

**U.S. Department of the Interior  
Bureau of Land Management**

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**Environmental Assessment for Johnny Behind the  
Rocks Trail Connectivity**

**PREPARING OFFICE**

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# **Environmental Assessment for Johnny Behind the Rocks Trail Connectivity**

**Prepared by**

**U.S. Department of the Interior**

**Bureau of Land Management**

**Fremont County, Wyoming**

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# Abstract:

Johnny Behind the Rocks is a non-motorized trail based recreation area with approximately 14 miles of designated trails. JBR is 15 miles southeast of Lander, Wyoming and therefore has appeal to Lander residents who seek recreation opportunities that are close to home. Trail use in the JBR area has been steadily increasing over the last 20 years; however the trail system in the area has been in place since the early 1980s.

Active maintenance and management of the trails did not occur until 2010. Prior to 2010, trails demonstrated erosion, rutting, and braiding (multiple parallel and intertwined routes). Several of these problems have been fixed through a partnership with a local non-profit organization, Lander Cycling and the BLM.

The improved trail management and partnership with the citizen-based organization has increased visitation and use of the area. To date, most of the needed reroutes and trail maintenance actions have been completed. As a result, the trail network is more enjoyable for riders and will sustain use in the future. However, the increased interest and use in the area has revealed additional concerns in areas where trail connections are missing, but needed.

This Environmental Analysis (EA) analyzes potential impacts of a range of alternatives developed to address trail connectivity concerns in the JBR area. The EA assists the BLM in project planning and ensuring compliance with the National Environmental Policy Act (NEPA), and in making a determination as to whether any “significant” impacts could result from the analyzed actions.

This EA is available for public comment. This comment process is an opportunity to review the decision making process and provide input. All public comments will become part of the administrative record for this project and assist BLM in determining the next course of action.

This document has been structured so the first two chapters provide an executive summary of the entire document. Chapter 1 describes the need and project objectives, while Chapter 2 describes the alternatives for management and summarizes every major conclusion and supporting information from chapter 3. Chapter 3 then provides a detailed discussion of the affected environment, the methods used to analyze the impacts, and the impacts resulting from the various alternatives for management.

The EA process (including public scoping) will provide evidence for determining whether to prepare a revised/supplemental EA, an Environmental Impact Statement (EIS) or a statement of “Finding of No Significant impacts” (FONSI). If additional analysis is not needed and a FONSI is developed, then a Decision Record (DR) will also be signed for the EA approving the selected alternative.

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# **Chapter 1. Purpose of and Need for Action (Executive Summary 1 of 2):**

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## **1.1. Purpose (objectives) of Action:**

The Lander Field Office seeks to improve existing undesirable conditions at the Johnny Behind the Rocks (JBR) area. Importantly, the Lander Record of Decision and Approved Resource Management Plan, June 26, 2014 established and analyzed a desired future condition for JBR. This document and its decisions is hereby referred to as the Land Use Plan.

In response to extensive public input, the Land Use Plan identified JBR for non-motorized, trail based recreation where recreation and visitor services are the predominant land-use. The main objectives detailed within the Land Use Plan for JBR and the intended outcomes of this project (EA) are listed below:

1. Non-motorized, trail-based recreation is emphasized and enhanced.
2. Opportunities for users to enjoy close to home outdoor amenities, improve physical fitness, and improve trail-based recreation skills is emphasized and enhanced.
3. Unplanned human impacts such as vegetative trampling and social trails are reduced.
4. Visitor health and safety is ensured.
5. The potential for conflicts between visitors and private landowners is alleviated or reduced.

The achievement of each of these objectives will be tracked, compared, and analyzed within this document in the following manner:

- The recreation analysis will calculate and compare the distance (miles) of new purpose-built trail authorized for each alternative. This, in turn, also indicates the likelihood of visitors to have opportunity for trail-based activities and skill improvement. This will track progress towards objective 1 and 2.
- The recreation analysis will utilize qualitative methods to project and compare the likely visitor satisfaction (high, moderate, low) with each alternative. This will track progress towards objectives 1 and 2.
- The recreation analysis will utilize percent slope calculations and other trail design standards to qualitatively compare and contrast trail sustainability and the likelihood that visitors will stay on the trail. This will track progress towards objective 3.
- The human health and safety analysis will calculate and compare the total amount of known safety hazards the visitor is exposed to under each alternative. This will track progress towards objective 4.
- The access analysis will calculate and compare the total distance of the Johnny-On-Top Trail on private land. This will track progress towards objective 5.

## **1.2. Underlying Need for Action:**

The undesirable conditions currently occurring at JBR do not and will not result in progress toward the objectives detailed in Section 1.1. In fact the project is being initiated to address the gap between the current condition and the objectives. Therefore all action alternatives are developed to address the undesirable conditions in a manner that will make progress towards the objectives.

The conditions needing to be addressed include: 1) unsatisfied users, 2) resource impacts from unplanned social trails, 3) compromised user safety and 4) unauthorized visitor use of private property. These undesirable conditions and symptoms occur at the southern terminus of the Johnny-On-Top (JOT) Trail, in the interior between the Red Ridge Trail and the Dry Well Road, and at the northern terminus of the Red Ridge Trail. Each of these areas are further identified in Map 1 of Appendix A, (p. 49). These conditions are also further detailed below:

**The trail system lacks a safe and legal connection between the parking lot and the Johnny-On-Top (JOT) trail.** Currently, the JOT Trail does not connect to the JBR trail system at its southern terminus. The lack of connectivity between the JBR parking lot and the JOT Trail creates undesirable conditions for visitor satisfaction, protection of resources, visitor safety, and respect of private property rights.

Under the current condition users who desire to return to the JBR parking lot are forced to follow a network of two-tracks which lead to a parking area on private land. From the private land, users can return to the JBR parking area via highway 287 or by following a faint and substandard cowpath adjacent to but outside of the highway ROW fence. The cowpath also intersects a riparian area and is very close to cultural resources.

**The trail system lacks a logical connection within the interior between the Red Ridge Trail and the Dry Well Road.** The Red Ridge Trail parallels and is within site of the Dry Well Road. Users who desire a shorter route or who want to avoid losing elevation are not accommodated. This condition has resulted in unsatisfied trail users which in turn has resulted in increased evidence of resource damage from social trailing between Red Ridge and the Dry Well Road.

**The trail system lacks an efficient and purpose-built connector between the Red Ridge Trail and the Johnny Falls Trail.** The Red Ridge Trail terminates at a two-track road at its northern terminus. This two-track then travels to the Dry Well Road which eventually connects to the Johnny Falls Trail. The current road route is very steep and sandy; visitors traveling in a southbound direction on this road are faced with an inefficient climb on sandy/loose soil. In addition to the inefficiencies, the trail experience for all travelers is interrupted by being forced down a wide two-track that lacks appeal. This condition has resulted in unsatisfied trail users which in turn has resulted in increased social trailing between the Red Ridge terminus and the Johnny Falls Trail.

### **1.3. Conformance of the Project to the BLM Land Use Plan(s):**

The No Action Alternative (Alternative A) continues the existing undesirable condition as outlined earlier in Section 1.2, “Underlying Need for Action: ” (p. 1). These conditions do not conform to the Land Use Plan. This determination will be further discussed and supported throughout this document but is primarily due to the JOT Trail crossing private lands and a riparian resources.

In contrast to Alternative A, the action alternatives (Alternatives B and C) conform to and support the direction contained in the Land Use Plan. Each action alternative is an option for management that supports the achievement of the objectives in Section 1.1, “ Purpose (objectives) of Action:” (p. 1) and therefore represent viable alternatives to bring about visitor use and conditions that conform to the Land Use Plan. However, the manner and intensity that each alternative achieves these objectives varies accordingly and is further detailed in this document.

*Chapter 1 Purpose of and Need for Action (Executive Summary 1 of 2):*

*Conformance of the Project to the BLM Land Use Plan(s):*

## **1.4. Laws, Regulations, or Other Documents that Influence the Scope of this Project:**

The 2014 LUP sets objectives for the JBR area. All action alternatives must therefore result in progress towards these objectives.

The scope of the document and action alternatives is also limited by several additional laws and policies. These regulations are generally detailed and further described in 43 CFR, Subtitle B – Regulations Relating to Public Lands.

Some laws, regulations, or documents require BLM to consult with other government agencies or affected Native American Tribes prior to initiating an action.

The BLM consulted with representatives from the Shoshoni and Arapaho Tribes. Tribal consultation was initiated to gain input on cultural resource issues and concerns as required by laws, regulation, and guidance. Pursuant to Section 106 of the National Historic Preservation Act and BLM's programmatic agreement between the Wyoming State Historic Preservation Office (SHPO), the BLM has also consulted with SHPO prior to and during the development of this EA.

The BLM also consulted with the Wyoming Game and Fish Department (WGFD) for their input on wildlife issues and concerns, as well as consistency with Wyoming Executive Order 2011-05, *Greater Sage-grouse Core Area Protection*.

## **1.5. Public Input and Identification of Relevant Issues:**

The BLM has used internal scoping, informal public input, and consultation to identify the relevant issues associated with this project. The BLM was also informed by scoping, consultation, and cooperating agency processes for the revision to the Land Use Plan.

An issue for purposes of NEPA analysis is an effect (or a perceived effect, risk, or hazard) on a physical, biological, social, or economic resource. BLM is directed by guidance, statute and regulation to describe the environment of area(s) to be affected by the alternatives under consideration. As an example, CEQ regulations direct BLM to concentrate efforts on important issues, especially the presence or absence of relevant issues. The identified important issues guide the formulation of the four alternatives.

The discussion of environmental impacts is therefore restricted to topics related to resources which are relevant to the decision.

### **1.5.1. Relevant Issues:**

The following relevant issues are framed in the context of a question and will be carried forward for analysis:

1. **Vegetation and soil, and the undesirable spread of invasive/noxious species:** What will be the disturbance to vegetation, soil, and the potential undesirable spread of invasive/noxious species?
2. **Riparian:** What will be the impact to the Twin Creek riparian resource from travel across a spring source?

3. **Wildlife Including Special Status Species:** What will be the impact to mule deer, pronghorn antelope, and Special Status Species from habitat disturbance and lifecycle disruption?
4. **Cultural Resources and Tribal and Native American Religious Concerns:** How will cultural resources be impacted by trails and users within variable distances of sites?
5. **Recreation and Visitor Services:** How will trail users and visitor services be impacted? (This issue assisted BLM in determining the achievement of several objectives of this document, further explanation is contained in section 1.1)
6. **Health and Safety:** How will visitors health and safety be ensured? (This issue assisted BLM in determining the achievement of an objective of this document, further explanation is contained in section 1.1)
7. **Access:** How will travel on the JOT trail impact adjacent private property? (This issue assisted BLM in determining the achievement of an objective of this document, further explanation is contained in section 1.1)

### **1.5.2. Resources Considered But Eliminated From Further Analysis:**

All issues and resources presented in the table contained in Appendix B, *Affected Resources* (p. 53) were considered, but BLM determined that many are not present at the site or not affected to a degree of importance. These issues were not carried forward for further analysis.

For example, the project area is located within BLM Wyoming Greater Sage-grouse Core Area. However, the BLM Wildlife Biologist in consultation with the Wyoming Game and Fish Department determined that the project site is unsuitable habitat. As a result of these findings impacts to Greater Sage-grouse will not be analyzed or discussed further in this document.

**Chapter 2. Description of the Alternatives  
for Management (Executive Summary 2 of  
2):**

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## 2.1. Introduction to this Chapter:

The NEPA directs the BLM to "study, develop, and describe appropriate alternatives to recommended courses of action in any proposal that involves unresolved conflicts concerning alternative uses of available resources;..." (NEPA Section 102(2)(E)). The range of alternatives explores alternative means of meeting the purpose and need as described in Chapter 1.

Chapter 2 also describes the alternatives and provides summary tables that compares the alternatives.

## 2.2. Description of the No Action Alternative:

### 2.2.1. Alternative A- No Action:

Under the No Action Alternative, the BLM would not build new trails to resolve the issues identified in the purpose and need or conform to the Land Use Plan. However, analyzing the No Action Alternative, the current and future condition expected in the area will provide a baseline for comparison of the action alternatives. The following paragraphs, in association with Map 2 of Appendix A, (p. 49) describe what the No Action Alternative would do in each of the problem areas.

**The Southern Terminus of Johnny-On-Top (JOT) Trail** will continue to not connect with the rest of the trail system. Users who desire to return to the JBR parking lot without retracing their route will continue to follow an existing network of two-tracks which lead to a parking area on private land. From the private land, users will need to return to the JBR parking area via highway 287 or by following a faint and substandard cowpath adjacent to but outside of the highway ROW fence. Users will continue to travel across the riparian area and within close proximity of sensitive cultural resources. Social travel is expected to continue across approximately 61 acres between the JOT Trail, the cowpath, and the Johnny's Draw Trail

**The Interior Area between the Red Ridge Trail and the Dry Well Road** will not be connected by a designated trail. The Red Ridge Trail parallels and is within site of the Dry well road. Users who desire an interior connection between the two routes or who want to avoid losing elevation will not be accommodated. As a result users will continue to be unsatisfied. Social trailing across 44 acres between Red Ridge and the Dry well Road will continue.

**Red Ridge Trail Northern Terminus.** The Red Ridge Trail will continue to terminate at the existing two-track road which continues to the Dry-Well Road and eventually connects to the Johnny Falls Trail. The two track is very steep and sandy with an inefficient climb on sandy/loose soil with little visual appeal. Social trailing across 43 acres between the Red Ridge terminus and the Johnny Falls Trail is expected to continue and increase in intensity.

It is assumed that over-time social trails will form in each of the areas of concern. The majority of these trails will be formed by user travel and will therefore not meet the Guidelines for a Sustainable Non-motorized Trail (p. 33)

## 2.3. Description of Action Alternatives:

### 2.3.1. Design Features Common to All Action Alternatives:

Standard operating procedures and stipulations required by law or policy are considered to be design features that are common to all action alternatives. The table below identifies these design features:

**Table 2.1. Design Features Common to All Action Alternatives:**

Issue	Design Feature Description
Invasive/Noxious Species	Use integrated pest management including mechanical/chemical treatments to control weeds. Prescribed fire would be used only in areas with more than 12" of annual precipitation. Reseed or replant as necessary to promote vegetative growth in consultation and cooperation with interested parties.
Twin Creek Riparian Resource	Prohibit surface-disturbing activities within 500 feet of surface water, riparian-wetland areas, and playas unless activities are determined to be necessary and when impacts can be mitigated.
Mule Deer and Pronghorn Antelope	Prohibit surface-disturbing and disruptive activities within identified big game crucial winter range from November 15 to April 30 and within identified big game parturition areas from May 1 to June 30 unless the Authorized Officer grants a prior written exception, waiver, or modification.
Special Status Species (Migratory Birds and Sagebrush obligates)	Prohibit surface disturbing and/or disruptive activities that have the potential to cause destruction of reproductive nests, eggs or young of migratory birds will be prohibited during the period of May 1 to July 15. The Authorized officer may grant a prior written exception if a survey (following BLM protocol) reveals that no nesting migratory birds exist in the project area.
Special Status Species (Pygmy Rabbit)	Avoid pygmy rabbit habitat.
Special Status Species (Plants)	Complete a survey for Fremont Bladderpod and Rocky Mountain Twinpod prior to surface disturbance. If localized populations are found in the area proposed for disturbance, then the disturbance will be relocated to avoid the sensitive plants.
Cultural Resources	There is a potential for buried cultural and paleontological resources to be present in the project area. Immediately report any cultural and/or paleontological resource (historic or prehistoric site or object or fossil) discovered by the BLM, or any person working on their behalf, on public or Federal land to the authorized officer. Upon discovery, the BLM will suspend all operations in the immediate area of such discovery until the Authorized Officer evaluates the discovery and provides a written authorization to proceed taking appropriate actions to prevent the loss of significant cultural or scientific values.
	Cultural materials on public lands may not be removed, damaged, disturbed, excavated or transferred without BLM permit. No alternative proposes authorizing such a permit. Therefore users of the public lands and BLM employees and volunteers are not authorized to disturb archeological and historical values, including, but not limited to, petroglyphs, ruins, historic buildings, and artifacts.

### 2.3.2. Decisions Common to All Action-Alternatives

Sometimes the limitations of the environment such as topography or public land boundaries restrict the potential options for alternatives. In other cases an action or its location may not need variation because there are no unresolved conflicts. In these cases the alternatives will share common decisions. The common decisions among the action alternatives are contained in the table below.

*Chapter 2 Description of the Alternatives for Management (Executive Summary 2 of 2):  
Description of Action Alternatives:*

**Table 2.2. Decisions Common to All Action-Alternatives**

Location	Decision Description
Johnny-On-Top Trail	<p>A cliff band separates a large section of the Johnny-On-Top (JOT) Trail from the Johnny Draw Trail. As a result of this topographic limitation, the only possible location for a connector between the two trails is through a very narrow gap or choke point that is utilized by all action alternatives.</p> <p>The action alternatives also have the same “lower” connector between the existing cow path and the Johnnys-Draw Trail. This lower connector is 1,525 feet long with an average trail grade of 10%. This connector will avoid braided, impassable, and unseasonable sections of the cowpath as well as a section of the cowpath that passes close to areas with cultural resource concerns.</p> <p>The action alternatives have different routes between the lower common connector and the choke point. This section is hereby referred to as the ‘Upper Connector’ and varies under each alternative.</p>
Interior Connector	<p>The action alternatives all utilize the same location for a portion of the Interior Connector. Alternatives B and C each utilize a section of existing sustainable social trail that is 1,329 feet long.</p>
Red Ridge Connector	<p>The Red Ridge Connector to Johnny Falls Trail has a 444 foot section of newly constructed trail that is proposed for both alternatives.</p>
Various	<p>Each action alternative proposes to place natural screening objects (junipers, rocks, and brush) in and near cultural resources. The objects will be located in a manner that reduces the likelihood of the cultural resources being discovered by trail users, thus reducing the likelihood of vandalism or damage. The natural screening objects/barriers will be installed, maintained, and paid for by the BLM recreation program in coordination with the BLM cultural program.</p>
Various	<p>Each action alternative proposes to deploy motion activated cameras in and near cultural sites. The motion camera will be paid for by the BLM recreation program and be installed/maintained/monitored by the BLM cultural program.</p>
Various	<p>Trail layouts proposed at the northern terminus of the Red Ridge Trail and along the upper connector of JOT intersect important shrub species. All spoil dirt (created from trail construction activities) will be located in areas targeted for rehab or in disposal locations without shrub species.</p>

### 2.3.3. Description of Alternative B:

Under Alternative B, the BLM would add a total of 1.68 miles of trail to the existing system in the location of the problem areas identified in the need for the action. This alternative locates the trails in the most desirable locations for user enjoyment and trail sustainability but also has the largest amount of initial surface disturbance. The surface disturbance is due to the fact that the alternative authorizes 1.2 miles of new trail construction and authorizes maintenance of another 0.6 miles of existing trail.

At each of the areas of concern the proposed trail layout meets all the Guidelines for a Sustainable Non-motorized Trail (p. 33). As a result, social trailing is expected to be minimal under this alternative.

**The southern terminus of Johnny-On-Top (JOT) Trail** would connect with Johnny Draw and the rest of the trail system along a new route called the JOT Connector using 870 feet of the existing cowpath and 2,690 feet of newly constructed trail. For analysis purposes the two new sections proposed will be called the ‘upper’ and ‘lower’ connector. The two new sections, plus the 870 feet of cowpath, would add 0.67 miles at an average trail grade of 8.5%. As described in Table 1, the new lower connector is common to all action alternatives.

Under Alternative B, the location of the upper connector is designed to make the needed connection while avoiding private lands, spring sources, cultural resources, and the need to travel the highway.

The location of the upper connector is placed in the most desirable landscape for trails and users because of the desirable terrain features in this area and the shallow trail grades needed to reach the break in the cliff band. The layout proposed for the upper connector will result in 1,165 feet of new trail with an average trail grade of 6.5%.

**The Interior between the Red Ridge Trail and the Dry Well Road Connector** Alternative B would utilize 1,325 feet of existing social trail created by wandering visitors and livestock and build 985 feet of new trail in a sandstone rocky outcrop that contains trail features desirable to users. The total trail distance added to the system would be approximately 0.44 miles with an average grade of 8.7%.

**The northern terminus of the Red Ridge Trail** under Alternative B would connect to the Johnny Falls Trail, avoiding the existing sandy two-track by building 0.57 miles of new trail with an average grade of 5.7%. The proposed layout under alternative B is designed to maximize the use of desirable terrain while accommodating the users desire to keep elevation and subsequent desirable overlooks for as long as possible. The trail also makes for an easy and efficient climb for the south bound traveler.

### **2.3.3.1. Additional Components of Alternative B to Reduce or Alleviate Issues:**

**Seeding and rehabilitation of cow path no longer to be used with physical barriers to stop travel.** Alternative B proposes to seed and rehab 1/3 of a mile of cowpath that is no longer needed within the trail system. This rehab will be done with hand tools. All seed will be broadcast by hand and be a seedmix containing approved grass and shrub species. The BLM recreation program will purchase the seed and rehabilitation efforts will be done in coordination with the BLM fire, soils, weeds, and botanical programs. Alternative B would deploy natural, physical barriers to deter human and livestock travel near a cultural resource that is directly adjacent to the portion of the cowpath to be rehabilitated (and used under the No Action Alternative).

### **2.3.4. Description of Alternative C**

Under Alternative C, the BLM would build and designate trails in all areas where problems have been identified but locate the trails so as to maximize the use of existing disturbances. As a result, Alternative C builds the least amount of new trail and adds the least amount (1.43 miles) of trail to the existing system thereby having the least amount of initial surface disturbance.

The majority of the trail layout proposed in Alternative C meets or exceeds the Guidelines for a Sustainable Non-motorized Trail (p. 33). However, sections in the interior and red ridge terminus areas do not meet all of the guidelines. Primarily Alternative C locates several trails on flat ground that is uninteresting to users, lacks anchors, and lacks grade reversals. Without being able to shed water and with continued use, the trail in these areas will become a rut and eventually it will be more efficient for users to travel off-trail in these areas. Without anchors or solid edges to hold users in the trail, the route will become braided. For analysis purposes it is anticipated that social trailing will occur 10 feet (Lezberg 2011) either side of these sections as users seek to bypass rutted, sandy, or muddy sections of trail. Overtime this is anticipated to result in social trailing disturbance across 0.57 acres.

**The southern terminus of Johnny-On-Top (JOT) Trail** would be similar to Alternative B with the exception of the upper connector.

Alternative C locates the upper connector to the south of that proposed in Alternative B and in a manner that requires users to stay on the existing cow path longer. The layout proposed for the upper connector will result in 961 feet of new trail with an average trail grade of 8.7%.

**The interior between the Red Ridge Trail and the Dry Well Road** will connect by designating and maintaining 2247 feet of existing social trail created by wandering visitors and livestock as part of the trail system. This connector runs through flat and sandy terrain for a distance of approximately 0.43 miles with an average grade of 3.4%, avoiding the sandstone outcropping feature that is part of Alternative B's route.

**The northern terminus of the Red Ridge Trail** will connect with the rest of the trail system by building 464 feet of new trail between the unnamed two-track road and the Dry Well Road just above the falls trail. The average grade of the new trail will be 5.7%.

From the northern terminus of the Red Ridge trail this alternative directs users down a two-track road for a distance of 279 feet. From this point users will travel 464 feet of constructed trail to its eventual connection with the Dry Well Road. Users then desiring to connect to the falls trail will travel 440 feet down the Dry Well Road.

The total distance added to the system in this area will be 0.32 miles with an average grade of 12.2%.

#### **2.3.4.1. Additional Components of Alternative C to Reduce Impact:**

The additional components of Alternative C are similar to those explained for alternative B. However, the following differences are proposed:

- Alternative C utilizes more existing trails and therefore less is needed for seeding and rehabilitation. Alternative C proposes to rehabilitate 0.25 miles of cow path that is no longer needed within the trail system utilizing the same methods described under Alternative B.

### **2.4. Alternatives Considered, But Eliminated From Further Analysis:**

According to pg. 52, Section 6.63 of the BLM National Environmental Policy Handbook (1790-1) BLM can dismiss alternatives if:

Elimination Criteria 1: It is ineffective, it would not respond to the purpose and need, as detailed in Section 1.1, " Purpose (objectives) of Action:" (p. 1) and Section 1.2, "Underlying Need for Action: " (p. 1).

Elimination Criteria 2: It is technically or economically infeasible.

Elimination Criteria 3: It is inconsistent with the basic policy objectives for the management of the area such as not in conformance with the Land Use Plan, as detailed in Section 1.3, " Conformance of the Project to the BLM Land Use Plan(s):" (p. 2).

Elimination Criteria 4: Its implementation is remote or speculative.

Elimination Criteria 5: Its substantially similar in design to an alternative that is analyzed.

Elimination Criteria 6: It would have substantially similar effects to an alternative that is analyzed.

Several action alternatives were considered but later eliminated from further analysis because they met one or more of the criteria contained above:

**Closing some or all of the area to human presence.** This alternative would involve writing a special rule to close some or all of the Johnny Behind the Rocks Area to human presence. This alternative was eliminated from further analysis because it does not respond to the purpose and need (elimination criteria 1). Such action is also inconsistent with the Land Use Plan for the area (Elimination Criteria 3) which identifies it for higher intensities of recreational use and non-motorized travel.

**Locating the upper connector of the JOT Trail to the northeast.** This alternative would involve closing and rehabilitating 2,000 feet of the Johnny-on-Top trail including several sections with overlooks and technical terrain features that users enjoy. Doing so would not make progress towards the objectives outlined in Section 1.1, “Purpose (objectives) of Action:” (p. 1).

Under this option the upper connector would turn users away from areas with resource concerns and direct them to the next break in the cliff band, approximately 0.50 miles to the north of the locations identified in the action alternatives. However this route would place a series of switchbacks 400–450 feet from an area with resource concerns, causing users to spend more time and move slower in the area of the resource. This determination causes the alternatives effectiveness at reducing impacts to be speculative.

Field inspections found that this trail alignment would require four large switchbacks on a steep side slope (66%). Because of terrain, these switchbacks would be stacked on top of each other, which increases the likelihood of users short-cutting the turn and wandering off of the trail. In addition, switchbacks require a platform for a turn equal to one foot of retaining wall for every 10% of side slope. Each of the four switchbacks would thus require a retaining wall and platform lifted 5–6 feet above grade at its apex. Each rock wall would then have to span approximately 5–6 linear feet. Doing so would be nearly impossible with volunteer-human labor and hand construction techniques.

Finally this proposed layout would have an average trail tread of 13% and have several long sections with a trail tread that exceeded half the side slope. These conditions exceed both the United States Forest Service and International Mountain Bike design standards for sustainable trails. Additionally, the terrain of this alignment does not include rock or armored sections that would support such steep grades. These factors indicate the trail would fail soon after construction. Users would then wander in an attempt to avoid impassable sections.

Based on the above findings this alternative was dismissed from further analysis because it is ineffective at responding to the purpose and need (elimination criteria 1), not technically or economically feasible given volunteer/hand labor sources (elimination criteria 2), and its implementation speculative due sustainability problems and off trail travel (elimination criteria 1 and 3).

*Chapter 2 Description of the Alternatives for  
Management (Executive Summary 2 of 2):  
Alternatives Considered, But Eliminated From  
Further Analysis:*

## 2.5. Summary of Alternatives

The summary of alternatives section allows the reader to compare and contrast the components of each alternative. The comparison table below breaks these components by the areas of concern presented in Section 1.2, “Underlying Need for Action: ” (p. 1)

**Table 2.3. Summary of Alternatives by Areas of Concern**

Areas of Concern	Alternative A-No Action	Action Alternative B	Action Alternative C
Johnny-On-Top Terminus	No trail built or designated. Continued travel on highway and private land. Social travel continues.	New trail with shallow grades utilizes sustainable portions of the existing cowpath. Meets all sustainable trail standards. Upper connector maximizes use of desirable terrain but is near areas with resource concerns.	Very similar to Alternative B. The upper connector stays on existing cowpath for the longest distance then climbs at sustainable but steep grades
Interior Between the Red Ridge Trail and the Dry Well Road	No trail built or designated. Social travel continues.	New trail built in desirable terrain, utilizes some of the existing social trail that is sustainable.	Stays on existing social trail for the entire length. Flat terrain without features, trail grade is shallow but without a sideslope the trail tread exceeds sustainable trail standards.
Red Ridge Terminus	No trail built or designated. Social travel continues.	Entirely new trail. Built in desirable terrain.	Stays on two-tracks for the longest distance and connects to the drywell road.

## 2.6. Summary of Impacts

The comparison of alternatives section allows the reader to compare and contrast the alternatives. This comparison includes the achievement of project objectives as detailed in Section 1.1, “Purpose (objectives) of Action:” (p. 1) and a comparison of relevant resource impacts as detailed in Section 1.5.1, “Relevant Issues:” (p. 3).

**Table 2.4. Summary of Objective Achievement**

Objective Indicator discussed in Section 1.1, “Purpose (objectives) of Action:” (p. 1)	Alternative A-No Action	Action Alternative B	Action Alternative C
Miles of new purpose-built trails	0	1.2 Miles	.53 Miles
Total miles added to the network (sum of the miles of new purpose built trails authorized and existing trails authorized for maintenance)	0	1.68 miles	1.43 Miles
Projected User Satisfaction	low	High	Moderate

Objective Indicator discussed in Section 1.1, “Purpose (objectives) of Action:” (p. 1)	Alternative A-No Action	Action Alternative B	Action Alternative C
Sustainability of features added to the network	Not Applicable, since new trails are not proposed	High	Moderate
Likelihood of visitor to stay on trail	Low, users will continue to wander and create social trails	High	Moderate
Visitor exposure to safety hazards	Visitor will continue to be exposed to highway traffic	Visitors will not be exposed to highway traffic	Visitors will not be exposed to highway traffic
Distance of projected travel on private land	2 miles	0 miles	0 miles

**Table 2.5. Summary of Impacts to Relevant Issues from Each Alternative**

Issue	Alternative A-No Action	Action Alternative B	Action Alternative C
Projected acres of initial surface disturbance (length times 5’ disturbance width. . . 3’ construction/ maintenance disturbance + additional indirect disturbance such as a change to water storing capacity etc)	0	1 acre	0.85 acres
Projected acres susceptible to social trailing	Approximately 148 acres will continue to be susceptible to social trails and vegetation trampling, until which time a main social trail is established. Long term braiding will still occur as users avoid unsustainable sections of trail.	Each trail layout under this alternative meets all sustainable trail guidelines. Therefore social trailing is not expected at a level that will cause noticeable damage to vegetation.	It is likely social trailing will occur across an additional 0.57 acres in areas where the proposed trail layout does not meet sustainable trail guidelines. .
Total projected amount of disturbance (Initial disturbance + social trailing disturbance)	> 1.42 acres. Assumes that eventually trails will be established by use, but without design, these trails will be braided from users avoiding unsustainable sections which will result in a larger surface disturbance area than Alternatives B and C..	1 Acres	1.42Acres
Projected amount of disturbance (trampling and initial disturbance) of shrubland vs rockland	Rockland: >0.76 acres Shrublands: > 0.66 acres	Rockland 0.85 acres Shrublands 0 .15 acres	Rockland 0.76 acres Shrublands: 0 .66 acres

Issue	Alternative A-No Action	Action Alternative B	Action Alternative C
Amount of soil disturbance (assumes an average width of 1.5 feet times 0.5 foot of depth*distance of new construction only)	> 176 cubic yards.	176 Cubic Yards due to construction activities.	77 Cubic Yards due to construction activities. In addition, it is expected that an additional 0.57 acres will be disturbed, compacted, and displaced by visitors avoiding unsustainable trail sections.
Distance of travel through spring source of Twin Creek	100 feet	0	0
Amount of ungulate (mule deer and pronghorn) and sagebrush obligate habitat disturbed due to surface disturbance or trampling.	> 0.66 Acres	0.15 Acres	0.66 Acres
cultural resources passed by trail user	3	2	2
Comparative distance from cultural resource	closest	further away than A, but closer than C.	farthest from cultural resources

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# **Chapter 3. Affected Environment and Environmental Consequences**

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## **3.1. Introduction:**

### **3.1.1. General Impact Analysis Assumptions and Guidelines:**

This section provides an in-depth discussion of the relevant and potentially affected resources which forms the analytical basis for comparison of the alternatives. The section organizes the resources as identified in Chapter 1.0, Section 1.5.1, Identification of Issues and compares the general current conditions to impacts between the Action Alternatives and No Action Alternative. Design Features identified in Chapter 2.0, Section 2.3.1 have been incorporated into the analysis as a means to reduce or eliminate adverse impacts and will be discussed in further detail.

Impacts have been categorized according to the phase of development and duration of activities on the resources. Initial impacts would be defined in this section as impacts that occur during construction and maintenance of trails. Long-term impacts would be defined as impacts to the resources that persist after construction operations have been completed, and include visitor use activities. Initial impacts could last two to three years or until construction activities are completed. Long-term impacts would be defined as the duration of the trails operating life (4 – 20+ years).

Impacts are also categorized as being direct or indirect and beneficial or adverse. This analysis identifies these types of impacts and compares the alternatives accordingly.

Direct impacts are those that are caused by the action and occur at the same time and place. Indirect impacts are those impacts that are caused by the action and are later in time or further removed in distance, but are still reasonably foreseeable. Sometimes it is difficult to separate these impacts, and so the impacts may be described together.

Finally, in order to facilitate impact analysis this document assumes the following:

- Visitor use will increase in the JBR area regardless of alternative.
- Off trail travel is more likely to occur in locations or along trail sections that fail to provide visitors the access, connectivity, or experiences they desire. (Widman, 2010)
- BLM conducted a literature review of studies that investigated the likelihood of visitors to stay on the trail. The review found that 95–100% cyclist stay on trails, and 75%–97% of pedestrian/horseback users (including those with leashed and unleashed dogs) stay on the trail. (Lezberg 2011; Lucas 1980; Hockett et. al. 2010 ; Fotie et. al. 2006 ; VanderWoude, 2008)
- The likelihood of visitors leaving a trail decreases as the slope of the surrounding terrain increases, with the likelihood decreasing to below 10% on slopes greater than 40%.
- The majority (86%) of off-trail visitors will remain within 10 feet of the trail. (Lezberg 2011)
- Designed trails can use perception and feeling (Safety, Efficiency, Harmony, and Playfulness) to improve the trail experience and encourage people to stay on the trail. (Parker 2004)
- Designed trails weave into their sites, use natural features to improve sustainability and visitor enjoyment, and helps engender respect, appreciation, and stewardship for trails and natural resources. (Parker 2004)

- The impacts to environments from recreation demonstrate an curvilinear relationship between the amount of use and amount of impact. This means incremental increases in amount of use have a pronounced effect on the amount of impact suggesting t that heavy dispersed use has more impact then heavy focused use on hardened sites (Cole, 1993).
- Limiting the amount of group use, limiting destructive activities, influencing behaviors, concentrating use, utilizing or creating hardened sites, and shielding areas from use reduces environmental impacts from recreation. (Cole, 1993)

### **3.1.2. Cumulative Impacts:**

Cumulative impacts refer to impacts on the environment which result from the incremental impacts of the action when added to other past, present and reasonably foreseeable future actions. The Cumulative Impacts Analysis Area (CIAA) and Cumulative Impacts Temporal Boundary (CITB) may be different but will be defined here for the sake of this analysis.

The geographic scope of the cumulative impact analysis includes the area referred to as the Lower Twin Creek Watershed (a 6th level hydrologic unit). This watershed encompasses similar resource values, competing land uses, and areas that provided opportunities and needs for management actions. The watershed is the largest CIAA for all of the affected resources, so by analyzing cumulative impacts for the watershed, all actions impacting other resources will be captured. Therefore this unit provide a suitable cumulative impact analysis area. The analysis applies to all BLM administered lands in this unit, the analysis will also consider past, present, and future actions occurring on private lands contained within the unit as well.

The following actions will be considered past actions to be considered for cumulative impact analysis:

- Disturbances from historic oil and gas exploration, which began in the mid to late 1950s.
- Disturbance from Derby Dome Oil Field, an existing oil field primarily on private land.
- Disturbances from facilities (fences, water developments) to facilitate livestock grazing.
- Continued impacts from livestock grazing on resources in the CIAA.
- Increased utilization of motorized vehicles by recreationist and a subsequent increase in the number of areas disturbed to accommodate these vehicles
- Increased presence of noxious/invasive weeds.
- Vegetation treatments to enhance shrub species

Reasonable foreseeable actions planned in the Lower Twin Creek Watershed include:

- Increased restrictions on all mineral extraction and exploration as a result of management decisions detailed in the Land Use Plan and the Governors Executive order for Greater sage-grouse.
- Increased restrictions to maintain visual resources

- Increased restrictions on Right-of-Ways
- Continued reclamation of oil and gas disturbances
- Continued treatment of Noxious/Invasive Species by BLM and Fremont County Weed and Pest
- Closure of the Johnny Behind the Rocks area to motorized vehicles
- Establishment of up to 50 miles of trail within the JBR area, estimated at approximately 12 acres of disturbance.
- Increased visitor use in Johnny Behind the Rocks, visitor use outside of JBR will increase slowly.
- Reduced motorized vehicle impacts as travel management decisions are implemented.

Most of the above items are actions or impacts detailed and analyzed during the Land Use Planning process for the Lander Field Office. The following issues represent the resources that show the highest likelihood of demonstrating cumulative impacts from the alternatives and past actions: Vegetation and Soil, and the undesirable spread of Noxious/Invasive Weeds, Riparian, Wildlife, and Cultural Resources

## **3.2. : Vegetation and Soil, and the Undesirable Spread of Noxious/Invasive Species**

### **3.2.1. Affected Environment of Vegetation and Soil, and the Undesirable Spread of Noxious/Invasive Species**

For analysis purposes the vegetation sites of the JBR area can be grouped into two major categories shrubland/grassland and rockland /juniper.

Approximately 50% (2,637 acres) of the JBR area is characterized as shrubland/grassland. Shrublands consist of shrubs, grasses, and forbs including the various sagebrush species, antelope bitterbrush, skunk bush sumac, Needle and thread grass, and Indian ricegrass. Pocewicz et. al (2009) found that Basin Shrublands, such as those that exist within the JBR area, are one of the least protected and most threatened habitat types in Wyoming. These sites are important foraging habitats for domestic livestock and ungulates (such as antelope and mule deer) and provide year round habitat for numerous sage-brush obligate species.

The remainder of the JBR area is characterized as a rockland/juniper vegetation site. This site consists of limited amounts of shrubs, grasses, and forbs, but is dominated by bare ground, rock, and/or juniper. These sites provide some hiding and thermal cover for a variety of species, but are not regarded to be as important as shrublands due to their low productivity and forage value.

General and detailed soil information for the JBR area can be found in the *USDA NRCS Soil Survey of Fremont County, Wyoming, Lander Area, 1980*. The soils of the area have been strongly influenced by the local geology, following zones of occurrence that parallel the Wind River Mountains trending from the northwest to the southeast.

**Table 3.1. Affected Soils and Trail Limitation**

Areas of Concern	Impacted Soil Name	Path and Trail Limitation
Johnny-On-Top Terminus	Cotha-Blazon-Rock outcrop association	Both of these soil types have features that are moderately favorable for paths and trails. Some limitation may exist due to slope steepness and/or the dustiness of the material. These limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected (USDA 1980)
Interior Between the Red Ridge Trail and the Dry Well Road	Thermopolis-Sinkson association	
Red Ridge Terminus		

The noxious/invasive species can spread by a number of vectors, but the most relevant vector to this analysis is unintentional transportation by trail users. Trail users can spread these species by accidentally collecting seeds on their clothing, equipment, and/or animals while traveling through an area with a seed source. The user or animal drops these seeds through gravity or stock defecation. The likelihood of these species establishing is then substantially increased in areas of disturbance and/or reduced native plant production and vigor.

JBR area has a variety of noxious and secondary weeds present. The noxious weeds present are: houndstongue (*Cynoglossum officinale*), leafy spurge (*Euphorbia esula*), hoary cress (*Cardaria draba* & *C. pubescens*), Russian knapweed (*Centaurea repens*), musk thistle (*Carduus nutans*), quackgrass (*Agropyron repens*), and Canada thistle (*Cirsium arvense*). Along the Highway 287 right-of-way can also be found perennial sowthistle (*Sonchus arvensis*) and spotted knapweed (*Centaurea maculosa*). Annual mustards and cheatgrass occur along the highway right-of-way, but also can be found along most dirt roads and areas of heavy historic livestock use.

The BLM weed control program in the Lander Field Office operates under a cooperative agreement with the Fremont County Weed & Pest District for noxious weed treatment, inventory, monitoring, and record keeping. Further, this area is part of the Popo Agie Weed Management Area (PAWMA) which operates under an interagency Memorandum of Understanding and a strategic Weed Management Plan.

### **3.2.2. Impacts to Vegetation and Soil, and the Undesirable Spread of Noxious/Invasive Species under Alternative A- No Action:**

#### **3.2.2.1. Direct and Indirect Impacts to Vegetation and Soil, and the Undesirable Spread of Noxious/Invasive Species under Alternative A- No Action:**

Alternative A does not authorize the construction of trails and therefore results in no initial disturbance to vegetation and soils. However, since this alternative does not provide visitors the access, connectivity, or experiences they desire, adverse impacts to vegetation and soils are expected to result from wandering visitors attempting to connect the trail system (Widman, 2010).

Under Alternative A, 148 acres within the three areas of concern will continue to be impacted by social trailing and vegetation trampling. Eventually a trail will establish, but it is predicted that without proper design the trail will have several unsustainable sections and therefore braiding will occur either side of the trail caused by users avoiding rutted, muddy, sandy, or impassable sections of trail. It is estimated that an area greater than 0.66 acres of shrublands will be damaged as a result of this alternative. This is an area somewhat larger than 1/2 of an American football field.

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*Impacts to Vegetation and Soil, and the Undesirable Spread of Noxious/Invasive Species under Alternative A- No Action:*

These areas will experience reduced native vegetation diversity and vigor, as well as increases in less desirable plants and noxious/invasive species.

The entire 148 acres could be susceptible to soil disturbance in the form of compaction, displacement, and loss of soil fertility. Since this alternative does not include specialized planning, design, or installation of a trail it is predicted that several unsustainable social trails will result in further soil loss through erosion and gullying.

The impacts to vegetation and soils will decrease native vegetation and vigor, as well as cause further loss of soils. These impacts will cause several sites to be vulnerable to the establishment of noxious and invasive species. Transport of seeds is more likely in this alternative as visitor traveling off-trail will be more likely to collect and carry seed sources on their clothing, equipment, or animals. This decrease of native rangeland productivity, vigor, and fertility coupled with human travel will increase the presence and spread of undesirable noxious and invasive species.

### **3.2.2.2. Cumulative Impacts to Vegetation and Soil, and the Undesirable Spread of Noxious/Invasive Species under Alternative A- No Action:**

As a result of actions taken within the Land Use Plan to protect shrubland/grassland vegetation, it is anticipated that the cumulative impact analysis area (CIAA) will not endure extensive new surface disturbing impacts to shrubland communities. Instead the direct impacts documented above will be additive to impacts from other the past actions. The additive impacts from Alternative A will contribute to a larger trend in the CIAA of reduced native vegetation vigor and increasing noxious and invasive species. Some of the spread of the noxious/invasive will be slowed by the treatment efforts of BLM and Fremont County Weed & Pest District.

### **3.2.3. Impacts to Vegetation and Soil, and the Undesirable Spread of Noxious/Invasive Species under Alternative B:**

#### **3.2.3.1. Direct and Indirect Impacts to Vegetation and Soil, and the Undesirable Spread of Noxious/Invasive Species under Alternative B:**

Alternative B authorizes the construction of the longest distance of new trails resulting in approximately 1 acre of vegetation disturbance in the form of vegetation removal within the construction corridor, as well as reduced water storage capacity and vigor directly adjacent to the trail. This alternative provides visitors the access, connectivity, and experiences they desire and therefore social trailing or off-trail travel is not expected to occur at a measurable magnitude (Widman, 2010). Alternative B authorizes the most initial disturbance but, without projected social trailing, it is expected to have the least amount of total long-term disturbance.

Since Alternative B results in the least amount of social trailing or off-trail travel, it will also have the least amount of disturbance in shrubland/grassland vegetation communities. As such it is anticipated that Alternative B will result in a total of 0.15 acres of disturbance to shrubland/grassland communities, which is an area less than 1/10 of an American football field.

Alternative B will result in the displacement of 176 cubic yards of topsoil due to trail-bed construction activities. Some of the topsoil will be scattered down hill of the construction site, while some of it will be reused to assist with rehab of unused trails and/or located in areas where

it will not impact important shrublands. Alternative B includes specialized planning, design, and installation of a trails which will result least amount of soil loss due to erosion.

Alternative B will cause some sites directly adjacent to the trail to be vulnerable to the establishment of noxious and invasive species. However, since this alternative results in the least amount of off-trail travel and provides users with a path clear of vegetation, collection and transport of seed sources is less likely in this alternative than Alternative A. In addition, treatment of the trail corridor by Fremont County Weed and Pest will be more effective and regular than the social travel areas resulting from Alternative A.

### **3.2.3.2. Cumulative Impacts to Vegetation and Soil, and the Undesirable Spread of Noxious/Invasive Species under Alternative B:**

The cumulative impacts documented for Alternative B will be similar to those documented for Alternative A, except the magnitude of the additive-impact of Alternative B to the CIAA will be less than that from Alternative A.

### **3.2.4. Impacts to Vegetation and Soil, and the Undesirable Spread of Noxious/Invasive Species under Alternative C:**

#### **3.2.4.1. Direct and Indirect Impacts to Vegetation and Soil, and the Undesirable Spread of Noxious/Invasive Species under Alternative C:**

Alternative C authorizes construction of 0.53 miles of new trails resulting in approximately 0.85 acre of initial vegetation disturbance in the form of vegetation removal within the construction corridor, as well as reduced water storage capacity and vigor directly adjacent to the trail. This alternative utilizes the longest distance of existing social trails including some sections of unsustainable trail. Social trailing is expected to occur on either side of three unsustainable section of trail along the interior and the Red Ridge terminus trails. Typically social trailing to avoid rutted, eroded, or muddy trail sections occurs 10 feet either side of a trail (Lezberg 2011), therefore an additional 0.57 acres under Alternative C will receive impacts to vegetation and soils resulting from visitors attempting to circumvent these unsustainable sections.

Alternative C will disturb 0.66 acres shrubland/grassland vegetation communities, which is an area equivalent to 1/2 of an American football field. These areas will demonstrate reduced native vegetation diversity and vigor, as well as increases in less desirable plants and noxious/invasive species. Alternative C disturbs less shrublands than Alternative A, but more then Alternative B.

Alternative C will result in the displacement of 77 cubic yards of topsoil due to trail-bed construction activities. Some of the topsoil will be scattered down-hill of the construction site, while some of it will be reused to assist with rehab of unused trails and/or located in areas where it will not impact important shrublands. Alternative C has some trail sections that will not be established through specialized planning, design, and installation which will result in some soil loss due to erosion.

Alternative C will cause some sites directly adjacent to the trail to be vulnerable to the establishment of noxious and invasive species. Since this alternative will provides users with a path clear of vegetation, seed transport will be less likely in this alternative than Alternative A. In

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*Impacts to Vegetation and Soil, and the Undesirable  
Spread of Noxious/Invasive Species under Alternative  
C:*

addition, treatment of the trail corridor by Fremont County Weed and Pest will be more effective and regular than those social travel areas resulting from Alternative A.

Off-trail travel to avoid unsustainable sections will decrease native vegetation and vigor, as well as cause further loss of soils. These impacts will cause these localized sites to be vulnerable to the establishment of noxious and invasive species. Transport of seeds is less likely in this alternative than Alternative A, but will occur at a higher rate than Alternative B. Visitors who do travel off-trail will be more likely to collect and carry seed sources on their clothing, equipment, or animals than Alternative B. This decrease of native rangeland productivity, vigor, and fertility coupled with human travel will increase the establishment and spread of undesirable noxious and invasive species.

### **3.2.4.2. Cumulative Impacts to Vegetation and Soil, and the Undesirable Spread of Noxious/Invasive Species under Alternative C:**

The cumulative impacts documented for Alternative C will be similar to those documented for Alternative A, except the magnitude of the additive-impact of Alternative C to the CIAA will be substantially less than that from Alternative A, but more than B.

## **3.3. Twin Creek Riparian Resource:**

### **3.3.1. Affected Environment of the Twin Creek Riparian Resource:**

In the JBR area there is a private spring source and wet meadow system that feeds into Twin Creek through a culvert that runs underneath US Highway 287. The Wyoming Department of Environmental Quality found the Twin Creek drainage to have excess sediment, which causes the drainage not to support portions of its DEQ designated use of cold-water game fisheries, non-game fisheries, and aquatic life other than fish.

The spring source is impacted by heavy grazing from domestic livestock, motorized vehicle traffic, and trail users. Each of these uses displace soil into the spring source and reduce soil stabilizing vegetation, which then contributes to sediment loads in Twin Creek. The impacts from trail users is a result of a lack of connectivity between the Johnny-On-Top trail and the main JBR parking lot.

Currently visitors who are trying to connect the JOT trail to the JBR parking lot cross this spring source. This crossing distance is approximately 100 feet. Visitors traveling through this spring source wander in an attempt to cross the saturated soils, in doing so, they increase the amount of sediment in the water system and trample vegetation essential to soil stability.

This existing condition is not in compliance with Land Use Plan which states:

Take appropriate actions to protect all Wyoming surface water designated uses including but not limited to fisheries, aquatic life, drinking water supplies, recreation, and agriculture, and to control all potential causes of impairment.

### **3.3.2. Impacts to the Twin Creek Riparian Resource under Alternative A- No Action:**

#### **3.3.2.1. Direct and Indirect Impacts to the Twin Creek Riparian Resource under Alternative A- No Action:**

As visitor use increases over time it is projected that Alternative A will result in a long-term increase in the amount of sediment being fed into Twin Creek by the private spring source. Visitor use in this wet area will lead to erosion, soil compaction, sedimentation, multiple trails where only one is needed, and unhappy trail users. In addition, travel in saturated soil areas causes problems for users, who then tend to wander in order to avoid water and mud holes. The wandering nature of this use increases the area being damaged. Visitors will disturb soil and trample soil stabilizing vegetation which increasing turbidity. This increase in sedimentation and lack of action to address problems associated with a riparian resource will not comply with the Land Use Plan.

#### **3.3.2.2. Cumulative Impacts to the Twin Creek Riparian Resource under Alternative A- No Action:**

This alternative will increase turbidity and sedimentation in the entire CIAA.

### **3.3.3. Impacts to the Twin Creek Riparian Resource under Alternative B:**

#### **3.3.3.1. Direct and Indirect Impacts to the Twin Creek Riparian Resource under Alternative B:**

By connecting the JOT trail to the JBR parking lot this alternative will reduce the amount of visitor use across the private spring source which will result in a reduced amount of sediment being carried into Twin Creek. As a result this alternative will have a beneficial impact to the Twin Creek riparian resource. The spring source will continue to contribute sediment into Twin Creek as a result of the other uses (documented in the affected environment) that are not within BLM's control.

#### **3.3.3.2. Cumulative Impacts to the Twin Creek Riparian Resource under Alternative B:**

This alternative result in no net increase in turbidity and sedimentation in the CIAA.

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*Impacts to the Twin Creek Riparian Resource under  
Alternative A- No Action:*

### 3.3.4. Impacts to the Twin Creek Riparian Resource under Alternative C:

#### 3.3.4.1. Direct and Indirect Impacts to the Twin Creek Riparian Resource under Alternative B:

The beneficial impacts to the Twin Creek Riparian resource will be the same under Alternative C as those detailed for Alternative B.

#### 3.3.4.2. Cumulative Impacts to the Twin Creek Riparian Resource under Alternative C:

The cumulative impacts to the Twin Creek Riparian resource will be the same under Alternative C as those detailed for Alternative B.

### 3.4. Wildlife (including special status species):

#### 3.4.1. Affected Environment:

The JBR area is home to numerous wildlife species including big game, small mammals, songbirds, and reptiles. Species utilizing the area are typically sagebrush or juniper obligates. The species and their habitat most likely to be affected by this action are contained in the table below:

**Table 3.2. Affected Wildlife Species and Associated Habitats**

Name	Affected Habitat Description
Pronghorn Antelope	<p>The JBR area provides year long habitat for pronghorn antelope. Antelope typically prefer flat to gentle rolling topography, but also sometimes occupy areas with an intermixing of ridges and drainages. Since antelope count on their eye-sight and extreme speed burst to elude predation, the shrublands of JBR provide both cover and foraging habitat. In contrast the juniper rocklands are avoided in most circumstances, but may be used as transition areas.</p> <p>Studies in Wyoming indicate that big sagebrush (<i>Artemisia tridentata</i>) occupies up to 90% of the diet of wintering pronghorn antelope. During summer the pronghorn diet becomes more balanced with a mix of rabbit brush (<i>Chrysothamnus sp.</i>) , big sagebrush, and other grasses and forbs. (Cook, 2002)</p>
Mule Deer	<p>The JBR area provides year long and crucial winter habitat for mule deer. Mule deer utilize the cliff bands and juniper thickets of JBR for thermal cover both for shade from the hot summer sun and escape from the cold winter temperature. In contrast the shrublands of JBR provide important foraging habitat.</p> <p>Studies conducted in Wyoming indicate that the following plants (occurring at JBR) are especially important to mule deer in winter: sagebrush (<i>Artemisia spp.</i>), antelope bitterbrush (<i>Purshia tridentata</i>), and rabbitbrush (<i>Chrysothamnus sp.</i>) Conversely shrubby cinquefoil (<i>Potentilla fruitcosa</i>) and a variety of forbs are important to mule deer during the summer. (Olson, 1992)</p>
<b>Special Status</b>	
Ferruginous Hawk	Ferruginous hawks hunt prey that occupy basin-prairie shrubs and grasslands. Rock outcrops provide perching and nesting habitat for this sensitive species.

Sage-brush obligates: Greater Sage-grouse Sage Thrasher Loggerhead Shrike Sage Sparrow Brewer's Sparrow Pygmy rabbit	The four bird species occupy basin-prairie shrubs. While the pygmy rabbit will also occupy the basin-prairie and riparian shrubs. These areas provide breeding, foraging, and cover habitat for these species. As discussed earlier in the document the areas affected by the alternatives are not considered suitable sage-grouse habitat. However, the JBR area may provide some occasional transition habitat for these birds.
Other Migratory Birds	Migratory birds occupy a myriad of habitat types but those potentially affected in the JBR area are those who occupy basin-prairie shrub species.
Special Status Plant: Fremont Bladderpod Rocky Mountain Twinpod	The Fremont Bladderpod prefers rocky limestone slopes and ridges between 7000' - 9,000' in elevation.  The Rocky Mountain Twinpod prefers sparsely vegetated, rocky slopes of limestone, sandstone or clay between 5,600' - 8,300' in elevation

The wildlife of JBR is very dependent upon the shrubland/grassland vegetation communities, and therefore a disturbance in these communities constitutes a direct adverse impact to wildlife habitat. Some existing habitat disturbances in the JBR area include: constructed trails, user created trails, roads, noxious/invasive weeds, livestock grazing and trailing, and reclaimed oil and gas.

Over the last 5 years visitation to JBR has increased the instances of wildlife disruptions from visitors has also increased. Wildlife can be disrupted by visitors if they encounter, hear, or smell recreational users. These disruptions tend to spike with the heavier use season of JBR in the spring and fall. Life cycle disruptions also occur during the winter months but at a much lower rate than the high visitor use seasons. It is anticipated that these disruptions may cause wildlife to displace to areas away from a trail or parking lot.

### 3.4.2. Impacts to Wildlife under All Alternatives:

Under all alternatives visitors will continue to disrupt the life-cycles of the affected wildlife species. These disruptions are more likely in Alternative A than B or C because in Alternative A visitors will be more likely to wander off-trail and into places where wildlife might go to avoid users and/or habitats that were intended for avoidance, such as known breeding, birthing, or nesting sites. Under all alternatives these disruptions will continue to occur primarily in the spring and fall of each year.

Wildlife responses to disturbance can be categorized as active or passive. The active response is typically manifested as an increase in body functions such as heart rate, blood flow, and metabolism. In contrast the passive response is reflected in decreased activity in order to avoid detection. Each of these responses place extra stress on wildlife and can reduce survival, birth rates, and/or overall physical health of the impacted wildlife species. (Weir, 2000)

### **3.4.3. Impacts to Wildlife under Alternative A:**

#### **3.4.3.1. Direct and Indirect Impacts to Wildlife under Alternative A:**

While Alternative A does not authorize new disturbance it is anticipated that social trailing as a result of a lack of logical trail connections will occur. As such the Alternative will indirectly result in a disturbance of approximately an area greater than 0.66 acres of important ungulate (mule deer and antelope), sagebrush obligate, and migratory bird habitat. This disturbance is further characterized in see Section 3.2.2.1, “Direct and Indirect Impacts to Vegetation and Soil, and the Undesirable Spread of Noxious/Invasive Species under Alternative A- No Action:” (p. 22). Habitat disturbances cause individual and species displacement, social disruption, habitat avoidance, direct and indirect mortality, and population effects.

In addition, the greater amount of social trailing and off-trail travel, the greater the potential for negative impacts to special status plants species. Especially when travel occurs in areas of suitable habitat.

The habitat impacts of Alternative A are not expected to be widespread enough to result in measurable population effects to the wildlife of Johnny Behind the Rocks. However, this alternative will result in an increased likelihood of animal displacement and habitat fragmentation.

#### **3.4.3.2. Cumulative Impacts to Wildlife under Alternative A:**

The cumulative impacts documented in Section 3.2.2.2, “Cumulative Impacts to Vegetation and Soil, and the Undesirable Spread of Noxious/Invasive Species under Alternative A- No Action:” (p. 23) adequately qualify the Cumulative Impact to wildlife habitat within the CIAA. The small yet additive loss of habitat from this alternative will primarily impact mule deer, pronghorn antelope, sagebrush obligates, and migratory birds at the individual (not population) level.

### **3.4.4. Impacts to Wildlife under Alternative B:**

#### **3.4.4.1. Direct and Indirect Impacts to Wildlife under Alternative B:**

As a result of authorized trail building, Alternative B will disturb approximately 0.15 acres of important ungulate (mule deer and antelope), sagebrush obligate, and migratory bird habitat. The total disturbance from alternative B is assumed to be less than alternatives A or C because it is predicted that off-trail travel will not occur at a rate that will cause braiding or social trails. The total disturbance is further characterized in Section 3.2.3, “Impacts to Vegetation and Soil, and the Undesirable Spread of Noxious/Invasive Species under Alternative B:” (p. 23).

The habitat impacts of alternative B are not expected to be widespread enough to result in measurable population effects to the wildlife of Johnny Behind the Rocks. Importantly, since Alternative B reduces the potential for off-trail travel it will have a higher potential to protect sensitive plant species than Alternative A. This alternative will result in a slight increase in the likelihood of animal displacement and habitat fragmentation.

### **3.4.4.2. Cumulative Impacts to Wildlife under Alternative B:**

The cumulative impacts documented in Section 3.2.3.1, “Direct and Indirect Impacts to Vegetation and Soil, and the Undesirable Spread of Noxious/Invasive Species under Alternative B:” (p. 23) adequately qualify the Cumulative Impact to wildlife habitat within the CIAA. The small yet additive loss of habitat from this alternative will primarily impact mule deer, pronghorn antelope, sagebrush obligates, and migratory birds at the individual (not population) level.

### **3.4.5. Impacts to Wildlife Under Alternative C:**

#### **3.4.5.1. Direct and Indirect Impacts to Wildlife Under Alternative C:**

As a result of authorized trail building and some off-trail travel to avoid unsustainable trail sections, Alternative C will disturb approximately 0.66 acres of important ungulate (mule deer and antelope), sagebrush obligate, and migratory bird habitat; which is less than alternatives A but more than Alternative B. This disturbance is further characterized in Section 3.2.4, “Impacts to Vegetation and Soil, and the Undesirable Spread of Noxious/Invasive Species under Alternative C:” (p. 24).

The habitat impacts of Alternative C are not expected to be widespread enough to result in measurable population effects to the wildlife of Johnny Behind the Rocks. Importantly, since Alternative C reduces the potential for off-trail travel it will have a higher potential to protect sensitive plant species than Alternative A but less so than Alternative B. However, this alternative will result in some a slight increase in the likelihood of animal displacement and habitat fragmentation. .

#### **3.4.5.2. Cumulative Impacts to Wildlife Under Alternative C**

The cumulative impacts documented in Section 3.2.4.2, “Cumulative Impacts to Vegetation and Soil, and the Undesirable Spread of Noxious/Invasive Species under Alternative C:” (p. ) adequately qualify the Cumulative Impact to wildlife habitat within the CIAA. The small yet additive loss of habitat from this alternative will primarily impact mule deer, pronghorn antelope, sagebrush obligates, and migratory birds at the individual (not population) level.

## **3.5. Cultural Resources and Tribal and Native American Religious Concerns:**

### **3.5.1. Description of Affected Cultural Resources and Tribal and Native American Religious Concerns:**

Class III intensive cultural resource inventories for the project areas were conducted by BLM archaeologists in the Spring/Summer of 2013 covering a total of 20.6 acres . The inventory areas were inspected on foot with field personnel covering a corridor of 100 feet from the proposed trail centerlines.

The Class III inventories identified cultural resources within the project areas, including ones eligible for inclusion on the National Register of Historic Places (NRHP). National Register

properties have significance to the history of their community, the state, or the nation. Cultural resources that occur within the project area include: prehistoric lithic scatters, camps, religious sites, and historic ranches.

All of the sites are described in full detail in the 2014 cultural survey report (Hazen-McCreary, 2014) which is on file with the BLM Lander Field Office. These sites are summarized in Table Below:

**Table 3.3. Cultural Sites in the Area of Potential Effect**

Site Number	Site Type	NRHP Eligibility
48FR3651	Prehistoric Site	Eligible
48FR3751		
48FR2359	Prehistoric and Historic Site	Destroyed
48FR7019		
48FR7209	Prehistoric Site	Eligible
48FR7467		
48FR468		

On 8/28/2013 and 9/6/2013 the BLM and tribal representatives from the Shoshone and Arapaho Tribes visited the project areas. The purpose of the consultation was to obtain tribal input about the project and identify sites of religious or cultural significance that may exist within the project area. Two sites were identified by the tribal representatives as having cultural and religious significance.

### **3.5.2. Impacts to Cultural Resources and Tribal and Native American Religious Concerns Under Alternative A- No Action:**

#### **3.5.2.1. Direct and Indirect Impacts to Cultural Resources and Tribal and Native American Religious Concerns Under Alternative A- No Action:**

Direct impacts to cultural resources from this alternative may include disturbance of previously undetected, buried, cultural resources through social trailing activities and or illegal collection/vandalism. Alternative A increase visitor presence across 144 acres which may result in an opportunity for illegal collection of cultural artifacts, vandalism/damage to sites, and/or looting of cultural properties. However, under the No Action Alternative, construction would not occur and therefore the no effect on cultural resources would be expected to occur beyond those resulting from wandering visitors and social trail.

#### **3.5.2.2. Cumulative Impacts to Cultural Resources and Tribal and Native American Religious Concerns Under Alternative A- No Action:**

No cumulative impacts are expected as a result of this Altalternative.

### **3.5.3. Impacts to Cultural Resources and Tribal and Native American Religious Concerns Under Alternative B:**

#### **3.5.3.1. Direct and Indirect Impacts to Cultural Resources and Tribal and Native American Religious Concerns Under Alternative B:**

Significant cultural properties are located within the area. Tribal representatives have expressed concern that the trail layout proposed under Alternative B for the JOT connector would encroach upon sites of religious and cultural significance. As such, this alternative would affect the aspects of integrity for which the cultural resources were deemed eligible for inclusion to the National Register of Historic Places (NRHP). As a result of the above, this alternative will result in a finding of Adverse Effect to significant cultural resources.

#### **3.5.3.2. Cumulative Impacts to Cultural Resources and Tribal and Native American Religious Concerns Under Alternative B:**

This alternative would incrementally add to the number of religious and cultural sites with unnatural visual and auditory impacts. The CIAA has an unknown amount of site eligible for inclusion to the NRHP, these sites continue to be impacted by motorized vehicle use, livestock grazing, and other unmitigated impacts. This alternative incrementally adds to the number of eligible sites adversely affected by human caused variables. These continued adverse effects will slowly degrade the quality and quantity of sites eligible for the inclusion to the NRHP within the CIAA.

### **3.5.4. Impacts to Cultural Resources and Tribal and Native American Religious Concerns Under Alternative C:**

#### **3.5.4.1. Direct and Indirect Impacts to Cultural Resources and Tribal and Native American Religious Concerns Under Alternative C:**

Alternative C proposes the least amount of surface disturbance and utilizes the existing disturbance for the longest amount of time. Maximizing the use of existing disturbance would lessen the chances of encountering previously undetected buried cultural deposits through construction activities.

Tribal Representatives felt that the trail layout proposed under Alternative C for the JOT trail would adequately buffer sensitive cultural resources from potential adverse impacts. The JOT connector proposed for this alternative maintains an appropriate level of avoidance from known significant cultural resources and adequately protects the aspects of integrity that contribute to the eligibility of the sites for inclusion in the NRHP. This Alternative, in conjunction with the Decisions Common to All outlined previously in this EA, would create a finding of No Adverse Effect to significant cultural resources.

### **3.5.4.2. Cumulative Impacts to Cultural Resources and Tribal and Native American Religious Concerns Under Alternative C:**

Since this alternative has negligible direct impacts to cultural resources, there will be no cumulative impacts to the CIAA as a result of this alternative.

## **3.6. Recreation Opportunities and Visitor Services**

### **3.6.1. Description of Affected Recreation Opportunities and Visitor Services:**

For a more in-depth discussion of the existing recreation opportunities and visitor services see the following sections of this document: Section 1.1, “ Purpose (objectives) of Action:” (p. 1) and Section 1.2, “Underlying Need for Action: ” (p. 1).

Purpose built trails are defined as trails that are constructed to provide specific connectivity, recreation experience, and or access. With the exception of the Red Ridge Trail and the Johnny-on-Top trail most of the current trail system at Johnny Behind the Rocks is not purpose-built. Rather the majority of the trail system has formed around two-tracks, cowpaths, and social trails.

As a result of the lack of purpose built trails, visitors and partners have indicated a need for more constructed singletrack trails built to challenge users skills while also connecting key use areas. Therefore it is assumed that visitor satisfaction with the current system could be improved with an increase in purpose built trails.

Over the last 5 years any and all surface disturbance to support non-motorized trails in the Johnny Behind the Rocks area has been focused at creating sustainable trails. In terms of non-motoirzed trails, sustainability means:

“...creating and maintaining trails that are going to be here for a long time. Trails with tread that won’t be eroded away by water and use. Tralis that won’t affect water quality or the natural ecosystem. Trails that meet the needs of intended users and provide a positive user experience....” (USDA 2007)

A literature review (USDA, 2007; IMBA 2007; Parker 2004) and BLM’s experience in the Johnny Behind the Rocks area finds that typically trails are constructed in a sustainable manner if the trail meets all of the following guidelines:

#### **Guidelines for a Sustainable Non-motorized Trail**

- Has a 5% outsloped tread
- Has an average grades between 5–10%
- Contains frequent grade reversals
- Traverses along a sideslope
- Has a trail tread that does not exceeds half the side-slope

- Adapts to soil texture
- Prevents off trail travel by using natural anchors, edges, and gateways to keep users on trail
- Harmonizes with the landscape
- Is playful with the surrounding landscape
- Allows users to move efficiently through a landscape
- Provides for a level of safety commensurate with the trails difficulty rating
- Provides logical connections within the greater system
- Provides access to areas or terrain features that users desire

Trails that meet these guidelines provide for a trail tread that resist erosive factors, eliminates the need for off-trail travel, all while providing for the users in a manner that causes the trail to be a part of the destination.

Most of the trails in the JBR area demonstrate these principles, however, as discussed through-out this document the trails that are being addressed as part of this EA do not meet all of these principles and are not sustainable. For a specific discussion as to why the Johnny-On-Top and Red Ridge trail do not meet these principles see Section 1.2, “Underlying Need for Action: ” (p. 1).

### **3.6.2. Impacts to Recreation and Visitor Services Under Alternative A:**

#### **3.6.2.1. Direct and Indirect Impacts to Recreation Opportunities and Visitor Services Under Alternative A:**

Since this alternative does not result in new purpose-built trails nor adds trails to the existing system it is predicted that visitor satisfaction with this Alternative will be low. The JOT and Red Ridge trail will continue to not provide logical connectivity, access, nor experience visitors desire. As a result visitors will continue to wander and create unsustainable social trails in all of the areas of concern. This Alternative will not make progress towards objectives 1–3 as outlined in Section 1.1, “ Purpose (objectives) of Action:” (p. 1) and is therefore considered to not be in compliance with the Land Use Plan, see Section 1.3, “ Conformance of the Project to the BLM Land Use Plan(s):” (p. 2).

### **3.6.3. Impacts to Recreation Opportunities and Visitor Services Under Alternative B:**

#### **3.6.3.1. Direct and Indirect Impacts to Recreation Opportunities and Visitor Services Under Alternative A:**

Alternative B adds 1.2 miles of new purpose-built trail and adds a total of 1.68 miles to the existing JBR trail network. This alternative maximizes the use of the landscape features in order to create ideal sustainable trails that provide visitors with the access, connectivity, and experience

they desire from the Red Ridge and JOT trail. As such, it is predicted that visitor satisfaction with the implementation of this alternative will be high.

Visitors will naturally want to stay on the trails Red Ridge and JOT trails because the new connector trails will provide for the visitors motivations for being traveling to JBR. In addition, this alternative maximizes the use of natural anchors, edges, and gateways in a manner that forces visitors to stay on the trail.

As a result of the above, Alternative B is expected to make the most progress towards objectives 1–3 as outline in Section 1.1, “ Purpose (objectives) of Action:” (p. 1).

### **3.6.4. Impacts to Recreation Opportunities and Visitor Services Under Alternative C:**

#### **3.6.4.1. Direct and Indirect Impacts to Recreation Opportunities and Visitor Services Under Alternative C:**

Alternative C adds 0.53 miles of purpose-built trail and adds a total of 1.43 miles of trail to the existing JBR trail network. This alternative maximizes the use of existing disturbances in order to reduce new surface disturbance, but also provide for trail connectivity in all of the areas of concern. The impacts of this alternative to recreation opportunities and visitor services varies by the area of concern.

In the JOT terminus area this alternative provides for a trail layout that meets all sustainable trail principles. Therefore, the beneficial impacts of this trail layout will be similar to those detailed for Alternative B.

The impacts of Alternative C varies from Alternative B primarily due to the trail layout proposed for the interior and the red ridge terminus area. In these locations the proposed layout utilizes existing unsustainable sections of trail as well as portions of two-track roads that do not provide for the access and experience users desire. Additionally users will be not enjoy their trail experience in areas where the trail is forced down two-track roads that are too steep and sandy to provide for desired efficiencies and/or lack harmony with surrounding landscape due to the width and unnatural straightness of the road.

These negative impacts to recreation opportunities and visitor services as a result of alternative C will occur in localized areas and for short periods of the users trail experience. As a result it is predicted that users will travel off-trail 10 feet either side of 2 unsustainable sections of trail in the interior and red ridge terminus areas. For these reasons, user satisfaction with the implementation of this alternative is expected to be higher then Alternative A, but lower then Alternative B.

As a result of the impacts documented above this Alternative is expected to make more progress towards objectives 1–3 as outlined in Section 1.1, “ Purpose (objectives) of Action:” (p. 1) then Alternative A, but will not be as effective as Alternative B.

## **3.7. Description of Affected Visitor Health and Safety**

### **3.7.1. Affected Visitor Health and Safety**

As discussed in Section 1.2, “Underlying Need for Action: ” (p. 1), the main visitor health and safety issue occurring at JBR is the use of the Highway by pedestrians attempting to return to the JBR parking lot from the JOT terminus. This situation exposes visitors to the potential to be hit by vehicles or debris kicked up by passing vehicles. In addition, the likelihood highway traffic getting into an accident is increased as vehicle operators become distracted by the pedestrian traffic.

### **3.7.2. Impacts to Visitor Health and Safety under Alternative A:**

#### **3.7.2.1. Indirect and Direct Impacts to Visitor Health and Safety under Alternative A:**

Alternative A will result in the continued exposure of pedestrian or non-motorized traffic to highway traffic. Over-time as use increases at JBR so too will the likelihood of injury and or property damage. Injuries, death, and/or property damage could occur to both pedestrian and motorized vehicle operators. As a result this Alternative will not make progress towards objective 4 as outlined in Section 1.1, “ Purpose (objectives) of Action:” (p. 1) and is therefore considered to not be in compliance with the Land Use Plan, see Section 1.3, “ Conformance of the Project to the BLM Land Use Plan(s):” (p. 2).

### **3.7.3. Impacts to Visitor Health and Safety under Alternative B:**

#### **3.7.3.1. Indirect and Direct Impacts to Visitor Health and Safety under Alternative B:**

Alternative B will provide a trail that connects the JOT trail with the main JBR parking-lot. In doing so, it is anticipated that visitors will not continue to travel the highway corridor thus alleviating the visitor health and safety problems associated with mixing pedestrian traffic with highway traffic. Therefore, this alternative makes progress towards objective 4 as outlined in Section 1.1, “ Purpose (objectives) of Action:” (p. 1).

### **3.7.4. Impacts to Visitor Health and Safety under Alternative C:**

#### **3.7.4.1. Indirect and Direct Impacts to Visitor Health and Safety under Alternative C:**

The impacts to Visitor Health and Safety under Alternative C will be the same as those documented for Alternative B.

## **3.8. Access**

### **3.8.1. Description of Affected Access**

As discussed in Section 1.2, “Underlying Need for Action: ” (p. 1), the main access issue occurring at JBR is the use of private land by trail users attempting to return to the JBR parking lot from the JOT terminus. This situation exposes private landowners to unintentional trespass from unknowing trail users. Approximately 2 miles of travel is currently occurs across private land. Most of the travel across private land occurs on existing two-tracks, however, some travel does occur off-trail. The impacts from off-trail travel is discussed in the Section 3.3.1, “Affected Environment of the Twin Creek Riparian Resource:” (p. 25)

### **3.8.2. Impacts to Access under Alternative A:**

#### **3.8.2.1. Indirect and Direct Impacts to Access under Alternative A:**

Alternative A will not connect the JOT trail to the main JBR parking lot. As such, visitors will continue to trespass on private lands; this amount of use will increase as JBR becomes more popular among trail users. Conflicts between trail users and adjacent private landowners could occur if these landowners express desires to restrict access or preclude the use of the private property. This condition will not make progress towards objective 4 as outlined in Section 1.1, “ Purpose (objectives) of Action:” (p. 1) and is therefore considered to not be in compliance with the Land Use Plan, see Section 1.3, “ Conformance of the Project to the BLM Land Use Plan(s):” (p. 2).

### **3.8.3. Impacts to Access under Alternative B:**

#### **3.8.3.1. Indirect and Direct Impacts to Access under Alternative B:**

Alternative B will connect the JOT trail to the main JBR parking lot. As such, the amount of use on private land will be drastically reduced. Some use may still occur, but the system will not depend on the private land for critical connections. In addition, this alternative will eliminate all need for off-trail travel across private land. This alternative does make substantial progress towards objective 4 as outlined in Section 1.1, “ Purpose (objectives) of Action:” (p. 1).

### **3.8.4. Impacts to Access under Alternative C:**

#### **3.8.4.1. Indirect and Direct Impacts to Access under Alternative C:**

The impacts to Access under Alternative C will be the same as those documented for Alternative B.

## **3.9. Unavoidable Adverse Impacts (All Resources):**

NEPA section 102(c) mandates disclosure of “any adverse environmental effects which cannot be avoided should the proposal be implemented.” These are impacts for which there are no

mitigation measures or impacts that remain even after the implementation of mitigation measures. Implementation of the Proposed Action would result in unavoidable adverse impacts to some resources.

The CEQ 40 CFR 1500.2(e) defines unavoidable adverse impacts as those that cannot be avoided due to constraints in alternatives. These impacts do not have to be avoided by the planning agency, but they must be disclosed, discussed, and mitigated, if possible.

In general, development and surface disturbing activities, including those from mineral extraction and energy development, would result in unavoidable adverse impacts, including soil compaction and erosion, loss of vegetative cover, spread of INNS, disturbance to and displacement of wildlife, and visual intrusions on the landscape. Conversely, proposed restrictions on some activities, such as OHV use, energy development and livestock grazing, intended to protect sensitive resources and resource values, would result in unavoidable adverse impacts to some users, operators and permittees by limiting their ability to use public lands and potentially increasing their operating costs.

### **3.9.1. Unavoidable Adverse Impacts Under Alternative A- No Action:**

- Continued trampling and social trailing across 148 acres
- Reduced production and vigor of an area greater than 0.66 acres of shrublands
- Disturbance, compaction and displacement of soil across 148 acres
- Increased sedimentation into the Twin Creek riparian resource
- Continued disturbance of approximately 44 acres of important ungulate (mule deer and antelope), Sagebrush Obligate, and migratory bird habitat
- Continued travel into potential special status plat habitat
- Continued disruptions to the life-cycles of various wildlife species
- Continued travel by visitor within close proximity of three cultural sites
- Continuing potential for illegal vandalism, collection, and/or damage of cultural resources
- Lack of trail network connectivity causing unsatisfied users more likely to travel off-trail
- Continued social trailing and off-trail travel
- Continued visitor exposure to safety hazards
- Two miles of continued unauthorized trail travel.

### **3.9.2. Unavoidable Adverse Impacts Under Alternative B:**

- Permanent disturbance of 1 acre (including 0.15 acres of shrublands) in order to maintain and construct a trail to sustainable trail specification.

*Chapter 3 Affected Environment and Environmental  
Consequences*

*Unavoidable Adverse Impacts Under Alternative A-  
No Action:*

- Disturbance of approximately 0.15 acres of important ungulate (mule deer and antelope), sagebrush obligate, and migratory bird habitat
- Continued disruptions to the life-cycles of various wildlife species
- Permanent displacement and removal of 176 cubic yards of soil
- Continuing potential for illegal vandalism/collection of cultural resources
- Trail use passing within a close enough distance to compromise spiritual value and integrity of a cultural site in the JOT area.

### **3.9.3. Unavoidable Adverse Impacts Under Alternative C:**

- Permanent disturbance of 1.42 acre (including 0.66 acres of shrublands) in order to maintain and construct a trails, as well as a result of social trailing around unsustainable sections.
- Disturbance of approximately .66 acres of important ungulate (mule deer and antelope), Sagebrush Obligate, and migratory bird habitat
- Continued disruptions to the life-cycles of various willdife species
- Permanent displacement and removal of 77 cubic yards of soil
- Continuing potential for illegal vandalism/collection of cultural resources
- Continued social trailing and off-trail travel to avoid unsustainable trail sections in the interior trail and red ridge terminus area.

## **3.10. Relationship of Short-Term Uses and Long-Term Productivity (All Resources):**

The CEQ establishes (40 CFR 1502.16) that the balance or trade-off between short-term uses and long-term productivity needs to be defined in relation to the activity in question. The decision maker and members of the public need a clear sense of what they are gaining or losing in both the short and long-term. For the purpose of this analysis, the short-term is considered three to five years, whereas the long-term is 20+ years.

### **3.10.1. Relationship of Short-Term Uses and Long-Term Productivity Under Alternative A- No Action:**

The short-term uses of the environment as a result of this alternative include those typically found when land management agencies do not actively manage public use of a site. In the short-term impacts to natural resources seem minimal, as no change occurs. However, overtime impacts will increase and move to undesirable locations. The short-term benefit of avoiding new soil and vegetation disturbance will be offset in the long-term by continued and growing user created impacts and disturbances.

### **3.10.2. Relationship of Short-Term Uses and Long-Term Productivity Under Alternative B:**

The short-term uses of the environment as a result of this alternative include those typically found with recreation facility development. Short-term impacts associated with construction activities are described elsewhere in Chapter 3 (environmental consequences) and include effects to the natural and cultural resources. These can be compared to the long-term benefits of the alternative which include decreased off-trail use and improved visitor experiences and safety. In addition, the alternative limits long-term disturbances to vegetation and soil resources in the immediate area of the trail, which will, in turn, benefit the long-term productivity of the areas outside the trail corridor.

### **3.10.3. Relationship of Short-Term Uses and Long-Term Productivity Under Alternative C:**

The short-term uses of the environment as a result of the proposed action include those typically found with recreation facility development. However, since this alternative seeks to locate trails on existing disturbances short-term disturbance amounts associated with this alternative are similar to those described for alternative A. The impacts to long-term productivity under this alternative will resemble Alternative A in the interior and red ridge terminus areas. Where off-trail use will continue to impact vegetation productivity. In the JOT area the long-term productivity will more resemble alternative B where off-trail use is decreased and visitor experiences and safety are improved.

## **3.11. Irreversible and Irretrievable Commitments of Resources (All):**

NEPA Section 102(2c) and Section 1502.16 of the CEQ NEPA implementing regulations require that the discussion of environmental consequences include a description of, “any irreversible or irretrievable commitment of resources which would be involved in the proposal should it be implemented.”

Irreversible commitments are those that cannot be reversed, except perhaps in the extreme long term. Examples of irreversible impacts would be species extinction, ore extraction, and logging of an old growth forest.

Irretrievable commitments are those that are lost for a long period of time. Extraction of oil, gas, sand or gravel would constitute irretrievable impacts because these salable minerals cannot be renewed in the ground within a reasonable time frame.

Impacts from some actions can be both irreversible and irretrievable for some resources. Management actions most likely to result in irreversible and/or irretrievable impacts include those related to development and surface disturbance such as mineral extraction and energy development

### 3.11.1. Irreversible and Irretrievable Commitments of Resources Under Alternative A- No Action:

**Table 3.4. Irreversible and Irretrievable Commitments of Resources Under Alternative A- No Action**

Affected Resource	Irreversible Commitment	Irretrievable Commitment
Vegetation and Soil, and the Undesirable Spread of Noxious/Invasive Species	No	No
Twin Creek Riparian Resource	No	No
Wildlife	No	No
Cultural Resources and Tribal and Native American Religious Concerns	No	No
Recreation Opportunities and Visitor Services	No	No
Visitor Health and Safety	No	No
Access	No	No

### 3.11.2. Irreversible and Irretrievable Commitments of Resources Under Alternative B:

**Table 3.5. Irreversible and Irretrievable Commitments of Resources Under Alternative B**

Affected Resource	Irreversible Commitment	Irretrievable Commitment
Vegetation and Soil, and the Undesirable Spread of Noxious/Invasive Species	No	No
Twin Creek Riparian Resource	No	No
Wildlife	No	No
Cultural Resources and Tribal and Native American Religious Concerns	No	No
Recreation Opportunities and Visitor Services	No	No
Visitor Health and Safety	No	No
Access	No	No

### 3.11.3. Irreversible and Irretrievable Commitments of Resources Under Alternative C:

The irreversible and irretrievable commitments of resources under Alternative C will be the same as those documented for Alternative B.

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# **Chapter 4. Consultation and Coordination**

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## 4.1. Persons, Groups, and Agencies Consulted:

**Table 4.1. List of Preparers**

Name	Title	Responsible for the Following Section(s) of this Document
Jared Oakleaf	Outdoor Recreation Plannert	Author
Sue Oberlie	Wildlife Biologist	Wildlife
Krystal Hazen-McCreary	Archeologist	Cultural and Paleontological
Tanya Skurski	Botanist	Special Status Plants
Jeremy Artery	Weed Specialist	Vegetation
Kristin Yannone	Planning and Environmental Coordinator	Writer Editor

## 4.2. Summary of Public Participation:

There was no public scoping or involvement process applied to this action apart from posting the Environmental Assessment on the BLM NEPA Register. However, this EA will be available for public comment for a 15 day period.

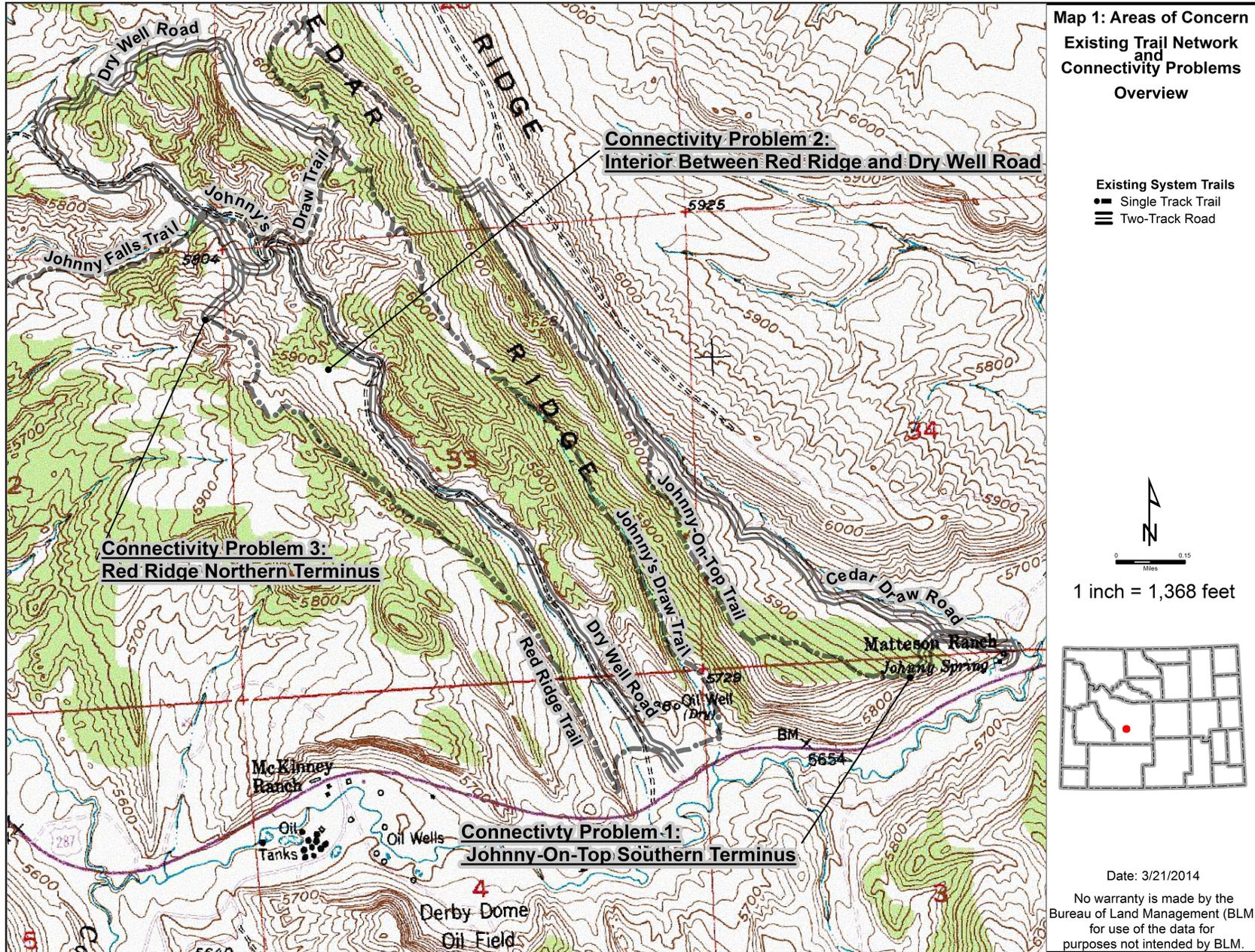
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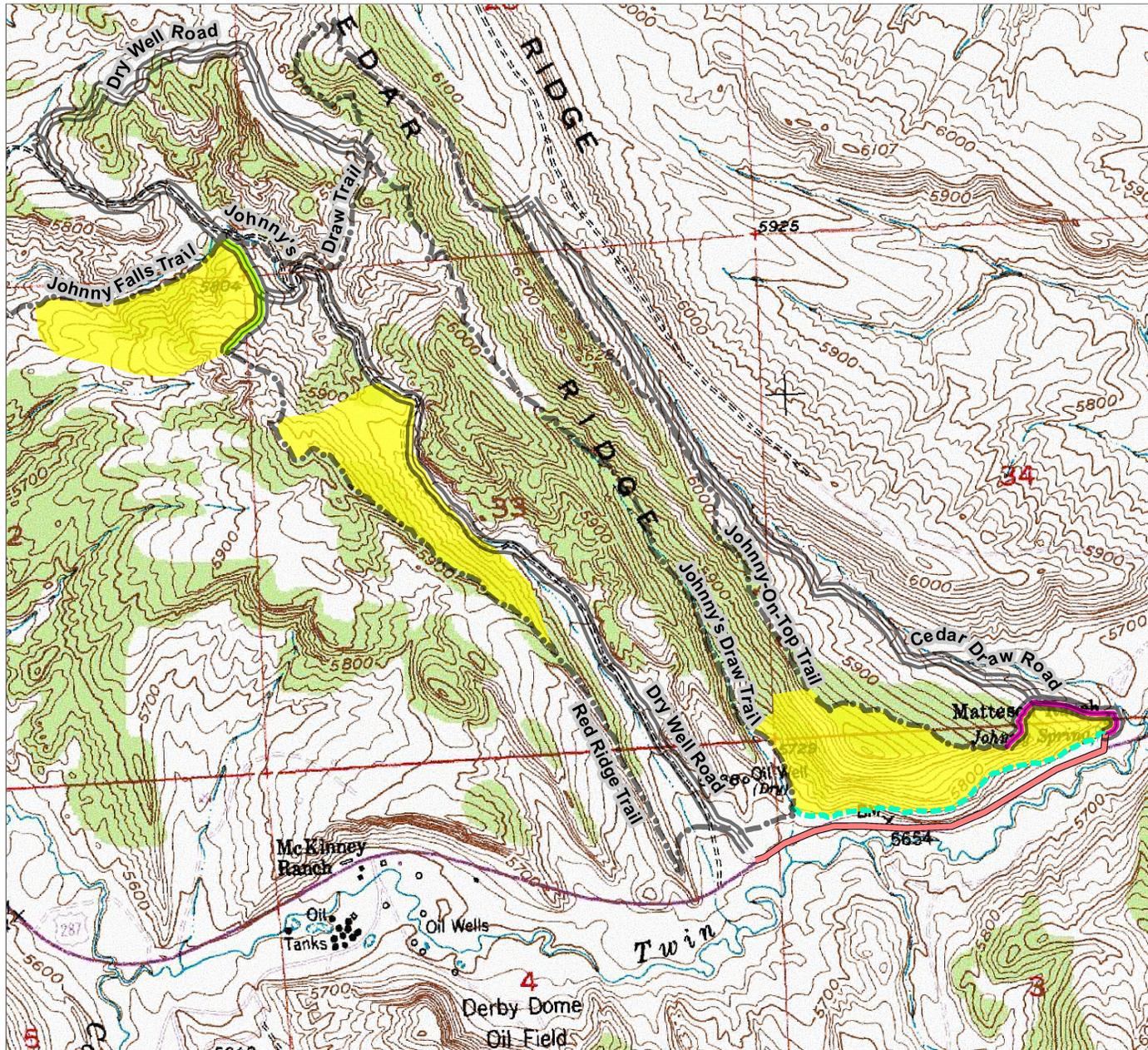
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# Appendix A.



Map A.1. Areas of Concern

**Map 2: No Action Alternative  
Informal Travel Routes  
and  
Predicted Social Travel Areas  
Alternative A**



Appendix A

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# Appendix B. Affected Resources

## B.1. Affected Resources

### B.1.1. Project Information

Description: Project and alternatives as described in Chapter 2 of this Document.

DETERMINATION OF STAFF: (Choose one of the following abbreviated options for the left column)

- NP = not present in the area impacted by the proposed or alternative actions
  - NI = present, but not affected to a degree that detailed analysis is required
  - PI = present with potential for relevant impact that need to be analyzed in detail in the EA
- 

**Table B.1. Affected Resources Form**

Determination	Resource	Rationale for Determination
<b>Physical Resources</b>		
NI	Air Quality and Greenhouse Gas Emissions	The project does not authorize actions that will contribute to new emissions.
PI	Soils	A variable amount of soil will be impacted by each alternative. In addition, the type of soil within the project area represents a design limitation. This will be discussed in a section entitled general impacts .
PI	Water Resources/Quality (drinking/surface/ground)	The discussion of impacts to water resources will be linked with the discussion of impact of Riparian—wetland areas.
NP	Lands with Wilderness Characteristics	The project does not propose surface disturbance within or in view of an area with wilderness character.
<b>Mineral Resources</b>		
NI	Geology / Mineral Resources/Energy Production	The Lander Land Use Plan restricts actions associated with the extraction of mineral resources within the area. Therefore the action analyzed within this EA do not increase the potential for conflicts between mineral resource extraction and recreation.
<b>Fire and Fuels Management</b>		
NI	Fuels/Fire Management	The project does not authorize activities that will change or alter fuels/fire management strategies.
<b>Biological Resources</b>		
PI	Vegetation Excluding Federally Listed Species	A variable amount of vegetation will be impacted by each alternative. This will be discussed in under the heading: vegetation and soil, and invasive/noxious species.
NI	Forest, Woodlands, and Aspen Communities	The project does not propose disturbance of woodlands or forests. A small amount of junipers may be removed or pruned to support the alternatives. Several Juniper removal treatments have occurred in the JBR area, therefore the small amount proposed for removal or pruning will not conflict with woodland and forestry objectives.

PI	Invasive Species/Noxious Weeds	Each alternative results in a disturbance of native vegetation and increased amounts of bare ground. This situation can result in increased presence of invasive species and noxious weeds. In addition, the potential for user transport increases as visitation increases. This factor will be discussed under the heading: vegetation and soil, and invasive/noxious species.
PI	Riparian—Wetland/Floodplain Resource	The no action alternative results in continued disturbance to a private spring that feeds into Twin Creek. This disturbance results in increased sediment into Twin Creek. The Wyoming Department of Environmental Quality found the Twin Creek drainage to have excess sediment, which causes the drainage not to support portions of its DEQ designated use of Cold-water game fisheries, non-game fisheries, and aquatic life other than fish.
PI	Fish and Wildlife Excluding Federally Listed Species	The project and associated activities has the potential to disturb mule deer and pronghorn habitat. This impact is linked to the amount and type of vegetation disturbed. In addition, human activities in association with authorized activities and use of the area could result in a disruption.
PI	Special Status Species (Fish, Wildlife, and Plants)	<p>A BLM wildlife biologist has determined that the project area does not contain endangered, threatened, or proposed species.</p> <p>The area is within Sage-grouse Core habitat. However, the BLM wildlife biologist in consultation with the Wyoming Game and Fish Department has determined that the project site is unsuitable habitat. The nearest Sage-grouse lek is 3 miles from the project area.</p> <p>The area contains potential habitat for the following BLM sensitive wildlife species: Ferruginous Hawk, Migratory birds, Sage Thrasher, Loggerhead Shrike, Sage Sparrow, Brewer's Sparrow, and Pygmy rabbit.</p> <p>The project area is also potential habitat for Fremont Bladderpod and Rocky Mountain Twinpod. Both of which are designated as BLM Sensitive Plant Species.</p>
NP	Wild Horses and Burros	The project does not propose surface disturbance in an area with Wild Horses.
<b>Heritage Resources</b>		
PI	Cultural Resources	All alternatives, including the no action alternative, places users within a variable distance of important cultural resources. This factor will be analyzed in detail for each alternative.
PI	Native American Religious Concerns	Any impacts to Native American Religious Concerns will be analyzed as a linked issue with impacts to cultural resources.

NI	Paleontology	<p>A literature search was conducted and no paleontological localities are known to exist within any of the trail project areas. The project areas were surveyed for paleontological resources in the summer of 2013. Outcrop and surface inspections did not reveal any evidence of paleontological resources within the trail locations. No fossil evidence could be located within the area of potential effect (APE) for these projects.</p> <p>The actions proposed in this document have a low potential to affect paleontological localities. Standard paleontology stipulations apply.</p>
NI	Visual Resources	<p>The Class II management objective for the area will be met under all alternatives. No alternative proposes actions that will create more than a weak contrast with the existing landscape. This determination was made based on: 1) the minimal nature of the existing and proposed disturbance, 2) the natural tendency of sustainable trails to repeat the characteristic landscape, and 3) the ease at which landscapes hide trails from viewers.</p>
<b>Land Resources</b>		
PI	Lands/Realty/Access	<p>The no action alternative creates a situation where access to the Johnny-on-top trail requires crossing private lands or traveling along the highway ROW. In light of this situation the impacts to access will be analyzed in detail.</p>
PI	Renewable Energy	<p>The Final EIS of the Lander Land Use Plan closes the Johnny Behind the Rocks area to renewable energy projects. As a result of the EIS decision and a lack of potential no foreseeable conflicts in the short term or long term exist between renewable energy projects and recreational use of the area.</p>
PI	Rights-of-way and corridors	<p>With the exception of the highway 287 ROW, no ROWs or corridors exist within the project area. Furthermore, the final EIS of the Lander Land Use Plan excludes the JBR area from new ROWs. All impacts to ROWs will be analyzed as a linked issue with the Lands/Realty/Access issues.</p>
PI	Travel Management	<p>Issues with travel management are linked to those detailed in the Access and Recreation sections.</p>
NI	Livestock Grazing	<p>Actions proposed within this EA do not adjust stocking rates, nor livestock distribution.</p>
PI	Recreation	<p>Each alternative has the potential to impact the following factors associated with recreation: 1) User satisfaction, 2) likelihood of visitors to stay on the trail, and 3) sustainability of the trail, and 4) visitor safety. These factors will be analyzed in detail in this document.</p>
<b>Special Designations</b>		
NI	Congressionally Designated Trails	<p>The project does not propose surface disturbance near or within view of Congressionally Designated Trails and/or the National Trails Management Corridor.</p>
NP	Wilderness/WSA	<p>The project does not propose surface disturbance within or in view of Wilderness Study Areas. No designated wilderness areas exist within the LFO.</p>
NP	Wild and Scenic Rivers	<p>The project does not propose surface disturbance near or within view of eligible or recommended suitable Wild and Scenic Rivers.</p>

NP	Areas of Critical Environmental Concern	The nearest ACEC is the Twin Creek ACEC. Highway 287 forms the boundary between Johnny Behind the Rocks and the Twin Creek ACEC. The relevant and important values of the ACEC (Sage-grouse) are not impacted by actions in the Johnny Behind the Rocks Area.
NP	BLM Natural Areas	No natural areas exist in the Lander Field Office
<b>Socioeconomic Resources</b>		
NI	Socio-Economics	While the project has a loose link to Socio-Economic resources this link cannot be traced in a manner that will result in meaningful differences amongst the alternatives.
PI	Health and Safety	Visitor health and safety is especially affected by the no action alternative. Health and safety issues arise from mixing pedestrian traffic with highway traffic. In addition, safety issues also occur for domestic stock and highway travelers when the potential exists for gates to be left open.
NI	Environmental Justice	Nothing in this decision authorizes surface disturbance at an amount that would disproportionately effect/impact low income or minority populations.
NP	Wastes (hazardous or solid)	There are no hazardous or solid wastes known to occur in the site. In addition, there is no action considered in this document that creates these waste material.