



MINIMUM REQUIREMENTS ANALYSIS FRAMEWORK WORKBOOK

“...except as necessary to meet minimum requirements for the administration of the area for the purpose of this Act...”

— Section 4(c), Wilderness Act of 1964

Introduction

The Minimum Requirements Analysis (MRA) is designed to examine whether a project truly needs to occur in wilderness, and if so, how to accomplish it with the least impact to the wilderness resource. The framework below is intended to help managers: 1) evaluate actions proposed in wilderness involving a use otherwise prohibited by the Wilderness Act; and 2) consider appropriate choices about administrative actions they might take. Like the previous version of this document (the Minimum Requirements Decision Guide (MRDG)), the MRA Framework (MRAF) is based on the Wilderness Act and is consistent with agency policy. The MRAF incorporates lessons learned by agency employees as they used the MRDG over the years. The goal of the MRAF is to help provide consistency in the way wilderness-managing agencies consider actions to address threats to wilderness, and to ensure that agencies strive to preserve wilderness character through their on-the-ground decisions.

This document is intended for uses prohibited by Section 4(c) of the Wilderness Act in designated wilderness, but it can be used to analyze all projects in wilderness. Check agency policy to determine if this workbook may be appropriate for other proposals in wilderness.

If applicable, per agency policies, collaborate and coordinate with associated Tribe(s) and/or Tribe(s) with historical, treaty, or related ties to the area.

Title

Spawning Access for Endemic Arctic Grayling Population within Red Rock Lakes Wilderness

Step 1: Determine If Administrative Action May Be Necessary

Issue Statement

An endemic population of Arctic grayling (*Thymallus arcticus*) within the Red Rock Lakes Wilderness has declined and is at risk of extirpation. The population is subject to many factors limiting their abundance. Studies have indicated that the population has declined to a point where it is losing genetic diversity, which is decreasing its persistence, and increasing its risk of extirpation. From a wilderness perspective, extirpation would degrade the Natural wilderness character. For centuries this grayling population has lived alongside beaver (*Castor canadensis*) and has had to negotiate beaver dams to access spawning habitat. Today however, there are many additional factors (e.g. a warming climate, predation by, and competition with adult non-native Yellowstone cutthroat trout, etc.) that are also weighing on the population. Modeling has indicated that access to quality spawning habitat is important to this population, with spawning habitat being the secondary driver of grayling populations. Poor spawning access: affects reproductive success, is especially harmful at low abundances, and can lead to rapid demographic and genetic losses and the likelihood of extirpation.

Options Outside of Wilderness

Is this issue wilderness dependent, or can an action occur outside of wilderness to properly resolve the issue now or over time?

Can the issue be resolved or addressed outside of wilderness?

- YES **STOP – EXPLAIN BELOW AND DO NOT TAKE ACTION**
- NO **EXPLAIN BELOW AND PROCEED TO THE NEXT SECTION**

Currently the grayling population in the Red Rock Lakes Wilderness spawns primarily in Red Rock Creek (RRC). The lower reach of Red Rock Creek lies within wilderness. Beaver dams in this reach would be the first ones spawning fish encounter. If these dams are impassible to grayling, spawning grayling would not have access to quality spawning habitat further upstream, and this could reduce the production and size of the population. Action outside wilderness will not properly resolve the issue.

Criteria for Determining Necessity

Do any of the criteria below apply?

A. Wilderness Character

Based on the Issue Statement, are any of the qualities of wilderness character degraded, impaired, or threatened to a degree that it is necessary to analyze potential action otherwise prohibited by Section 4(c) to address the issue?

UNTRAMMELED

Select your answer.

YES NO

The Untrammeled wilderness character is not threatened by this issue.

UNDEVELOPED

Select your answer.

YES NO

The Undeveloped wilderness character is not threatened by this issue.

NATURAL

Select your answer.

YES NO

The Natural wilderness character is threatened by this issue. Loss of the endemic grayling population would degrade the Natural wilderness character.

OUTSTANDING OPPORTUNITIES FOR SOLITUDE or PRIMITIVE and UNCONFINED RECREATION

Select your answer.

YES NO

The Outstanding Opportunities for Solitude or Primitive and Unconfined Recreation wilderness character is not threatened by this issue.

OTHER FEATURES OF VALUE

Select your answer.

YES NO

Other Features of Value have not been identified for the Red Rock Lakes Wilderness. The Other Features of Value wilderness character is not threatened by this issue. (Note: revisit legislation and NNL designation)

B. Valid Existing Rights

Select your answer.

Is action necessary to satisfy a valid existing right? If so, cite the specific right, terms and conditions, and source.

YES NO

There are no valid existing rights associated with the Red Rock Lakes Wilderness. Valid existing rights are not threatened by this issue.

C. Special Provisions of Wilderness Legislation

Is action necessary to satisfy a special provision in wilderness legislation (i.e., Section 4(d) of the Wilderness Act of 1964 or subsequent wilderness-enabling laws) that requires action? Cite law and section.

YES NO

There are no special provisions of wilderness legislation associated with the Red Rock Lakes Wilderness. Special provisions of wilderness legislation are not threatened by this issue.

D. Requirements of Other Federal Laws

Not including special provisions found in wilderness-enabling laws, does another Federal law, by itself or as implemented or interpreted through EO, court order, etc., require action? Cite law and section.

YES NO

There are no requirements of other federal laws associated with the Red Rock Lakes Wilderness. Requirements of other federal laws are not threatened by this issue.

Step 1: Determination – Is Administrative Action Necessary in Wilderness?

Based on the responses and detailed explanations in A through D above, is there a need to proceed to Step 2? If at least one criterion in B through D in Step 1 has been met, or at least one quality of wilderness character is threatened, check the “Yes” box and provide a thorough explanation of the rationale described in A through D. It may also be helpful to describe in this determination how action would be consistent with the public purposes of wilderness or satisfy a specific agency obligation. If none of the criteria have been met, action is NOT necessary. Check the “No” box, explain why the proposed project does not meet the criteria, and stop your analysis.

YES

EXPLAIN BELOW AND COMPLETE STEP 2 OF THE MRAF

NO

STOP – EXPLAIN BELOW AND DO NOT TAKE ACTION

Failure to address the issue of Arctic grayling spawning access could lead to: reductions in reproductive success and the already small population; a loss of genetic diversity; a reduction in persistence; and, finally extirpation of the population. Potential consequences include listing the larger Upper Missouri River (UMR) population of Arctic grayling under the Endangered Species Act. This population is only one of four in the UMR that still exhibit the full spectrum of life history behaviors. Arctic grayling are a priority species in the Red Rock Lakes National Wildlife Refuge Comprehensive Conservation Plan. This action is consistent with achieving the goals and objectives for conservation of the population in the plan. Administrative action that improves the persistence of the endemic grayling population (and the Natural wilderness character) and has minimal negative impact on other wilderness character qualities, is necessary.

Step 2: Determine the Minimum Activity

Other Direction

Is there “special provisions” language in legislation or other congressional direction that explicitly allows consideration of (but does not require) a prohibited use? (Step 1 has a similar question in Section C, but that question is specific to other legislation requiring action in wilderness; this question is specific to other legislation addressing consideration of prohibited uses).

AND/OR

Has the issue been addressed or prescribed in agency policy, management plans, or legal directive (e.g., treaty, EO, court order, or other binding agreement with federal, state, or local agencies or authorities)?

- YES **DESCRIBE OTHER DIRECTION**
- NO **SKIP TO “UNCONTROLLABLE TIMING REQUIREMENTS” BELOW**

There is no special provisions language in legislation, or other congressional direction that allows consideration of a prohibited use associated with the Red Rock Lakes Wilderness.

Uncontrollable Timing Requirements

What, if any, are the considerations that would dictate timing of the action?

The grayling population is small and needs immediate help. If action is to be taken for spawning access it should begin during April 2024 (immediately before spawning) to reduce the risk of extirpation or a decline that further degrades genetic diversity and the persistence of the population.

Workflow Components

What are the distinct components or phases of the action?

Example	<i>Transportation of personnel to the project site</i>
Component 1	Transportation
Component 2	Tools
Component 3	Activity and timing
Component 4	Appearance of site - post activity
Component 5	

Feasibility of Alternatives

Only include feasible alternatives in this section. Some alternatives that are not feasible may warrant documentation in the “Alternatives Considered but Dismissed” section to provide a brief description and explanation of why it was dismissed and not considered in detail.

Possible reasons for dismissal include alternatives that are [impossible](#), have [unacceptable impacts](#), are [unsafe](#), are proven [ineffective](#), have [excessive costs](#), or whose [timing](#) would cause degradation to wilderness character.

The alternatives should also be reasonable. For example, there is no need to include helicopters in an alternative for equipment transport when that equipment can be easily carried by people or pack stock along a maintained trail.

Refer to the [MRAF instructions](#) regarding [alternatives](#) and the effects to each of the comparison criteria.

Step 2: Alternatives

Alternative 1

No Action

Component Methods

How will each of the components of the action be performed under this alternative?

Component	Workflow Components	Component Methods for this Alternative
	<i>Example: Transportation of personnel to the project site.</i>	<i>Example: Workers walk to work site.</i>
1	Transportation	N/A
2	Tools	N/A
3	Activity and timing	N/A
4	Appearance of site – post activity	N/A
5		

Description of the Alternative

What are the details of this alternative? When, where, and how will the action occur? What mitigation measures will be taken? Provide a complete narrative description of the Component Methods identified above.

No action will be taken in wilderness to improve spawning access for the endemic grayling population.

Wilderness Character

Component Number	For each component number, indicate the impact the method for this alternative will have on each of the five qualities of Wilderness: Positive = P, Negative = N, No Effect = 0 <i>Describe in detail the impacts to each of the five qualities in the narrative section below</i>	Untrammeled	Undeveloped	Natural	Solitude or Primitive and Unconfined	Other Features of Value
	<i>Example: Workers walk to work site.</i>	0	0	0	0	0
1	Transportation	0	0	0	0	0
2	Tools	0	0	0	0	0
3	Activity and timing	0	0	N	0	0
4	Appearance of site – post activity	0	0	0	0	0
5						

What is the effect of each Component Method on the qualities of wilderness character? What [mitigation measures](#) will be taken? Include cumulative impacts in the explanation.

UNTRAMMELED: Explain the intensity of the action that would intentionally control, manipulate, or hinder the conditions or processes of ecological systems:

No action will be taken in wilderness. This alternative will have no effect on the Untrammeled Quality.

UNDEVELOPED: Explain the effects to this quality in terms of how “the imprint of man’s work [would] remain substantially unnoticeable,” and how wilderness will continue to be in contrast with other areas of “growing mechanization”:

No action will be taken in wilderness. This alternative will have no effect on the Undeveloped Quality.

NATURAL: Explain the effects to this quality in terms of protection, degradation, or restoration of natural conditions:

No action will be taken in wilderness. If spawning access is impeded and the endemic grayling population declines to extirpation, this alternative will negatively affect the Natural Quality.

OUTSTANDING OPPORTUNITIES FOR SOLITUDE OR PRIMITIVE and UNCONFINED RECREATION: Explain how opportunities for visitors to experience solitude or a primitive and unconfined type of recreation will be protected or degraded. As appropriate, describe solitude, primitive recreation, and unconfined recreation separately:

No action will be taken in wilderness. This alternative will have no effect on the Outstanding Opportunities for Solitude or Primitive and Unconfined Recreation Quality.

OTHER FEATURES OF VALUE: Explain any effects to features of scientific, educational, scenic, or historical value that are not accounted for in the above qualities, including cultural and paleontological resources that are integral to wilderness character:

No action will be taken in wilderness. Other Features of Value have not been identified for the Red Rock Lakes Wilderness. This alternative will have no effect on the Other Features of Value Quality.

Alternative 2:

Beaver Dam Notching

Component Methods

How will each of the components of the action be performed under this alternative?

Component	Workflow Components	Component Methods for this Alternative
	<i>Example: Transportation of personnel to the project site.</i>	<i>Example: Workers walk to work site.</i>
1	Transportation	Foot travel
2	Tools	Primitive hand tools are used.
3	Activity and Timing	Beaver dams are notched before spawning.
4	Appearance of site – post activity	Beaver dams have water flowing through them until beaver repair them.
5		

Description of the Alternative

What are the details of this alternative? When, where, and how will the action occur?

What mitigation measures will be taken? Provide a complete narrative description of the Component Methods identified above.

Beaver dams on Red Rock Creek from Upper Red Rock Lake to the mouth of Corral Creek in the Red Rock Lakes Wilderness will be notched (temporarily reduced in height) every spring (late April/early May) immediately before grayling spawn. Personnel will walk to beaver dams and utilize non-motorized primitive hand tools and their hands to remove sticks and mud from existing beaver dams. Approximately 1/3 of the width of beaver dams will be removed to ensure grayling have access to reach high quality spawning areas. Sticks removed will be scattered downstream. Water will flow through beaver dams until beaver repair them. This is typically after spring runoff has decreased. Grayling begin their spawning run on the ascending leg of runoff in streams. Beaver dams are sometimes breached by runoff. Notched dams and naturally breached dams are similar in appearance.

Wilderness Character

Component Number	For each component number, indicate the impact the method for this alternative will have on each of the five qualities of Wilderness: Positive = P, Negative = N, No Effect = 0 <i>Describe in detail the impacts to each of the five qualities in the narrative section below</i>	Untrammeled	Undeveloped	Natural	Solitude or Primitive and Unconfined	Other Features of Value
	<i>Example: Workers walk to work site.</i>	0	0	0	0	0
1	Transportation	0	0	0	0	0
2	Tools	0	0	0	0	0
3	Activity and timing	N	0	P	0	0
4	Appearance of site – post activity	0	0	0	0	0
5						

What is the effect of each Component Method on the qualities of wilderness character? What [mitigation measures](#) will be taken? Include cumulative impacts in the explanation.

UNTRAMMELED: Explain the intensity of the action that would intentionally control, manipulate, or hinder the conditions or processes of ecological systems:

Notching beaver dams is a manipulation of the biophysical environment. This alternative will have a minor, temporary negative impact on the Untrammeled Quality but would mimic natural beaver dam notching that typically occurs with high water flows.

UNDEVELOPED: Explain the effects to this quality in terms of how “the imprint of man’s work [would] remain substantially unnoticeable,” and how wilderness will continue to be in contrast with other areas of “growing mechanization”:

Structures and installations will not be developed in wilderness. Motorized tools or mechanical transport will not be used in wilderness. This alternative will have no effect on the Undeveloped Quality.

NATURAL: Explain the effects to this quality in terms of protection, degradation, or restoration of natural conditions:

Notching beaver dams provides reliable access to quality spawning areas for the grayling population. This will help protect the persistence of the endemic population at Upper Red Rock Lake. While there will be a temporary negative impact to beavers and their dams, this impact will be negligible at the local or population level. Therefore, this alternative will have an overall positive impact on the Natural Quality.

OUTSTANDING OPPORTUNITIES FOR SOLITUDE OR PRIMITIVE and UNCONFINED RECREATION: Explain how opportunities for visitors to experience solitude or a primitive and unconfined type of recreation will be protected or degraded. As appropriate, describe solitude, primitive recreation, and unconfined recreation separately:

Notched dams will look like dams breached by spring runoff. This will have no effect on solitude. No additional regulations will be added. Recreation will remain unconfined. This alternative will have no effect on the Outstanding Opportunities for Solitude or Primitive and Unconfined Recreation Quality.

OTHER FEATURES OF VALUE: Explain any effects to features of scientific, educational, scenic, or historical value that are not accounted for in the above qualities, including cultural and paleontological resources that are integral to wilderness character:

Other Features of Value have not been identified for the Red Rock Lakes Wilderness. This alternative will have no effect on the Other Features of Value Quality.

Step 2: Alternatives Considered but Dismissed

What alternatives were considered but dismissed? [Why were they dismissed?](#)

[Explain:](#)

Two alternatives to beaver dam notching were considered but dismissed.

Complete Removal of Dams: This alternative was dismissed because it caused greater harm to wilderness character. The Untrammelled, Natural, and Outstanding Opportunities for Solitude or Primitive and Unconfined Recreation qualities would be negatively impacted. This would have a greater impact to beaver, riparian habitat, and visitors in wilderness. Loss of entire dams would have a direct impact on the beaver population. Compared to notching, complete removal of dams would result in a greater stage change in water level and limit the flooding benefits beaver provide to riparian habitat. Complete removal of dams would impact the solitude of visitors. Beaver dams would no longer appear as if high water had breached them. Beaver dam notching is the minimum tool to address the issue.

Trapping Beavers: This alternative was dismissed because it caused greater harm to wilderness character. The Untrammelled, Natural, and Outstanding Opportunities for Solitude or Primitive and Unconfined Recreation qualities would be negatively impacted. Beaver provide many important ecosystem benefits to riparian habitat, including those that benefit grayling. Managing the beaver population through trapping would reduce those benefits yet not assure grayling have secure passage through beaver dams for spawning. Beaver dam notching is the minimum tool to address the issue.

Step 2: Determination – What is the Minimum Activity?

Refer to the [MRAF instructions](#) before identifying the selected alternative and explaining the rationale for its selection.

Selected Alternative

Alternative 2 – Beaver Dam Notching

Explain rationale for selection, including a comparison of the selected alternative with other alternatives:

Alternative 1 – No Action, has No Effect on the Untrammeled, Undeveloped, Outstanding Opportunities for Solitude or Primitive and Unconfined Recreation, and Other Features of Value Qualities. However, Alternative 1 does not address the issue, and it risks the persistence of the endemic grayling population. A decline due to poor access to spawning habitat that leads to extirpation will be a negative effect on the Natural Quality.

Alternative 2 - Beaver Dam Notching, ensures the grayling population has access to the best spawning areas. Given the small population size, declining genetic diversity and how those effect the persistence of the population, this seems like a good tradeoff. The Untrammeled quality receives a temporary and minor negative effect, in exchange for protection of the persistence of the endemic population and a positive effect on the Natural Quality. No prohibited uses are proposed or necessary. No ground disturbances are proposed or necessary. Beaver dam notching is the minimum tool to address the issue.

Approved?	Prohibited Use	Quantity, Timing, Frequency, or Duration
<input type="checkbox"/>	Mechanical Transport:	Not Approved. Primitive hand tools and foot traffic only.
<input type="checkbox"/>	Motorized Equipment:	Not Approved. Primitive hand tools and foot traffic only.
<input type="checkbox"/>	Motor Vehicles:	Not Approved. Primitive hand tools and foot traffic only.
<input type="checkbox"/>	Motorboats:	Not Approved. Primitive hand tools and foot traffic only.

Approved?	Prohibited Use	Quantity, Timing, Frequency, or Duration
<input type="checkbox"/>	Landing of Aircraft:	Not Approved. Primitive hand tools and foot traffic only.
<input type="checkbox"/>	Temporary Roads:	Not Approved. Primitive hand tools and foot traffic only.
<input type="checkbox"/>	Structures:	Not Approved. Primitive hand tools and foot traffic only.
<input type="checkbox"/>	Installations:	Not Approved. Primitive hand tools and foot traffic only.

Describe mitigation measures as well as monitoring and reporting requirements, if appropriate:

Notching of beaver dams will occur immediately before grayling enter the streams for spawning. This will reduce the amount of time dams are notched and minimize any stream ecology effects.

Approvals

Project Title (from page 2):

Spawning Access for Endemic Arctic Grayling Population within Red Rock Lakes Wilderness

Refer to agency policies for the following signature authorities:

Prepared by:

Name Mike Bryant Position Refuge Manager, Red Rock Lakes NWR

Signature _____ Date _____

Reviewed by:

Name [Click or tap here to enter text.](#) Position [Click or tap here to enter text.](#)

[Click or tap here to enter reviewer comments.](#)

Signature _____ Date _____

Reviewed by:

Name [Click or tap here to enter text.](#) Position [Click or tap here to enter text.](#)

Signature _____ Date _____

[Click or tap here to enter reviewer comments.](#)

Approved by:

Name [Click or tap here to enter text.](#) Position [Click or tap here to enter text.](#)

Signature _____ Date _____