



ARTHUR CARHART NATIONAL WILDERNESS TRAINING CENTER

MINIMUM REQUIREMENTS DECISION GUIDE

WORKSHEETS

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

– the Wilderness Act, 1964

Please refer to the accompanying MRDG [Instructions](#) for filling out this guide.
The spaces in the worksheets will expand as necessary as you enter your response.

The MRDG Instructions may be found at: <http://www.wilderness.net/mrdg/>

Project Title: **Cave Valley & Lake Valley Watershed Restoration Plan & EA**

Step 1: Determine if any administrative action is necessary.

Description: Briefly describe the situation that may prompt action.

Implementation of the Cave Valley & Lake Valley Watershed Restoration Plan & EA would prompt action in wilderness on the BLM Ely District, in the Schell Field Office, specifically. The plan/EA considers a range of alternatives to restore native vegetation within the two watersheds, in which four wilderness areas occur: Mt. Grafton Wilderness (100%), South Egan Range Wilderness (26%), Far South Egans Wilderness (60%) and the Fortification Range Wilderness (66%). The following section describes briefly the purpose and need for the plan/EA that may prompt actions in wilderness. Full description of the existing conditions that have prompted action is provided in the plan/EA.

The purpose and need for the proposal is to achieve the following objectives:

- Move the landscape within the Cave Valley and Lake Valley Watersheds toward FRCC 1 with a mosaic of seral stages attaining the potential cover percentages of grasses and forbs for the respective biophysical models.
- Improve habitat for all wildlife, especially sage grouse and big game species.
- Achieve better distribution for livestock and wildlife, and improve overall rangeland health.

One of the tools used to make the assessment of the watershed's condition is Fire Regime Condition Class (FRCC), which is an interagency, standardized tool based on scientific and peer reviewed literature for determining the degree of departure from a reference vegetation condition within a given biophysical setting (BPS). More information regarding this tool can be found at the following website: <http://www.frcc.gov>.

Assessing FRCC can help guide management objectives and set priorities for treatments. The classification is based on a relative measure describing the degree of departure from the historical natural disturbance regime for a given BPS. This departure is described as changes to one or more of the following ecological components: vegetation characteristics (species composition, structural stages, stand age, canopy closure and mosaic pattern); fuel composition; fire frequency, severity and pattern; and other associated disturbances (e.g. insects and disease mortality, grazing and drought).

There are three FRCC classes used to describe the departure from reference BPS conditions. The three classes are based on low (0-33% departure; FRCC1), moderate (34-66% departure; FRCC2) and high (67-100% departure; FRCC3) departure from central tendency of the natural (historical) regime. Low departure is considered to be within the natural (historical) range of variability, while moderate and high departures are outside the range of variability. The FRCC rating is accompanied by indicators of the potential risks that may result.

Biophysical setting models have been developed for most major vegetation types. These models describe the vegetation, geography, biophysical characteristics, succession stages, disturbance regimes, and assumptions for each vegetation type (Havlina et al, 2010). Reference conditions described in the BPS models are compared to actual conditions for purposes of determining the current FRCC rating. A FRCC rating is determined for the entire watershed by determining the weighted average of all major vegetation FRCC ratings. FRCC 1 is desired for each BPS and for the entire watershed. A departure from FRCC 1 (reference condition) to FRCC 2 or FRCC 3 serves as an indicator that changes need to be affected.

Map 1.2 (in the EA document), "Strata Fire Regime Condition Class (FRCC) for the Cave Valley and Lake Valley Watersheds" illustrates the moderate to high departure from natural conditions across the Cave Valley and Lake Valley Watersheds. **The analysis of the watershed determined the causal factors for this departure to be a combination of drought, fire suppression efforts, and historic livestock overgrazing.** Fire frequencies are departed from historical frequencies by multiple return intervals. The risk of losing key ecosystem components within the Cave Valley and Lake Valley Watersheds is considered moderate. Vegetation attributes have been altered from their historical range and now include uncharacteristically high densities of trees and below normal levels of perennial grass and forb composition. The current watershed FRCC ratings for the Cave Valley and Lake Valley Watersheds are 20% FRCC 1, 45% FRCC 2 and 35% FRCC 3 with an overall departure of 58%. Following the implementation of the treatments the objective would be to reduce departure within the watershed to 39% (FRCC 2). While the majority of the project area is FRCC 2, much of the FRCC 2 area is at the high end of the FRCC 2 range (departure scores of 34-65%). This suggests that management actions could prevent these ecosystems from departing further towards FRCC 3 and instead move toward a more ecologically sound condition.

To determine if administrative action is necessary, answer the questions listed in A - F on the following pages by answering Yes, No, or Not Applicable and providing an explanation.

A. Describe Options Outside of Wilderness

Is action necessary within wilderness?

Yes: No:

Explain: As noted above, the FRCC for the two watersheds (Cave Valley & Lake Valley), as a whole is 35% in FRCC 3. The following table shows the FRCC for each wilderness as a whole (including portions not within the two watersheds). The Mt. Grafton Wilderness shows this highest percentage of departure or the highest percentage in class 3. For only the portions of the four wildernesses within the watersheds, they are highly departed (49% in FRCC 3). With FRCC 2 or 3, there is an increased risk of losing key ecosystems, whereas FRCC 1 is within the natural range of variability.

Wilderness	FRCC by Percent		
	1	2	3
Far South Egan	24	46	30
Fortification	40	19	41
Mount Grafton	13	36	51
South Egan	18	66	16
Portions of 4 wilderness within 2 watersheds	12	39	49

From the fire database (1974-2010), within wilderness within the two watersheds there were 66 fires documented. Of the 66:

61 < 10 acres

5 > 10 acres.

As a result, the average fire size is 101 acres per year.

Of the 66, ten fires were wildland fire for resource benefit (2003-2010):

8 were small fires ~ 1 tree

2 were large fires, with a combined total of 2,579 acres.

1 was managed for fire for resource benefit – Sheep Creek Fire

Therefore, 56 of the fires were actively suppressed.

The combination of highly departed FRCC and the historic fire suppression in these wildernesses illustrates the need for action in wilderness. Any actions for vegetation restoration outside wilderness would not be effective.

B. Describe Valid Existing Rights or Special Provisions of Wilderness Legislation

Is action necessary to satisfy valid existing rights or a special provision in wilderness legislation (the Wilderness Act of 1964 or subsequent wilderness laws) that allows or requires consideration of the Section 4(c) prohibited uses? Cite law and section.

Yes: No: Not Applicable:

Explain: There are no special provisions in the Wilderness Act of 1964 or subsequent wilderness legislation that specifically allow restoration activities. Nor are there special provisions for consideration

of the uses prohibited in Section 4(c) for management of wildlife and vegetation. There is a reference to fire related activities in Section 4(d)(1) which states "In addition, such measure may be taken as may be necessary in the control of fire, insects, and diseases, subject to such conditions as the Secretary deems desirable." This language allows for fire related actions to be considered, but taken only if they are the minimum necessary.

C. Describe Requirements of Other Legislation

Is action necessary to meet the requirements of other laws?

Yes: No: Not Applicable:

Explain: One objective of the project is to improved habitat for wildlife species, sage grouse and big game species, in particular. The efforts for improving sage grouse habitat are to prevent their listing under the Endangered Species Act. While these birds are unlikely to use aspen stands for any duration, combination treatment units would aim to reduce pinyon and juniper that are encroaching on sagebrush communities.

D. Describe Other Guidance

Is action necessary to conform to direction contained in agency policy, unit and wilderness management plans, species recovery plans, or agreements with tribal, state and local governments or other federal agencies?

Yes: No: Not Applicable:

Explain:

BLM Manual 8560 – Management of Designated Wilderness Areas

.34 Fish and Wildlife Habitat.

2. Vegetation Manipulation Projects. Vegetative manipulation projects for fish and wildlife purposes may be approved by the State Director on a project-by-project basis if they do not degrade wilderness character, or if they correct conditions which are a result of human influence, or if the project will promote the perpetuation of a threatened or endangered species.

4. Prescribed Burning. Wildfire or prescribed burning may be used as a wildlife management tool if carefully designed to maintain or enhance the wilderness resource. Wildfire or prescribed burning is used only when the project can be accomplished without serious or long-lasting damage to watershed or the area's wilderness character. Prescribed burning will not be permitted to improve wildlife utilization. It may be done only for the following purposes:

- a. It is needed to maintain the natural condition of a fire-dependent ecosystem or to re-introduce fire where past strict wildfire control measures have interfered with natural ecological processes.
- b. A primary value of a given wilderness will be sustained as a result of burning.
- c. It will promote the perpetuation of a threatened or endangered species.

.35 Fire, Insect, and Disease Management.

3. Prescribed Burning

a. Ignition by Bureau Personnel. Where natural fire under prescription does not meet wilderness fire management objectives, prescribed burning ignited by Bureau personnel may be allowed on a case-by-case basis for the following purposes:

1. To reintroduce or maintain the natural condition of a fire-dependent ecosystem,
2. To restore fire where past strict fire control measures had interfered with natural ecological processes,
3. A primary value of a given wilderness will be sustained as a result of burning.
4. It will promote the perpetuation of a threatened or endangered species.

The Highland Ridge, Far South Egans, Mount Grafton and South Egan Range Draft Wilderness Management Plan was released for public comment in September 2011. Since the final decision has not been determined, any language is subject to change.

For the Fortification Range Wilderness, this alternative would support the objective stated in the **Fortification Range, Parsnip Peak, and White Rock Range Wilderness Management Plan (2009)**: Preserve the primeval character of the wilderness by allowing fire as a natural process of disturbance and succession where the ecosystem is fire dependent.

The plan also states:

Fuels Management: Wildland fire, prescribed burning, and manual techniques could be approved for fuels management and may be implemented when the objective is to retain the primeval character of the environment and allow ecological processes to function properly. Where the use of natural fire does not meet management objectives, prescribed burning may be approved according to BLM wilderness policy on a case-by-case basis for the following purposes:

To restore or maintain the natural condition of a fire-dependent ecosystem.

To restore fire where past strict fire control measures have interfered with natural ecological processes.

Where a primary value of a given wilderness area will be perpetuated as a result of the burning.

Where it will perpetuate a threatened or endangered species.

The project is in conformance with the **Ely District Record of Decision and Approved Resource Management Plan (August 2008)**. The project is in conformance with the following specific objectives and management decisions:

Vegetation Resources

General Vegetation Management

VEG-1: Emphasize treatment areas that have the best potential to maintain desired conditions or respond and return to the desired range of conditions and mosaic upon the landscape, using all available current or future tools and techniques.

VEG-4: Design management strategies to achieve plant composition within the desired range of conditions for vegetation communities, and emphasize plant and animal community health at the midscale (watershed level).

Fish and Wildlife

General Wildlife Habitat Management

WL-1: Emphasize management of priority habitats for priority species.

Special Status Species

Parameter: Great Basin Sagebrush Habitat

SS-38: Maintain intact and quality sagebrush habitat. Prioritize habitat maintenance actions from the BLM National Sage Grouse Conservation Strategy to: 1) maintain large areas of high quality sagebrush currently occupied by greater sage-grouse; 2) maintain habitats which connect seasonal sagebrush habitats in occupied source habitats; and 3) maintain habitats that connect seasonal sagebrush habitats in occupied isolated habitats.

SS-39: Implement proactive and large scale management actions to restore lost, degraded, or fragmented sagebrush habitats and increase greater sage-grouse populations. Prioritize habitat restoration actions from the BLM National Sage Grouse Conservation Strategy to: 1) reconnect large patches of high quality seasonal habitats, which greater sage-grouse currently occupy; 2) enlarge sagebrush habitat in areas greater sage-grouse currently occupy; 3) reconnect stronghold/source habitats currently occupied by greater sage-grouse with isolated habitats currently occupied by greater sage-grouse; 4) reconnect currently occupied and isolated habitats; 5) restore potential sagebrush habitats that currently are not occupied by greater sage-grouse.

Develop allowable use restrictions in greater sage-grouse habitats undergoing restoration, on a case-by-case basis, as dictated by monitoring.

Fire

Management Actions—Fire

FM-4: Incorporate and utilize Fire Regime Condition Class as a major component in fire and fuels management activities. Use Fire Regime Condition Class ratings in conjunction with vegetation objectives

(see the discussion on Vegetation Resources) and other resource objectives to determine appropriate response to wildland fires and to help determine where to utilize prescribed fire, wildland fire use, or other non-fire (e.g., mechanical) fuels treatments.

FM-5: In addition to fire, implement mechanical, biological, and chemical treatments along with other tools and techniques to achieve vegetation, fuels, and other resource objectives.

This EA is tiered to the analysis and effects disclosed in:

- The Ely Proposed Resource Management Plan/Final Environmental Impact Statement (November 2007).
- The Final Programmatic Environmental Impact Statement (PEIS) – Vegetation Treatments
- Using Herbicides on BLM Lands in 17 Western States (2007).
- Ely District Integrated Weed Management Plan & Environmental Assessment (2010)

E. Wilderness Character

Is action necessary to preserve one or more of the qualities of wilderness character including: Untrammeled, Undeveloped, Natural, Outstanding opportunities for solitude or a primitive and unconfined type of recreation, or other unique components that reflect the character of this wilderness area?

Untrammeled: **Yes:** **No:** **Not Applicable:**

Explain: Untrammeled has been defined by dictionary terms as “allowed to run free”; synonyms for untrammeled include unrestrained, unrestricted, unhindered, unimpeded, and unencumbered. This also suggests that the management goal based on the word untrammeled is to protect wilderness lands from human control, from conscious, intentional manipulation and suggests more about the process of management than it does about the outcomes of management.

The untrammeled character quality of Wilderness is a foundation, by which the appropriateness of management actions are measured. Any action taken by management in wilderness is a form of modern human control or manipulation. Therefore any action taken to restore vegetation or improve habitat is a manipulation by modern humans. The proposal to restore the vegetation and habitat is a trammel, but is being considered to improve naturalness, since historic trammeling – fire suppression, historic livestock overgrazing – has occurred on the landscape.

Undeveloped: **Yes:** **No:** **Not Applicable:**

Explain: The action – improving vegetation conditions on the landscape and improving habitat for wildlife – is not necessary to preserve the undeveloped wilderness character. The action itself, restoration, does not improve nor degrade the undeveloped character. The different alternatives may temporarily degrade this characteristic to varying degrees.

Natural: **Yes:** **No:** **Not Applicable:**

Explain: This quality measures the extent to which ecological systems are substantially free from the effects of modern civilization. The FRCC departure has been analyzed to be due to a combination of drought, fire suppression efforts, and historic livestock overgrazing. The latter two stem from human efforts and actions (trammels). The action is proposed to correct this human influence over the landscape in the past and to restore naturalness.

Abundance, distribution, or number of indigenous species is one measure used to indicate the health of plant and animal species and communities within wilderness. One objective of the project is to improve habitat for a wildlife species, sage grouse and big game species, in particular.

Outstanding opportunities for solitude or a primitive and unconfined type of recreation:

Yes: No: Not Applicable:

Explain: The action is not required to preserve opportunities. The action would result in short-term, transient disturbance of solitude in the four wildernesses. Management activities within wilderness would be temporally and spatially dispersed, and opportunity to recreate in wilderness would not be substantially inhibited.

Other unique components that reflect the character of this wilderness:

Yes: No: Not Applicable:

Explain: Not applicable.

F. Describe Effects to the Public Purposes of Wilderness

Is action necessary to be consistent with one or more of the public purposes for wilderness (as stated in Section 4(b) of the Wilderness Act) of recreation, scenic, scientific, education, conservation, and historical use?

Recreation: Yes: No: Not Applicable:

Explain: The proposed project does not sustain the recreation purpose directly. Indirectly the restoration project would improve the vegetation conditions and habitat for wildlife that may then improve opportunities for hunting, wildlife viewing, and nature study within the wilderness.

Scenic: Yes: No: Not Applicable:

Explain: The project would restore natural conditions in wilderness, which have transitioned into moderate to high departure from natural conditions as evidenced in the FRCC analysis. Improvement of the composition of vegetation and wildlife habitat may improve the view of the natural features of wilderness obtained by visitors inside wilderness or as seen by others outside wilderness.

Scientific: Yes: No: Not Applicable:

Explain: Scientific analysis and tools have been used to identify the FRCC classes, and therefore, the proposed treatment areas. The areas will be monitored prior to treatment occurring and would continue to be monitored for treatment success and adaptive management needs. Further, the study of vegetation and wildlife responses to the treatments would guide future treatments across the region.

Education: Yes: No: Not Applicable:

Explain: No educational efforts are planned through this project.

Conservation: Yes: No: Not Applicable:

Explain: Since conservation is closely tied to the naturalness of the landscape, this action would sustain the conservation public purpose. The vegetation treatments would reintroduce fire, to improve naturalness, to improve wildlife habitat for both big game species and sage-grouse to prevent its listing under the ESA. The areas proposed for burning to reduce pinyon and juniper encroachment on sagebrush areas are designed for this purpose, though reestablishment of sagebrush to the age classes preferred by sage-grouse may take 10-30 years.

Historical use: **Yes:** **No:** **Not Applicable:**

Explain: To the extent that these treatments would improve big game habitat, there would be an improvement in big game hunting that has occurred in these areas historically, and pre-historically.

Step 1 Decision: Is any administrative action necessary in wilderness?

Yes: **No:** **More information needed:**

Explain: Wilderness constitutes 22% of the two watersheds, which includes part of four wilderness areas. The Fire Regime Condition Class analyses show that the departure from natural conditions is high for 49%, and moderate for 39% of the wildernesses within the watersheds.

The BLM Wilderness policy allows for reintroduction of fire (i.e. prescribed, management ignited fire) for the reasons proposed in this project:

- a. It is needed to maintain the natural condition of a fire-dependent ecosystem or to reintroduce fire where past strict wildfire control measures have interfered with natural ecological processes.
- b. A primary value of a given wilderness will be sustained as a result of burning.
- c. It will promote the perpetuation of a threatened or endangered species.

The first two purposes apply here - the documented fire history, and suppression history illustrate purpose "a". Purpose "b" is utilized by the intention to preserve the naturalness of the area. Purpose "c" applies only to the extent that one of the objectives of the proposed activity is to prevent the listing of the sage grouse by improving habitat. Further, these actions are supported by objectives outlined in the Ely Resource Management Plan.

Action is necessary, in part, to ensure that aspen communities are not lost within the wilderness areas. Stands often don't send up suckers (new aspen shoots) without some sort of disturbance to the existing root system. Historically, this was done by periodic fire stimulating hormonal responses in the aspen sending up a sea of new aspen stems. Fire would also kill the encroaching conifers that are much less fire resilient than aspen. Without fire in an aspen community, entire clones are at risk of being lost in a relatively short period of time.

The action is not necessary to persevere any of the four wilderness characteristics, with the exception of the natural quality. This proposal is considering restoring natural vegetation composition by reintroducing management-ignited fire as a step toward restoring natural fire regimes. These actions have the potential to diminish the untrammelled and natural qualities of wilderness in the short term, though they are intended to restore natural conditions over the long term, thereby preserving wilderness character.

If action is necessary, proceed to Step 2 to determine the minimum activity.

Step 2: Determine the minimum activity.

Please refer to the accompanying MRDG *Instructions* for information on identifying alternatives and an explanation of the effects criteria displayed below.

Description of Alternatives

For each alternative, describe what methods and techniques will be used, when the activity will take place, where the activity will take place, what mitigation measures are necessary, and the general effects to the wilderness resource and character.

Alternative A – Proposed Action (Planned Ignition Prescribed Fire)

Description:

Under this alternative the following treatment units would be manipulated utilizing Planned Ignition/Prescribed Fire. Fire would be applied via aerial ignition or by hand ignition. The application method would depend on the location. The vegetation composition, fuel conditions, and desired outcomes would determine the most successful treatment method.

Within wilderness, seven treatment units are proposed. Four units are "Combination Restoration Treatment" units in which prescribed fire is the primary treatment method.

- Treatment Unit C-1 consists of a total of 11,215 acres and 40-60% of that area, or approximately 4,486-6,729 acres, would be targeted for treatment.
- Treatment Unit C-2 consists of a total of 6,751 acres and 40-60% of that area, or approximately 2,700-4,051 acres, would be targeted for treatment.

Adaptive management allows the use of secondary treatments to achieve the objectives set forth for the treatment unit. Post monitoring of the primary treatment(s) would be conducted to determine the effectiveness of the treatment. Secondary treatments may be conducted within primary treatments to the extent that the objectives for seral classes would be met.

- Seeding (native seed only in Wilderness Areas)
- Fencing

A site-specific MRDG and NEPA analysis would be completed for these adaptive management treatments.

Treatment objectives for all combination restoration treatment units:

- Achieve a successional class breakdown of: 5% A, 5% B, 20% C, 65% D, 5% E, and 0% U (+/-5%) for pinyon-juniper woodlands.
- Achieve a successional class breakdown of: 10% A, 20% B, 10% C, 15% D, 45% E, and 0% U (+/-5%) for sagebrush.
- Increase "naturalness" of the area by reducing pinyon pine and juniper density within the sagebrush communities and creating a more mosaic varied age class within the Pinyon-Juniper Woodland.
- Reduce the amount of pinyon pine and juniper encroachment within sagebrush communities by 75%.
- Create mosaic varied age class within 30-50% of the Pinyon-Juniper Woodland area by creating numerous burned areas ranging in size from 10 to 300 acres.
- Preserve wilderness character of the area.
- Meet Class I objectives for visual resource management.

Three treatment units are "Aspen Restoration" units in which prescribed fire is the primary treatment method.

- Treatment Unit A-1 consists of a total of 16,258 acres and 60-80% of that area, or approximately 9,755-13,006 acres, would be targeted for treatment.

Adaptive management allows the use of secondary treatments to achieve the objectives set forth for the treatment unit. Post monitoring of the primary treatment(s) would be conducted to determine the effectiveness of the treatment. Secondary treatments may be conducted within primary treatments to the extent that the objectives for seral classes would be met.

- Tree removal by hand cutting
- Seeding
- Fencing

A site-specific MRDG and NEPA analysis would be completed for these adaptive management treatments.

Treatment objectives for all aspen restoration treatment units:

- Bring targeted vegetation within the treatment unit to the following
 - Aspen
 - Keep all aspen stands intact on the landscape in the long term.
 - Achieve a successional class breakdown of: 14% A, 40% B, 25% C, 20% D, 1% E and 0% U (+/-5%).
 - Reduce conifer component within aspen stands to a SDI of less than 20 (RDI of 5%).
 - Increase aspen regeneration in 30% of treated stands to a minimum of 500 regeneration stems per acre.
 - Reduce mortality of regeneration stems by herbivory to less than 20%.
 - Improve northern goshawk nesting habitat through aspen restoration.
 - Sagebrush
 - Achieve a successional class breakdown of: 10% A, 20% B, 10% C, 15% D, 45% E, and 0% U (+/-5%)
 - High Elevation Conifer (Mixed Conifer)
 - Achieve a successional class breakdown of: 20% A, 20% B, 60% C, 0% D, 0% E, and 0% U (+/-5%).
 - Reduce SDI to less than 300 (RDI of .55), target SDI of 200 (RDI of .35) in treated stands.
 - If any aspen individual is present, treat as an aspen stand with the goal of returning the stand to a functioning aspen community.
 - Mountain-Mahogany
 - Achieve a successional class breakdown of: 10% A, 20% B, 10% C, 15% D, 45% E, and 0% U (+/-5%).
 - Increase regeneration across the landscape through disturbance that results in bare mineral soil, typically prescribed fire or fire for resource benefit.
- Promote browse (bitterbrush, mahogany, etc.) within big game habitat.
- Improve sage grouse brood-rearing habitat.
- Suppress and stabilize cheatgrass and promote desired vegetative species.
- Meet Class I objectives for visual resource management

Prescribed fire with **planned ignition** would be strategically timed to best reduce fuel hazards to acceptable levels and benefit ecological system health. Fuel moistures and atmospheric conditions would be closely monitored prior to ignitions to achieve the specific levels of fire severity targeted within the objectives and burn plan, maintain the greatest degree of control possible, and prevent adverse impacts from smoke. If Fire for Resource Benefit occurs prior to planned treatments, it would be managed to achieve the objectives listed above.

There may also be the need for some point protection saw-work prior to ignition. Locations and needs would be determined by the cultural, fuels and wilderness staff prior to ignition.

Seeding may be utilized as a secondary treatment in burned areas from prescribed fire or fire for resource benefit. These areas would be selected based upon the existence of a desirable understory that would promote natural re-vegetation of the treatment area. In the event that the prescribed burn severity is higher than predicted or the fire moves into a non-target area, seeding may be required to ensure revegetation of the area by desirable species. Seeding would be conducted on the treated sites during the fall or early winter months, preferably prior to snow fall. Seed mixes intended for application in wilderness areas would utilize only native grasses, forbs, or shrubs and seed may be locally or commercially sourced. Seeding methods (aerial or ground) would be determined at the time treatment was deemed necessary.

Fencing would also be considered as a secondary treatment. Fencing may be required to restrict livestock from entering treated areas and fencing may also be required to restrict all large ungulate (wild and domestic) herbivory on treated areas in highly sensitive locations such as aspen stands and riparian areas. All fences constructed for the purpose of protecting project areas by restricting all ungulate herbivory would be temporary in nature and would remain in place only until the objectives are met. **A site-specific MRDG and NEPA analysis would be completed for these adaptive management treatments.**

Effects:

Wilderness Character

“Untrammeled” This alternative would impair the untrammeled character of wilderness. Implementing these actions (prescribed fire, or any of the adaptive management actions in the future) would each constitute a trammel by humans on the natural processes in wilderness.

“Undeveloped” The use of helicopter (helitorch, or ping-pong drops) would constitute a development in wilderness because dropping people/equipment/materials into wilderness equates to a landing. Helicopters would be in the air over wilderness for limited periods of time for ignition and subsequent monitoring; though only the ignition would be considered a development. The benefit to the undeveloped character of using aircraft is that it would be very light on the land – no landings, or trailing from boots-on-the-ground would occur.

Hand ignition would not impact the undeveloped quality since no motorized vehicles or mechanized transport would be used. However the likelihood of many crew visits is high. Fire crews (+/- 10 people per crew) would need to hike into the site to use drip torches to light the fire, and monitoring. This could entail many hikes in/out, possibly leading to some trail development.

Any of the adaptive management options (dropping seed from an aircraft; fencing) would constitute a development (if implemented would require site-specific NEPA analysis & MRDG). Each of these actions would temporarily impair wilderness.

“Natural” The actions proposed are designed to correct historic fire suppression efforts and historic livestock overgrazing. Fire has been suppressed over the past century, which has led to a build-up of fuel, which results in high intensity, large fires rather than the historic pattern of more frequent, lower intensity fires. Pinyon pine and juniper have become more uniform and dense, and have expanded in to sagebrush communities. Aspen stands have seen encroachment from conifer species, which are crowding and shading the stands. Introducing management ignited fire, under prescription, would impact the natural character of wilderness negatively in the short-term with the goal of returning the natural component of fire into the wilderness environment. The unnatural conditions result from the impacts of humans, as discussed in Step 1 of this MRDG.

The action would be implemented, and then natural fire would be allowed to play out as Fire for Resource Benefit in the future.

“Outstanding opportunities for solitude or a primitive and unconfined type of recreation”
During treatment, recreational use may be temporarily impacted due to active fire. Long-term after treatments, as a result of the improved naturalness, including wildlife habitat improvements, the opportunities for wildlife viewing and/or hunting may be improved. Flights over wilderness are fairly rare over Mount Grafton; therefore the impact on solitude would be fairly noticeable, particularly during ignition. Monitoring flights would likely have less of an impact given that they could be of shorter duration, and they aren't dropping fire. These would be temporary impacts. After the treatments are complete, opportunities would return.

The duration of people on the ground when using ground ignition would be longer than with aerial ignition, but not as long as with hand cutting. The timing of the planned ignition/prescribed burning could be more impacting during the fall, as the majority of the use occurs during hunting season. Particularly, if visitors are in the remote backcountry and encounter fire crews would result in a greater impact on solitude.

Long-term after treatments, as a result of improved naturalness, including wildlife habitat improvement, the opportunities for wildlife viewing and/or hunting may be improved; thus improving opportunities for primitive

recreation. Solitude would be temporarily impacted during the implementation of this alternative with personnel on the ground or aircraft overhead for monitoring; though after the treatments are complete, opportunities would return.

Other unique components that reflect the character of this wilderness No impacts.

Heritage and Cultural Resources Surveys would be required prior to any actions being implemented. Mitigation or avoidance areas would be established at that time.

Maintaining Traditional Skills Use of aircraft (or use motorized tools for hand-cutting under adaptive management) would not maintain traditional skills. Hiking in for hand-ignition would promote traditional skills.

Special Provisions No special provisions apply.

Economics and Timing Constraints

Costs – The watershed restoration plan is designed to be “project ready” when funding become available. As funding is available projects will be prioritized across the two watersheds. Costs for utilizing aircraft for prescribed fire ignition in wilderness, whether ping-pong ball or heli-torch, would be comparable to hand-ignition. Typically, estimates run from \$35-70/acre or about \$50/acres on average for aerial or hand ignition. While flight time is more costly, objectives could be achieved, monitored and modified more expediently via aircraft. Costs may be higher for hand-ignition due to remote or difficult access. Ignition and fire monitoring or management would be completed by trained fire personnel.

Duration – As described above, the projects would be prioritized within the watersheds. The plan is intended to be implemented within ten years. The duration for prescribed fire would be less than for hand-cutting or mechanical alternatives. The project would be implemented over several years to create a mosaic pattern spatially and temporally.

Timing Constraints – Prescribed fire ignition would be strategically timed to best reduce fuel hazards to acceptable levels and benefit ecological system health. Fuel moistures and atmospheric conditions would be closely monitored prior to ignitions to achieve the specific levels of fire severity targeted within the objectives and burn plan, maintain the greatest degree of control possible, and prevent adverse impacts from smoke.

Seeding, should it be necessary, would be conducted on the treated sites during the fall or early winter months, preferably prior to snow fall.

Additional Wilderness-specific Comparison Criteria None.

Safety of Visitors, Personnel, and Contractors All personnel would be trained for working with fire (e.g. only red-carded staff). Fire work is inherently dangerous. Safety is a priority, and training would attempt to mitigate safety issues to the greatest extent possible. Potential visitors would be notified of the project via the Ely Website and posting notices on the kiosks located in the project area.

Alternative B – Wildland Fire for Resource Benefit

Description:

All units identified for treatment would utilize naturally-started fire only, to obtain the objectives. No adaptive management treatments are identified.

Effects:

Wilderness Character

“Untrammelled” This alternative would not directly impair the untrammelled character of wilderness. Allowing only natural starts in wilderness would be in line with maintaining the untrammelled character. Fire would be managed to ensure it did not extend into areas which threatened life or property or for other avoidance measures. This could constitute some limited trammeling of a natural fire.

“Undeveloped” No motorized or mechanized equipment are proposed for this alternative. No developments are proposed either. No negative impact (nor improvement) on the natural wilderness character under this alternative.

“Natural” If only Wildland Fire for Resource Benefit are allowed in wilderness it could take 36 years to meet the objectives outlined in the plan, based on the average of 101 acres/year. For the aspen treatment alone, it could take 102-136 years and for the Combination treatment units, it could take 204-306 years. Many conifer species, such as white fir, pinyon pine, Utah and Rocky Mountain juniper, limber pine and Engelmann spruce can become dominant over aspen relatively quickly. Aspen stems have a life span of 80 to 150 years. This combined with the quick rate of senescence once overtopped causes entire clones of aspen to be lost in a matter of decades or less.

Ensuring fire is allowed to play its natural role in wilderness would improve this character by preserving the vegetative communities that are fire dependent, such as aspen. However, the origin of this departure from natural conditions is a result of human activity. If vegetation types are lost (e.g. aspen) or wildlife impacted (sage grouse) the natural character of wilderness would be impacted.

“Outstanding opportunities for solitude or a primitive and unconfined type of recreation”
This alternative, and the proposal overall, would not directly impact or promote this characteristic. During the treatments, recreational use may be temporarily impacted due to active fire. Long-term after treatments, as a result of the wildlife habitat improvements, the opportunities for wildlife viewing and/or hunting may be improved. Solitude would be temporarily impacted during the implementation of this alternative with personnel on the ground or aircraft overhead monitoring the Fire for Resource Benefit; though after the fire are out, opportunities would return.

Other unique components that reflect the character of this wilderness No impacts.

Heritage and Cultural Resources Resources could be impacted from fire. However, as natural fires are managed, known cultural resources would be avoided.

Maintaining Traditional Skills No traditional skills are proposed.

Special Provisions No special provisions apply.

Economics and Timing Constraints

Costs – Costs for managing FRB would vary greatly depending on the fire: the fire behavior, the amount of management required (e.g. many avoidance areas vs. monitor flights periodically). The costs of managing a FRB could equal that of suppression actions if there are numerous risk factors.

Fire monitoring and management would be completed by trained fire personnel.

Duration – This alternative would rely on natural starts to achieve objectives. The duration of fire could vary greatly depending on fuel moisture and atmospheric conditions.

Timing Constraints – Timing constraints could play into FRB depending on duration of fire, fire personnel available to monitor the fire, fire behavior and national fire needs at the time. If fire personnel are required at other priority (suppression) fires, the FRB may be managed/suppressed to free personnel for other assignments.

Additional Wilderness-specific Comparison Criteria None.

Safety of Visitors, Personnel, and Contractors All personnel would be trained for working with fire (e.g. only red-carded staff). Potential visitors would be notified via the Ely Website and posting notices on the kiosks located in the area.

Alternative C – Mechanical

Description:

For the Combination Units (C1 & C2) primary treatment types would include:

Methods for tree removal or woodland restoration:

- Chaining
- Mastication or other mechanical methods
- Hand cutting

Mechanical methods for sagebrush restoration:

- Dixie harrow
- Roller Chopper
- Mowing

Chemical treatments:

- Tebuthiuron for suppression of pinyon pine and juniper
- Tebuthiuron for suppression of sagebrush

Fencing

Adaptive Management

- Prescribed Fire
- Seeding

Treatment objectives for all combination restoration treatment units are the same as the proposed action. Aspen treatments would be the same as the proposed action.

Effects:**Wilderness Character**

“Untrammelled” Mechanical or chemical treatments for woodland or sagebrush restoration would constitute a trammel, as humans alter the natural processes in wilderness.

“Undeveloped” Motorized vehicles would be used for all mechanical treatments. Vehicles would be tractors, dozers or other heavy equipment. Trailers may be used to haul the mastication or mower equipment. Vehicles would drive cross-country repeatedly through each treatment unit to achieve the desired results. Presence of vehicles would be continuous for the duration of the project implementation. Vehicle tracks in/out of the wilderness repeatedly could encourage motorized vehicle violations during and after the treatment.

“Natural” This alternative would negatively impact the natural character by altering the natural vegetation, though in the long term the purpose is to restore a more natural vegetation composition. The appearance of the human-caused impacts would be much higher under this alternative: uprooted trees, chip piles, stumps, and other signs of the treatment would remain, and be far more visible under this alternative. The unnatural conditions result from the impacts of humans, as discussed in Step 1 of this MRDG.

“Outstanding opportunities for solitude or a primitive and unconfined type of recreation”

This alternative has the potential to severely impact solitude, as heavy machinery would be in the wilderness for days at a time for each unit. Further, primitive and unconfined recreation would be impacted in the area of the treatment as treatments occur. For the safety of the visitors the areas would be closed during treatment.

Other unique components that reflect the character of this wilderness n/a

Heritage and Cultural Resources Surveys would be required prior to any actions being implemented. Mitigation or avoidance areas would be established at that time.

Maintaining Traditional Skills Use of machinery would not promote the use of traditional skills.

Special Provisions None are applicable.

Economics and Timing Constraints

Costs – The watershed restoration plan is designed to be “project ready” when funding become available. Costs for mechanical treatments would depend on the density of trees, slope, and

accessibility for the equipment. Mastication can average \$300-400/acre and chaining averages \$100-150/acre. Equipment is likely already purchased, but fuel and maintenance costs could increase the average.

Duration – The duration would vary depending on unit size, accessibility, density of trees, slope, etc. However, mastication can typically cover 20-30 acres per day; chaining can accomplish 100 acres/day.

Timing Constraints – There is not a need for urgency to implement this alternative due to either protection of wilderness character or worker safety.

Additional Wilderness-specific Comparison Criteria None.

Safety of Visitors, Personnel, and Contractors Training would be required for anyone operating the machinery as is standard. The risk to workers operating the machinery is moderate, though would largely be mitigated through training.

Alternative D – Hand-cutting only

Description:

All treatment units would be the same as the proposed action though the treatment objectives would be accomplished by hand cutting with hand saws.

Methods for tree removal or woodland restoration:

- Hand cutting

Treatment objectives would be the same as the proposed action.

Effects:

Wilderness Character

“Untrammled” Hand-cutting for aspen or the combination treatments would constitute a trammel, as humans alter the natural processes and landscape in wilderness.

“Undeveloped” No motorized or mechanized equipment or transport would be used. However, this treatment method would require extensive time on the ground, hiking in and out of the wilderness, possible leading to trail establishment.

“Natural” This alternative would negatively impact the natural character by altering the natural vegetation; and positively impact natural character in the long run by reintroducing disturbance into the vegetation communities. The goal of the project is to correct the unnatural conditions resulting from the impacts of humans, as discussed in Step 1 of this MRDG.

“Outstanding opportunities for solitude or a primitive and unconfined type of recreation”

This alternative has the potential to impact solitude, as hand crews would be in the wilderness for an extended amount of time for each unit. The likelihood of visitors encountering the crews is much higher since they would be on the ground much longer than for the other treatment alternatives. The impact to visitors would be higher, too, because this work would be occurring in the remote backcountry where the visitor would not expect encounters.

Further, primitive and unconfined recreation would be impacted in the area of the treatment as treatments occur. For the safety of the visitors and workers the areas would be closed during treatment.

Other unique components that reflect the character of this wilderness n/a

Heritage and Cultural Resources Surveys would be required prior to any actions being implemented. Mitigation or avoidance areas would be established at that time.

Maintaining Traditional Skills Hiking and using hand tools would promote the use of traditional skills.

Special Provisions None are applicable.

Economics and Timing Constraints

Costs – The watershed restoration plan is designed to be “project ready” when funding become available. Costs for hand-cutting would depend on the density of trees, slope, and accessibility, however the cost would be extremely high for the project overall since much more time would be needed to implement the project. Costs per acre could be anywhere from \$50 – 1200/acre; depending on the density of trees to be cut and accessibility. Equipment would need to be purchased but would not be a considerable expense (handsaws).

Duration – This alternative would accomplish 50-100 acres/day, depending on unit size, accessibility, and density of trees. In general, it would take the longest of any of the alternatives.

Timing Constraints – There is not a need for urgency to implement this alternative due to either protection of wilderness character or worker safety.

Additional Wilderness-specific Comparison Criteria None.

Safety of Visitors, Personnel, and Contractors Training would be required for anyone operating the machinery as is standard. The risk to workers operating the machinery is moderate, though would largely be mitigated through training.

Alternative E – No Action

Description:

The No Action Alternative is the current management situation. There would be no vegetation treatments implemented within the proposed project areas. However, the current Fire Management Plan allows for Fire for Resource Benefit in these areas currently, so the No Action would be the same as Alternative C.

Comparison of Alternatives

It may be useful to compare each alternative’s benefits and adverse effects to each of the criteria in tabular form, keeping in mind the law’s mandate to “preserve wilderness character.”

- Negatively impacts + Positively Impacts 0 neutral

	Alternative A –Rx Fire/Planned Ignition	Alternative B - FRB	Alternative C - mechanical	Alternative D – hand tools
Untrammeled	-	0	--	-
Undeveloped	-	0	--	0
Natural	- / +	- / +	- / +	- / +
Solitude or Primitive Recreation	-	0	--	--
Unique components	n/a	n/a	n/a	n/a
WILDERNESS CHARACTER	---- / +	- / +	----- / +	---- / +

	Alternative A	Alternative C	Alternative D	Alternative E
Heritage & Cultural Resources	0	0	0	0
Maintaining Traditional Skills	- / +	0	-	+
Special Provisions	n/a	n/a	n/a	n/a

Economics & Timing				
Costs	-	-	--	---
Duration	+	-	-	--
Timing Constraints	0	0	0	0
Additional Wilderness Criteria	None.	None.	None.	None.
OTHER CRITERIA SUMMARY	- - / + +	--	----	----- / +

	Alternative A	Alternative C	Alternative D	Alternative E
SAFETY (PUBLIC AND WORKERS)	-	-	-	-

Safety Criterion

Occasionally, safety concerns can legitimately dictate choosing one alternative which degrades wilderness character (or other criteria) more than an otherwise preferable alternative. In that case, describe the benefits and adverse effects in terms of risks to the public and workers for each alternative here but avoid pre-selecting an alternative based on the safety criteria in this section.

Documentation:

To support the evaluation of alternatives, provide an analysis, reference, or documentation and avoid assumptions about risks and the potential for accidents. This documentation can take the form of agency accident-rate data tracking occurrences and severity; a project-specific job hazard analysis; research literature; or other specific agency guidelines.

Fire activities have inherent dangers. This risk management level is typically moderate, though for each incident or project, a specific Risk Management Worksheet would be completed to analyze the specific dangers associated with the project. The typical risk management worksheet level for using hand tools is low. Motor vehicle operation is also low.

Step 2 Decision: What is the Minimum Activity?

Please refer to the accompanying MRDG Instructions before describing the selected alternative and describing the rationale for selection.

Selected alternative: Alternative A – Proposed Action (Planned Ignition Prescribed Fire)

Rationale for selecting this alternative (including safety criterion, if appropriate):

When reviewing the pro's and con's related to wilderness character the Fire for Resource Benefit (aka the no action) alternative results in a neutral impact (+ / -). The two prescribed fire alternatives rank as the next best alternatives. When the Other Criteria are folded into the evaluation prescribed fire (aerial ignition) is the best alternative. Safety was not a conclusive factor in any of the treatment options.

For these reasons, Alternative A is selected as the minimum tool for preserving wilderness character in the long term while taking into account the other, secondary, criteria. Further, it is in accordance with the Wilderness Act, BLM wilderness policy and district policy. The natural character of wilderness will be preserved in the long-run, and will better allow for natural fire in the future to play its

role. Secondary benefits include improved vegetative composition, improved wildlife habitat and correcting for past human interference in wilderness.

Monitoring and reporting requirements:

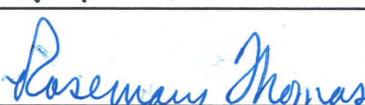
Monitoring for planned ignition pre-implementation would occur to determine the optimal time, and allow for fire within strict prescription parameters. Post-treatment monitoring would take into account treatment success, and weeds. These actions would also be reported in the wilderness character monitoring reports.

Check any Wilderness Act Section 4(c) uses approved in this alternative:

- mechanical transport
- motorized equipment
- motor vehicles
- motorboats
- landing of aircraft*
- temporary road
- structure or installation

*Landing of aircraft specifically is not authorized; however dropping materials (i.e. fire) from aircraft is equivalent to landing.

Record and report any authorizations of Wilderness Act Section 4(c) uses according to agency procedures.

Approvals	Signature	Name	Position	Date
Prepared by:		Emily Simpson	ORP – Wilderness Planner	07-19-12
Recommended:		Jay Raiford	Schell – NR-AFM	7/20/12
Recommended:		Mary D'Aversa	Schell Field Manager	7/27/12
Approved:		Rosemary Thomas	Ely District Manager	7/30/12