

APPENDIX H – KEY WATERSHEDS

Chapter 3 of this Plan lists specific Goals, Objectives and Standards for 56 fish key watersheds and 15 restoration key watersheds. These watersheds are listed in the table below. The purpose and method for selection were different between fish key watersheds and restoration key watersheds. This is discussed below the table. Key watersheds will often receive priority over non-key watersheds for watershed analyses and restoration work, but not always. As watershed analysis and subsequent restoration projects are completed restoration watersheds may be removed from the list and others added

Table 1. Key Watersheds Identified for this Planning Period

Key Watershed	Resource Emphasis	District
Blacktail	fish	Butte
Columbus Gulch	fish	Butte
German Gulch	fish	Butte
Andrus	fish	Dillon
Bear-Lima	fish	Dillon
Buffalo	fish	Dillon
Fox	fish	Dillon
Nicholia Low	fish	Dillon
Painter	fish	Dillon
Reservoir	fish	Dillon
Boulder Low	fish	Jefferson
Boulder Up	fish	Jefferson
Halfway	fish	Jefferson
Little Boulder Up	fish	Jefferson
Whitetail Up	fish	Jefferson
Burnt	fish	Madison
California	fish	Madison
Greenhorn	fish	Madison
Horse	fish	Madison
Idaho	fish	Madison
Indian-Tobaccoroot	fish	Madison
Soap	fish	Madison
Wall	fish	Madison
Bielenberg	fish	Pintler
Carpp	fish	Pintler
Copper-AP Wild	fish	Pintler
Copper-Boulder	fish	Pintler
Cottonwood	fish	Pintler
E F Rock Up	fish	Pintler

Beaverhead-Deerlodge National Forest

Key Watershed	Resource Emphasis	District
Falls Fork	fish	Pintler
Foster	fish	Pintler
Fred	fish	Pintler
Lower Willow Cr	fish	Pintler
Meadow-Philipsburg	fish	Pintler
M F Rock	fish	Pintler
M F Rock Low	fish	Pintler
N F Rock Low	fish	Pintler
N F Rock Up	fish	Pintler
Racetrack	fish	Pintler
Rock Up	fish	Pintler
Ross	fish	Pintler
Sand Basin	fish	Pintler
S Boulder	fish	Pintler
S F Ross	fish	Pintler
S F Willow	fish	Pintler
Stony	fish	Pintler
Twin Lakes	fish	Pintler
Warm Springs	fish	Pintler
W F Rock	fish	Pintler
Harvey Creek	fish	Pintler
Doolittle	fish	Wisdom
Plimpton	fish	Wisdom
Cherry Pioneers	fish	Wise River
Deep	fish	Wise River
Jerry Up	fish	Wise River
Squaw-Pioneers	fish	Wise River
Girard Gulch	restoration	Butte
Birch	restoration	Dillon
Lost-Pioneer	restoration	Dillon
Saginaw	restoration	Dillon
Willow Lower	restoration	Dillon
Willow Upper	restoration	Dillon
Beaver (Little Boulder)	restoration	Jefferson
Hells Canyon	restoration	Jefferson
Little Boulder Low	restoration	Jefferson
North Fk Little Boulder	restoration	Jefferson
Freezeout	restoration	Madison
South Willow	restoration	Madison

Key Watershed	Resource Emphasis	District
Moosehorn	restoration	Wisdom
Seymour	restoration	Wisdom
Sullivan	restoration	Wise River

Methods for selecting Fish Key Watersheds

Management in Fish Key Watersheds emphasizes conservation of westslope cutthroat and bull trout by protecting and restoring components, processes, and landforms that provide quality habitat. The objective for selecting Fish Key Watersheds was to prescribe this management direction to a well distributed group of the strongest populations across the Forest. The length of stream occupied by a population was used as the primary indicator for population strength. Watersheds with cutthroat populations which are, or nearly are, genetically pure, tended to receive greater consideration than those with lower percentages of purity. Achieving an adequate distribution was important. For this reason, some key watersheds were selected which have less robust populations than some others on the Forest. Maintaining migratory life histories is an important element of conservation. Thus, where connected habitats were important in sustaining populations, groups of watersheds were selected. The result was the clumping of key watersheds in the Rock Creek drainage.

Methods for selecting Restoration Watersheds

Management in Restoration Key Watersheds emphasizes restoration of integrated ecological processes at the watershed scale. A paper in the project file details methods and data used to identify priority restoration watersheds, “*A Method to Identify Priority Restoration Watersheds for Use in the Region 1 Integrated Restoration and Protection Strategy*,” Bryce A. Bohn, Hydrologist, Beaverhead-Deerlodge NF, 2007. The method was developed for Region One use and implemented on the BDNF based on modifying a procedure developed by Winters et al. (2004d) titled, “*Conceptual framework and protocols for conducting multiple scale aquatic, riparian, and wetland ecological assessments for the USDA Forest Service Rocky Mountain Region, Reports 1 and 2.*”

Watersheds were prioritized by identifying, evaluating, and ranking anthropogenic activities known to influence watershed condition. This assumes more activity in or near streams translates to a higher risk to watershed function. The table below identifies the activities and measurements used to rank watersheds.

Table 2. Metrics used to assess watershed risk

Activity	Evaluation Criteria Applied within the Drainage Polygon
Transportation	Miles of roads within 300’ of stream channel/stream mile Number of stream crossings/stream mile
Mineral Extraction	Number of current and historic mines Number of mines within 300’ of stream channels
Vegetation Management	Percent of key watershed within an active grazing allotment Percent of suitable range within 300’ of stream channel (more than 10% of watershed must be within an active allotment)

	Percent of HUC with more than 60% crown removal within last 20 years
Administrative Designation	Miles of 303(d) listed stream/miles of stream channel

The analysis process is summarized as follows:

1. Anthropogenic activities in each watershed are evaluated. The watershed is assigned a ranking value (0 to 4) based on the relative contribution a given anthropogenic activity has had within the watershed (e.g., roads).
2. Quartile ranking values for all activities are totaled for each watershed (e.g., rank sum). Rank sum values could range from a minimum of 0 (if the key watershed had none of the 8 activities) to a maximum 32 (if the key watershed had the top rank for each of the 8 activities).
3. The distribution of the rank sums for all watersheds is divided into quartiles. Group 1 identifies those watersheds within the lowest quartile of cumulative rankings. Group 2 identifies watersheds within the 25th-50th percentiles of cumulative rankings. Group 3 identifies those watersheds within the 50th-75th percentiles of cumulative rankings. Group 4 identifies those watersheds within the highest quartile of cumulative rankings.
4. The distribution of these additive effects groups is mapped using GIS.
5. The watersheds in Group 4 are then identified as having the highest risk of degraded conditions. This conclusion is then validated by district and forest staff members for restoration priority.

This analysis was applied to the 348 watersheds on the BDNF which contained at least 10% National Forest System land. Fifteen were selected to focus watershed restoration activities on, in the next planning cycle. Not all of the watersheds, however, were selected from the 4th Quartile. For example, preference was given to Quartile 3 watersheds adjacent to important westslope cutthroat trout population if improved conditions would facilitate connectivity or aid viability. Similarly, preference was given to watersheds where integrated restoration opportunities compatible with watershed restoration were available. An attempt was made to distribute key restoration watersheds across landscapes and districts. Key watersheds will usually receive priority over non-key watersheds for analyses and restoration work.

APPENDIX I - TERMS AND CONDITIONS FOR PROTECTION OF WOLVES

Source: Extracted from US Fish and Wildlife Service Biological Opinion, 9/23/08, the Effects of the Revised Land and Resource Management Plan (2008) For the Beaverhead-Deerlodge National Forest on Gray Wolves.

This appendix will be revised to reflect the most current consultation in accordance with 50 CFR 402.16.

Action area, as defined by the Act, is the entire area to be affected directly or indirectly by the federal action and not merely the immediate area involved in the action. For the purposes of this biological opinion, we have defined the action area to be the area on the Forest where gray wolves are listed as endangered. Gray wolves that occur in the northern portions of the Forest west of I-15 and north of I-90 are within the northwest Montana Recovery Area and are listed as endangered. This encompasses portions of the Butte, Jefferson and Pintler Ranger Districts. For many years, the Forest has been conducting effects analyses under the assumption that wolves may be present in this area.

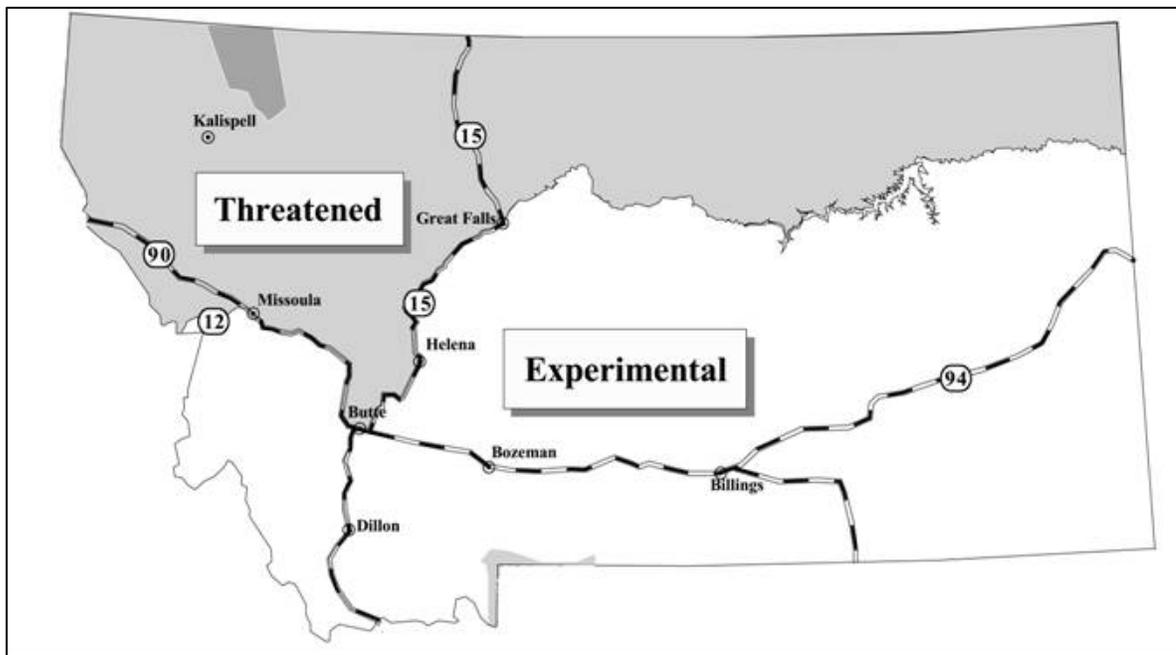


Figure 1. Montana Wolf Management Areas

Terms and conditions

These terms and conditions are nondiscretionary:

1. To proactively decrease the risk of wolf depredations, encourage allotment permittees to use non-lethal deterrents such as fladry and/or electric night pens.
2. Include a clause in grazing permits that occur within the action area requiring the permittee to notify the Forest of any wolf depredation on livestock or conflicts between wolves and livestock, even if the conflict did not result in the loss of livestock, within 24 hours of discovery. The Forest shall work with Montana Fish, Wildlife and Parks and Wildlife Control personnel to determine appropriate follow-up action(s).
3. Include a clause in all grazing permits that occur within the action area requiring the permittee to notify the Forest of any livestock losses, regardless of the cause, within 24 hours of discovery. Agency personnel and the permittee would then jointly determine how to properly treat or dispose of livestock carcasses so as to eliminate any potential attractant for wolves.

Reporting Requirements – to demonstrate compliance with the terms and conditions the Forest shall:

1. Maintain an up-to-date record for the action area including but not limited to the following:
 - a) Description of wolf conflicts and depredations;
 - b) What was implemented to try to minimize conflicts (fladry, etc);
 - c) Did conflict result in the lethal removal of a wolf or wolves
2. Complete a report with this information and submit it to the Service's Montana Field Office by March 1 of each year for the preceding calendar year.
3. The Forest shall notify the Service's Montana Field Office if a change in the status of sheep grazing on the Forest is being considered.
4. The Forest shall notify the Service's Montana Field Office, within 72 hours of any livestock depredation by wolves or the management removal or human-caused death of a wolf.