that have been surveyed.

Westside Reservoir Post Fire Salvage

1. During all road management and timber harvest activities, the Forest shall implement soil and water Best Management Practices (BMPs) and the specific minimization measures identified for each activity as developed in the Biological Assessment of Road Related Actions on Western Montana's Federal Lands that are Likely to Adversely Affect Bull Trout (USDA 2001b). A staff fisheries biologist will review all project contracts prior to implementation to ensure that the appropriate mitigation measures are included.

FS Response: A fisheries biologist reviewed all project contracts prior to implementation to ensure appropriate mitigations were included.

2. The Forest shall assure the consistent implementation of measures and standards specified in the aquatic conservation strategies as indicated in the 1998 Biological Opinion for the Effects to Bull Trout from the Continued Implementation of Land and Resource Management Plans and Resource Management Plans as Amended by the Interim Strategies for Managing Fish Producing Watersheds in Eastern Oregon and Washington, Idaho, Western Montana and portions of Nevada (INFISH) and the Interim Strategy for Managing Anadromous Fish-producing Watersheds in Eastern Oregon and Washington, Idaho, and portions of California (PACFISH; USDI 1998c).

FS Response: The Forest incorporated all applicable direction contained in INFISH into project-level planning and design. The NEPA document, project files, and contracts contain detailed information how INFISH was incorporated into the project design and implementation.

3. Prior to salvage harvest treatments, along perennial, intermittent and ephemeral streams within areas of moderate and high fire intensity, the Forest shall verify that RHCAs of an appropriate width have been identified on the ground in a visible manner and that landslide prone areas and other sensitive areas have been incorporated into RHCAs.

FS Response: RHCA boundaries and locations were established, reviewed, and monitored during project planning implementation by the district fisheries biologist and/or hydrologist. All treatments are complete.

4. To the maximum extent practicable, the Forest shall ensure that culvert removals on intermittent streams be conducted when the stream channels are dry.

FS Response: This is standard operating procedure. Generally, by default, culvert activity on nearly all projects occurs in July and August. Most intermittent streams are dry in this forest during these dates. If this isn't the case, but drying is anticipated, work is usually held off until flow stops. The 2008 Roads Programmatic BO requires that sediment producing activities be avoided between September 1 and May 15

5. During culvert replacement or removal on perennial fish bearing streams, a qualified fisheries biologist, hydrologist, engineer, or technician will be on site to ensure all BMPs are being met during implementation. In addition, if contractors are unfamiliar with BMPs and mitigation measures required for culvert replacement or removal, a fisheries biologist will be on site at the first perennial stream crossing project implemented by that contractor to ensure BMPs and mitigation measures are utilized.

FS Response: This is a standard operating procedure on the Flathead National Forest that was followed between 2007 and 2009 during all culvert removals and replacements. An engineer, hydrologist, or fisheries biologist, all of whom have received training in the principles of geomorphology, inspected all stream reconstruction sites to ensure sufficient continuity of channel morphology. Appendix B contains some photos of typical crossing sites that have been restored.

6. Prior to commercial use, the Forest shall upgrade those portions of Forest roads located in the Whale Creek drainage that will be used during salvage timber harvest. Roads that can not be brought up to standard before harvest in winter 2004-2005, will be brought up to standard as soon as possible the following year. If road related sediment problems arise they will be fixed immediately or salvage will stop until they are alleviated.

FS Response: This work has been completed, and no future reporting on this item is necessary.

7. The Forest shall complete the first 12 miles of the 49 miles proposed for road decommissioning by December 31st 2008.

FS Response: To date, 36.4 miles of road have been decommissioned.

8. The Forest shall complete the final 37 miles of the 49 miles proposed for road decommissioning by December 31st 2010.

FS Response: A total of 14.66 miles of road remain to be decommissioned. Contract awards for this work is scheduled for 2009 (5.76 miles) and 2010 (8.9 miles).

9. Following the rehab of decommissioned, temporary and reconstructed roads and until such time as the area disturbed by project actions has been stabilized, the Forest shall monitor these roads to ensure that reclamation efforts are effective and that treated portions of roads are not contributing sediment to streams. Should sediment sources be identified the Forest shall arrest these sources according to the terms and conditions stated above.

FS Response: Informal monitoring of decommissioned roads on the forest indicate that these treatments are very effective. Appendix B contains photo documentation of typical road decommissioning and stream crossing restoration sites. The photos illustrate the effectiveness of this work.

10. During project implementation, the Forest will monitor potential project related sources of sediment to Quintonkon, Sullivan, Wheeler, and Wounded Buck creeks to ensure they are not compromised by management activities or climatic events, including: 1) helicopter log hauling and service landings within RHCAs; 2) stream crossings on fish bearing and intermittent streams where log hauling will occur; and 3) RHCA buffers in salvage units located adjacent to tractor units in the Sullivan Creek drainage. If sediment sources are identified, they will be dealt with as required in terms and conditions 1 and 2.

FS Response: This condition was met through regular site reviews by the district fish biologist and/or hydrologist. All salvage harvest has been completed as of March 15, 2007 in all fire areas except the Beta Fire.

11. Upon locating dead, injured or sick bull trout or upon observing destruction of redds, notification must be made within 24 hours to the Service's Montana field office at 406-449-5225. Record information relative to the date, time and location of dead or injured bull trout when found, and possible cause of injury or death of each fish and provide this information to the Service.

FS Response: Dead or injured bull trout have not been observed during this project.

12. To better monitor road management activities and potential impacts to bull trout, the forest will coordinate with MFWP annually and provide to FWS yearly summaries of all substrate data, juvenile bull trout estimates, and bull trout redd numbers collected during this project.

FS Response: This condition is met annually. USFWS has full access to the annual reports prepared by the MFWP.

13. During project implementation, the Forest shall prepare and submit a monitoring report to the service on or about 01 March. The report shall include an updated list of activities that took place the previous year, including salvage harvest, road management activities, construction of helicopter landings and road decommissioning. In addition, a schedule of activities proposed for the current year will be included.

FS Response: All salvage harvest has been completed. All harvest actions were conducted in accordance with seasonal restrictions as detailed in the Biological Assessments for the Westside Reservoir Post Fire Project.

14. The Forest will submit a proposal for monitoring culverts on bermed roads. The proposal must be approved by the Service prior to project implementation in 2005. The proposal should include rationale for the proposed monitoring method based on the results of previous monitoring efforts in the Moose and Spotted Beetle projects. Culverts on bermed roads in bull trout priority watersheds will be considered a priority for monitoring. A report of monitoring activities shall be submitted by the Forest fisheries biologist in a format agreed upon by the Forest and the Service by March 01 of each year for the previous year's activities. This report shall include, but is not limited to the location of the pipe, size, amount of fill, and current condition.

FS Response: The Flathead National Forest employs a seasonal crew that surveys road and culvert conditions behind gates and berms annually. Appendix A includes a summary of all road and culvert surveys. In addition, several documents are on file at the Hungry Horse/Glacier View Ranger District that contains culvert monitoring information that dates back to 2002.

15. During project development and implementation, the forest shall ensure the Service is promptly notified of any emergency or unanticipated situations arising that may be detrimental for bull trout relative to the proposed activities. In addition, the Service will be notified if additional changes are made to the proposed action.

FS Response: This project is complete.