

# APPENDIX A.

## LAND TENURE ADJUSTMENT AND WITHDRAWAL CRITERIA

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### A.1 LAND TENURE ADJUSTMENT CRITERIA

#### A.1.1 DISPOSAL CRITERIA (GENERAL)

1. Lands can be considered for disposal if they meet criteria described in Sections 203 & 206 of the Federal Lands Policy and Management Act of 1976 (FLPMA).
2. Lands with mining claims can be considered for disposal if the following apply: (a) the new surface owner is the mining claimant, or (b) the new surface owner agrees to accept the surface with the claim encumbrance.
3. Lands can be considered for disposal that are not encumbered by a withdrawal or other special designation.
4. Lands can be considered for disposal if disposal would not adversely impact National Register-eligible cultural sites unless mitigated.
5. Lands can be considered for disposal if they are not suitable for management by another Federal department or agency.
6. Lands in floodplains or containing wetlands can be considered for disposal if the BLM would acquire more or higher quality floodplains, wetlands, or riparian areas.
7. Lands listed in Appendix D and other lands not within specially designated areas can be considered for disposal, as necessary, to facilitate an exchange.
8. Lands will not be considered for disposal if they have: (a) any habitat for listed, endangered or special status species or (b) any habitat for any non-listed species if such action could lead to the need to list any species as threatened or endangered.
9. Lands in WSAs, ACECs, and SRMAs and other designated areas **will be retained.**
10. Lands identified for disposal that meet FLPMA Sec. 203 criteria are listed by tract in Appendix D, and are shown on Map 2-3.

#### A.1.2 ACQUISITION CRITERIA (GENERAL)

1. Acquired lands would meet program objectives for management of recreation resources, wilderness, cultural resources, wildlife habitat, riparian or wetland areas, or threatened or endangered species.
2. Acquisition would result in better Federal land management.
3. Where possible, acquisition would provide access to public lands.
4. Acquisitions through purchase or donation should meet general acquisition criteria.

### **A.1.3 EXCHANGES**

To be in conformance with the plan, lands considered for disposal through FLPMA Section 206 must

1. be shown to be in the public interest and
2. meet general disposal and acquisition criteria shown above.

Further, the resource values of acquisition must outweigh the resource values of disposal.

### **A.1.4 RECREATION AND PUBLIC PURPOSES (R&PP) ACT DISPOSALS**

1. Lands are needed for community expansion.
2. Lands are needed for a public facility that cannot be accommodated on non-federal land.

## **A.2 WITHDRAWAL CRITERIA**

### **A.2.1 NEW WITHDRAWALS**

New withdrawals would be considered if

1. other methods are not available to protect valuable resources or
2. a withdrawal is necessary to transfer jurisdiction of lands to another federal agency.

### **A.2.2 WITHDRAWAL REVIEW**

Review existing withdrawals on a case-by-case basis. Determine whether the use is consistent with the intent of the withdrawal and whether the withdrawal should be continued, modified, revoked or terminated. If it is determined by a withdrawal review that a withdrawal should be revoked or terminated, or a withdrawal expires, the land does not automatically open to operation of the law(s) to which the land was closed. An opening order will be published to notify the public when and to what extent the land will be opened. An opening order may be incorporated in a public land order or termination order that revokes or terminates a withdrawal or may be published in the Federal Register as a separate document. Any land becoming unencumbered by withdrawals will be managed in a manner consistent with adjacent or comparable public land within the planning area.

### **A.2.3 WITHDRAWAL REVOCATION**

Following revocation of a withdrawal, the lands would be managed according to other provisions for these lands as specified in this RMP.

## **APPENDIX B.**

### **FILM PERMITS: MINIMUM IMPACT CRITERIA**

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Filming is allowed in all areas provided the following criteria are met:

#### **B.1 MINIMUM-IMPACT CRITERIA FOR ALL BLM LANDS**

1. Project would not adversely impact sensitive habitat or species.
2. Project would not adversely impact Native American sacred site(s) and/or National Register eligible sites.
3. Project does not involve use of pyrotechnics more than a campfire in an appropriate setting.
4. Filming allowed in all areas, provided impacts to land, air, or water can be avoided, mitigated, or reclaimed.
5. Project does not involve use of explosives.
6. Project, involving use of exotic animal species, includes provisions for containment and/or capture of animals.
7. Project does not involve extensive restriction of public access.
8. Limited filming would be allowed in areas with the following sensitive resources provided that impacts to these sensitive resources can be avoided, mitigated, or reclaimed:
  - a. Historic, Cultural or Paleontological sites
  - b. Sensitive soils (see chapter 3 Soils section for definition of these soils)
  - c. Relict environments
  - d. Wetlands, floodplains, or riparian areas
  - e. Water quality
  - f. Wildlife habitat
9. Use of heavy equipment would be allowed provided that any resource damage can be avoided, mitigated, or reclaimed.
10. Criteria for use of aircraft (helicopter, fixed wing, hot air balloons):
  - a. No refueling requested within WSAs and Designated Wilderness Areas.
  - b. Use of aircraft in an area with wildlife concerns would be allowed if a survey or inventory by an approved biologist demonstrates that animals are not present, or, if animals are present, aircraft use is not proposed for more than one day and does not exceed the frequency of 2 projects per 30-day period.
  - c. Use of aircraft in areas with outstanding recreational opportunities, Wilderness Study Areas, designated Wilderness, or close to residential areas is proposed for no more than 2 days and does not exceed the frequency of 3 two-day projects per 30-day period.

- d. Aircraft use proposed within ½ mile of any designated campground would be during low-use times (i.e. weekdays and not during major holidays between 8:00 a.m. and 6:00 p.m.)

**B.2 ADDITIONAL MINIMUM-IMPACT CRITERIA FOR THE FOLLOWING AREAS:  
DESIGNATED WILDERNESS, WSAs**

1. Project does not involve use of more than 20 livestock in these locations. Impacts from livestock can be avoided, mitigated, or reclaimed.
2. Project does not involve 15 or more production vehicles. Vehicles would only be allowed on Wilderness Study Areas or designated Wilderness boundary roads.
3. Project does not involve 50 or more people within these areas.
4. The activity within these areas would not continue in excess of 10 days.

If filming projects do not meet the criteria listed above, site-specific NEPA will be required.

## **APPENDIX C.**

### **STIPULATIONS AND ENVIRONMENTAL BEST PRACTICES APPLICABLE TO OIL AND GAS LEASING AND OTHER SURFACE- DISTURBING ACTIVITIES**

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#### **C.1 STIPULATIONS APPLICABLE TO OIL AND GAS LEASING AND OTHER SURFACE-DISTURBING ACTIVITIES**

This appendix lists by alternative the stipulations for oil and gas leasing referred to throughout this Proposed RMP and Final EIS. These stipulations would also apply, where appropriate and practical, to other surface-disturbing activities (and occupancy) associated with land-use authorizations, permits, and leases issued on BLM lands. The stipulations would not apply to activities and uses where they are contrary to laws, regulations, or specific program guidance. The intent is to maintain consistency, to the extent possible, in applying stipulations to all surface-disturbing activities.

Surface-disturbing activities are those that normally result in more than negligible disturbance to public lands and accelerate the natural erosive process. Surface disturbance may, but does not always, require reclamation. These activities normally involve use and/or occupancy of the surface, cause disturbance to soils and vegetation, and are usually caused by motorized or mechanical actions. They include, but are not limited to: the use of mechanized earth-moving equipment; truck-mounted drilling and geophysical exploration equipment; off-road vehicle travel in areas designated as limited or closed to off-road vehicle use; vegetation treatments; construction of facilities such as power lines, pipelines, oil and gas wells; recreation sites, improvements for range and wildlife; new road construction; and use of pyrotechnics and explosives. Surface disturbance is not normally caused by casual-use activities. Activities that are not considered surface-disturbing include, but are not limited to: livestock grazing, cross-country hiking, minimum impact filming, and vehicular travel on designated routes.

##### ***C.1.1 DESCRIPTION OF STIPULATIONS***

The following tables show resources of concern and stipulations including exceptions, modifications, and waivers by alternative. Three types of stipulations could be applied to land-use authorizations: 1) no surface occupancy (NSO), 2) timing limitations (TL), and 3) controlled surface use (CSU). Although not a stipulation, areas that are closed to oil and gas leasing and other surface-disturbing activities are also identified in the tables. All other areas are open to oil and gas leasing subject to standard terms and conditions.

Areas identified as NSO are open to oil and gas leasing but surface-disturbing activities can not be conducted on the surface of the land. Access to oil and gas deposits would require horizontal drilling from outside the boundaries of the NSO areas. NSO areas are avoidance areas for rights-of-way; no rights-of-ways would be granted in NSO areas unless there are no feasible alternatives. Where necessary in the future, NSO areas could be recommended for withdrawal from operations conducted under the mining laws (locatable minerals) if unacceptable resource

impacts are occurring or could occur. A NSO stipulation cannot be applied to operations conducted under the mining laws without a withdrawal. A withdrawal is not a land-use planning decision because it must be approved by the Secretary of Interior. Therefore, unless withdrawn, areas identified as NSO are open to operations conducted under the mining laws subject only to TL and CSU stipulations, which are consistent with the rights granted under the mining laws.

Areas identified as TL are open to oil and gas leasing but would be closed to surface-disturbing activities during identified time frames. This stipulation would not apply to operation and maintenance activities, including associated vehicle travel, unless otherwise specified.

Areas identified as CSU are open to oil and gas leasing but would require proposals for surface-disturbing activities to be authorized only according to the controls or constraints specified.

Areas identified as closed are not open to oil and gas leasing. Exceptions, modifications, and waivers do not apply to closed areas. Closed areas are exclusion areas for rights-of-way. WSAs and wilderness areas are closed to oil and gas leasing by the regulations found at 43 CFR 3100.0-3(a)(2)viii and xi. Also, areas identified with wilderness characteristics are closed in Alternative B. Other areas are partially closed to oil and gas leasing where it is not reasonable to apply a NSO stipulation across the entire area. This includes areas where the oil and gas resources are physically inaccessible by current directional drilling technology (1 mile) from outside the NSO area. These lands closed to oil and gas leasing are retained with a NSO stipulation for all other surface-disturbing activities and exceptions, modifications, and waivers apply to these activities. Closed areas identified with wilderness characteristics in Alternative B could be recommended for withdrawal of operations conducted under the mining laws. WSAs and wilderness areas are already protected from these activities by withdrawal or existing laws, regulations, and policies.

### ***C.1.2 EXCEPTIONS, MODIFICATIONS, AND WAIVERS***

Stipulations could be excepted, modified, or waived by the authorized officer. An exception exempts the holder of the land-use authorization document from the stipulation on a one-time basis. A modification changes the language or provisions of a surface stipulation, either temporarily or permanently. A waiver permanently exempts the surface stipulation. The environmental analysis document prepared for site specific proposals such as oil and gas development (i.e., APDs, sundry notices) also would need to address proposals to exempt, modify, or waive a surface stipulation.

### ***C.1.3 STANDARD TERMS AND CONDITIONS***

All surface-disturbing activities are subject to standard terms and conditions. These include the restrictions that are required for proposed actions in order to protect special status species and to comply with the Endangered Species Act. The requirements for individual species are found at the end of Table C.1. Standard terms and conditions for oil and gas leasing provide for relocation of proposed operations up to 200 meters, and provide for prohibiting surface-disturbing operations for a period not exceeding 60 days. The stipulations addressed in the table that are within the parameters of 200 meters and 60 days are considered open to oil and gas leasing subject to standard terms and conditions.

The placement of production facilities on hilltops and ridgelines will be prohibited where they are highly visible.

#### **C.1.4 ENVIRONMENTAL BEST MANAGEMENT PRACTICES (BMP) FOR OIL AND GAS OPERATIONS**

Best Management Practices (BMP) are state-of-the-art mitigation measures applied on a site-specific basis to reduce, prevent, or avoid adverse environmental or social impacts. BMPs are applied to management actions to aid in achieving desired outcomes for safe, environmentally sound, resource development by preventing, minimizing, or mitigating adverse impacts and reducing conflicts. For each proposed action, a number of BMPs may be applied as necessary to mitigate expected impacts. The following typical environmental BMPs will be applied on individual Applications for Permit to Drill and associated rights-of-way in the Moab Field Office. These procedures are consistent with current national guidance and the Surface Operating Standards and Guidelines for Oil and Gas Development (Gold Book), 2007. This list is not comprehensive and may be modified over time as conditions change and new practices are identified.

- Interim reclamation of the well and access road will begin as soon as practicable after a well is placed in production. Facilities will be grouped on the pads to allow for maximum interim reclamation. Interim reclamation will include road cuts and fills and will extend to within close proximity of the wellhead and production facilities.
- All aboveground facilities including power boxes, building doors, roofs, and any visible equipment will be painted a color selected from the latest national color charts that best allows the facility to blend into the background.
- All new roads will be designed and constructed to a safe and appropriate standard, “no higher than necessary” to accommodate intended vehicular use. Roads will follow the contour of the land where practical. Existing oil and gas roads that are in eroded condition or contribute to other resource concerns will be brought to BLM standards within a reasonable period of time.
- Final reclamation of all oil and gas disturbance will involve re-contouring of all disturbed areas, including access roads, to the original contour or a contour that blends with the surrounding topography and revegetating all disturbed areas.
- Raptor perch avoidance devices will be installed on all new power lines and existing lines that present a potential hazard to raptors.
- All power lines to individual well locations (excluding major power source lines to the operating oil or gas field) and all flow lines will be buried in or immediately adjacent to the access roads.
- In developing oil and gas fields, all production facilities will be centralized to avoid tanks and associated facilities on each well pad.
- The use of submersible pumps will be strongly encouraged, especially in VRM Class I, II or III areas or any area visible by the visiting public.

- The use of partial or completely below-grade wellheads will be strongly encouraged in high visibility areas as well as VRM Class I, II or III areas.
- Multiple wells will be drilled from a single well pad wherever feasible.
- Noise reduction techniques and designs will be used to reduce noise from compressors or other motorized equipment.
- Seasonal restrictions on public vehicular access will be evaluated where there are wildlife conflict or road damage/maintenance issues.
- The placement of production facilities on hilltops and ridgelines will be prohibited where they are highly visible.
- Monitoring of wildlife will occur to evaluate the effects of oil and gas development.
- The placement of production facilities on hilltops and ridgelines will be avoided.
- Facilities will be screened from view.
- Oil field wastes and spills will be bio-remediated.
- Common utility or right-of-way corridors containing roads, power lines, and pipelines will be used.

**Table C.1 Resources of Concern and Stipulations Including Exceptions, Modifications, and Waivers by Alternative**

Resource Of Concern	Applicable Area	Stipulation Code	Alternative			Stipulation Description
			B	PROPOSED PLAN	D	
Floodplains, Riparian Areas, Springs, and Public Water Reserves	Planning Area	CSU Open with standard terms for oil and gas leasing. The 200 meter rule would apply.	X	X	X	<p>Allow no surface-disturbing activities within 100 year floodplains or within 100 meters of riparian areas. Also, no surface-disturbing activities within public water reserves or within 100 meters of springs.</p> <p><b>Purpose:</b> To protect floodplains, riparian areas, springs, and public water reserves.</p> <p><b>Exception:</b> An exception could be authorized if: (a) there are no practical alternatives, (b) impacts could be fully mitigated, or (c) the action is designed to benefit and enhance the resource values.</p> <p><b>Modification:</b> None</p> <p><b>Waiver:</b> None</p>
River Corridors	Green, Colorado, and Dolores, Rivers 65,037 acres	NSO	X	X	X	<p>There would be no surface-disturbing activities within the area of the Three Rivers and Westwater mineral withdrawals. Where the NSO area is physically inaccessible to oil and gas drilling by current directional drilling technology (1 mile from outside the NSO area), it would be closed to oil and gas leasing. However, these lands remain NSO for all other surface-disturbing activities.</p> <p><b>Purpose:</b> To protect riparian, wildlife, scenic, and recreational values along the major river corridors.</p> <p><b>Exception:</b> An exception could be authorized if the use is consistent and compatible with protection or enhancement of the resource values or the use would provide suitable opportunities for public enjoyment of the applicable resources. No exception for oil and gas leasing.</p> <p>Exceptions could be made on the Colorado River along Highways 128 and 279, along Kane Creek Road, along the Green River from Swasey's Rapid to Ruby Ranch, and along the Dolores River from Entrada Ranch to the Colorado River confluence to maintain or improve infrastructure. These exceptions (subject to appropriate mitigation to minimize impacts to the applicable resources) could include minor rights-of-way to service private land and temporary use authorizations.</p>

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Resource Of Concern	Applicable Area	Stipulation Code	Alternative			Stipulation Description
			B	PROPOSED PLAN	D	
						<p><b>Modification:</b> None</p> <p><b>Waiver:</b> None</p>
Wild and Scenic Rivers	Planning Area (266 river miles)	NSO	X			<p>All river corridors recommended as Wild and Scenic would be NSO for oil and gas leasing. All other surface-disturbing activities would be precluded. (Those rivers in WSAs remain closed to oil and gas leasing and other surface-disturbing activities)</p> <p><b>Purpose:</b> To protect riparian, wildlife, scenic, and recreational values along the major river corridors.</p> <p><b>Exception:</b> An exception could be authorized (outside of WSAs) if the use is consistent and compatible with protection or enhancement of the resource values or the use would provide suitable opportunities for public enjoyment of the applicable resources. No exception for oil and gas leasing.</p>
Wild and Scenic Rivers	Planning Area (127.3 river miles suitable along the Colorado, Green, and Dolores rivers)	NSO		X		<p>All river corridors recommended as Wild and Scenic would be NSO for oil and gas leasing. All other surface-disturbing activities would be precluded</p> <p><b>Purpose:</b> To protect riparian, wildlife, scenic, and recreational values along the major river corridors.</p> <p><b>Exception:</b> An exception could be authorized if the use is consistent and compatible with protection or enhancement of the resource values or the use would provide suitable opportunities for public enjoyment of the applicable resources. No exception for oil and gas leasing.</p>
Sensitive Soils/Slopes	Planning Area	CSU	X	X	X	<p>Surface-disturbing proposals involving construction on slopes greater than 30% would be avoided. If the action cannot be avoided, rerouted, or relocated, then a proposal would include: an erosion control strategy, reclamation and a site plan with a detailed survey and design completed by a certified engineer. This proposal must be approved by the BLM prior to construction and maintenance.</p> <p><b>Purpose:</b> To protect fragile soils on slopes.</p> <p><b>Exception:</b> None</p>

**Table C.1 Resources of Concern and Stipulations Including Exceptions, Modifications, and Waivers by Alternative**

Resource Of Concern	Applicable Area	Stipulation Code	Alternative			Stipulation Description
			B	PROPOSED PLAN	D	
						<p><b>Modification:</b> None</p> <p><b>Waiver:</b> None</p>
Sensitive Soils/Slopes	Bookcliffs	TL	X	X	X	<p>Where slopes are greater than 30% in the Bookcliffs, BLM approved surface-disturbing activities would not be allowed from November 1 to April 30. This restriction includes heavy equipment traffic on existing roads associated with drilling operations.</p> <p><b>Purpose:</b> To minimize watershed damage in fragile soils on steep slopes.</p> <p><b>Exception:</b> An exception could be granted if the operator can provide a plan of development demonstrating that the proposed action would be properly designed and constructed to support the anticipated types and levels of use. Roads must be designed to meet BLM road standards for drainage control and surfaced to support heavy equipment and tractor trailers. Adjustments to the timing restriction could be considered by the Field Manager on a case-by-case basis, depending on current soil and weather conditions.</p> <p><b>Modification:</b> None</p> <p><b>Waiver:</b> None</p>

**Table C.1 Resources of Concern and Stipulations Including Exceptions, Modifications, and Waivers by Alternative**

Resource Of Concern	Applicable Area	Stipulation Code	Alternative			Stipulation Description
			B	PROPOSED PLAN	D	
Fragile Soils/Slopes	Saline Soils in the Mancos Shale 330,142 acres	TL	X	X		<p>No surface-disturbing activities would be allowed during the period from December 1 to May 31. This restriction includes heavy equipment traffic on existing roads associated with drilling operations.</p> <p><b>Purpose:</b> To minimize watershed damage including compaction, rutting, and topsoil loss on saline soils derived from the Mancos Shale.</p> <p><b>Exception:</b> An exception could be granted if the operator can provide a plan of development demonstrating that the proposed action would be properly designed and constructed to support the anticipated types and levels of use. Roads must be designed to meet BLM road standards for drainage control and surfaced to support heavy equipment and tractor trailers. Adjustments to the timing restriction could be considered by the Field Manager on a case-by-case basis, depending on current soil and weather conditions.</p> <p><b>Modification:</b> None</p> <p><b>Waiver:</b> None</p>
Visual Resources	VRM II Areas	CSU	X 364,189 acres	X 349,683 acres	X 240,486 acres	<p>Surface-disturbing activities must meet the objectives of VRM II class objectives.</p> <p><b>Purpose:</b> To protect high quality visual resources.</p> <p><b>Exception:</b> The level of change to the landscape should be low; management activities may be seen, but should not attract attention of the casual observer. Any change to the landscape must repeat the basic elements of form, line, color, and texture found in the predominant natural features of the characteristic landscape. Surface-disturbing activities that are determined to be compatible and consistent with the protection or enhancement of the resource values are exempted. Also, recognized utility corridors are exempted only for utility projects which would be managed according to VRM III objectives.</p> <p><b>Modification:</b> None</p> <p><b>Waiver:</b> None</p>

**Table C.1 Resources of Concern and Stipulations Including Exceptions, Modifications, and Waivers by Alternative**

Resource Of Concern	Applicable Area	Stipulation Code	Alternative			Stipulation Description
			B	PROPOSED PLAN	D	
Visual Resources	Scenic Driving Corridors Highways 128, 279, 313, north U.S. 191; Needles, Anticline and Kane Creek Roads	NSO	X 1 mile from cent			No surface-disturbing activities would be allowed within scenic driving corridors. The width of the corridor varies by alternative. <b>Purpose:</b> To protect the visual resources along scenic corridors. <b>Exception:</b> An exception could be granted if: (a) a view shed analysis indicates no impairment of the visual resources from the driving corridor or (b) the action is determined to be consistent and compatible with protection or enhancement of the resource values or the use would provide suitable opportunities for public enjoyment of these resources. <b>Modification:</b> None <b>Waiver:</b> None
Visual Resources	Scenic Driving Corridors Highways 128, 279, 313, north U.S. 191; Needles, Anticline and Kane Creek Roads	CSU		X 0.5 mile from cent	X 0.25 mile from cent	Surface-disturbing activities within the corridor must meet VRM II class objectives. <b>Purpose:</b> To protect the visual resources along scenic corridors. <b>Exception:</b> An exception could be granted if: (a) a view shed analysis indicates no impairment of the visual resources from the driving corridor or (b) the action is determined to be consistent and compatible with protection or enhancement of the resource values or the use would provide suitable opportunities for public enjoyment of these resources. <b>Modification:</b> None <b>Waiver:</b> None
Visual Resources and Recreation	Sand Flats SRMA 6,246 acres	NSO	X	X		No surface-disturbing activities would be allowed within the Sand Flats SRMA. <b>Purpose:</b> To protect recreation and scenic values. <b>Exception:</b> An exception could be authorized if the use is consistent and compatible with protection or enhancement of the resource values or the use would provide suitable opportunities for public enjoyment of the applicable resources. No exception for oil and gas leasing.

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Resource Of Concern	Applicable Area	Stipulation Code	Alternative			Stipulation Description
			B	PROPOSED PLAN	D	
						<p><b>Modification:</b> None</p> <p><b>Waiver:</b> None</p>
Visual Resources and Recreation	Goldbar/Corona Arch Focus Area	NSO	X 4,781 acres	X 4,191 acres		<p>No surface-disturbing activities would be allowed in the Goldbar/Corona Arch area. The acreage changes by alternative.</p> <p><b>Purpose:</b> To protect primitive hiking opportunities and scenic values.</p> <p><b>Exception:</b> An exception could be authorized if the use is consistent and compatible with protection or enhancement of the resource values or the use would provide suitable opportunities for public enjoyment of the applicable resources. No exception for oil and gas leasing.</p> <p><b>Modification:</b> None</p> <p><b>Waiver:</b> None</p>
Developed Recreation Sites	Planning Area	NSO	X	X	X	<p>No surface-disturbing activities would be allowed within 0.5 miles of developed recreation sites (current and planned).</p> <p><b>Purpose:</b> To protect federal investment in facilities, to provide for recreational use, and to protect the view shed from the facility.</p> <p><b>Exception:</b> An exception could be granted if a view shed analysis indicates no impairment of the visual resources from the recreation site. Also, an exception could be authorized if the use is consistent and compatible with protection or enhancement of the resource values or the use would provide suitable opportunities for public enjoyment of the applicable resources. No exception for oil and gas leasing.</p> <p><b>Modification:</b> None</p> <p><b>Waiver:</b> None</p>
Private Property with Federal Minerals	Areas within Spanish Valley	NSO	X	X	X	<p>No surface-disturbing activities would be allowed on private surface/Federal minerals within unincorporated areas of Spanish Valley.</p> <p><b>Purpose:</b> To reduce potential surface use conflicts with homes</p>

**Table C.1 Resources of Concern and Stipulations Including Exceptions, Modifications, and Waivers by Alternative**

Resource Of Concern	Applicable Area	Stipulation Code	Alternative			Stipulation Description
			B	PROPOSED PLAN	D	
						and viewsheds. <b>Exception:</b> An exception could be granted if it can be demonstrated that the action would not result in any surface use conflicts. <b>Modification:</b> None <b>Waiver:</b> None
Private Property with Federal Minerals	City of Moab and Town of Castle Valley  (Incorporated Areas totaling 2,540 acres)	Closed	X	X	X	The incorporated areas of the City of Moab and the Town of Castle Valley would be closed to mineral leasing (oil and gas, potash). <b>Purpose:</b> Incorporated cities and towns are closed to oil and gas leasing by Federal regulation at 43 CFR 3100.0-3(a)(2)(iii). <b>Exception:</b> None. <b>Modification:</b> None <b>Waiver:</b> None
Moab Airport	Moab Airport	NSO	X	X	X	No surface-disturbing activities would be allowed within the Moab Airport area. <b>Purpose:</b> To eliminate potential safety issues and surface use conflicts. <b>Exception:</b> An exception could be granted if it can be demonstrated that the action would not result in any surface use conflicts. <b>Modification:</b> None <b>Waiver:</b> None
Moab Landfill	Moab Landfill	NSO	X	X	X	No surface-disturbing activities would be allowed within the Moab landfill area. <b>Purpose:</b> To eliminate potential safety issues and surface use conflicts. <b>Exception:</b> An exception could be granted if it can be demonstrated that the action would not result in any surface use conflicts.

**Table C.1 Resources of Concern and Stipulations Including Exceptions, Modifications, and Waivers by Alternative**

Resource Of Concern	Applicable Area	Stipulation Code	Alternative			Stipulation Description
			B	PROPOSED PLAN	D	
						<p><b>Modification:</b> None</p> <p><b>Waiver:</b> None</p>
Dead Horse Point State Park	Dead Horse Point State Park (Split estate with Federal minerals)	NSO	X	X	X	<p>No surface occupancy would be allowed within Dead Horse Point State Park.</p> <p><b>Purpose:</b> To protect visual resources and to facilitate management of the State Park.</p> <p><b>Exception:</b> None.</p> <p><b>Modification:</b> None</p> <p><b>Waiver:</b> None</p>
Mayberry Orchard	Split estate with Federal minerals along the Colorado River,	NSO	X	X	X	<p>No surface occupancy would be allowed on private surface/Federal minerals within Mayberry Orchard.</p> <p><b>Purpose:</b> To reduce potential surface use conflicts with homes and view sheds.</p> <p><b>Exception:</b> An exception could be granted if it can be demonstrated that the action would not result in any surface use conflicts.</p> <p><b>Modification:</b> None</p> <p><b>Waiver:</b> None</p>
Thompson Springs	Thompson Springs (Split estate with Federal minerals)	NSO	X	X	X	<p>No surface occupancy would be allowed on private surface/Federal minerals within Thompson Springs.</p> <p><b>Purpose:</b> To reduce potential surface use conflicts with homes.</p> <p><b>Exception:</b> An exception could be granted if it can be demonstrated that the action would not result in any surface use conflicts.</p> <p><b>Modification:</b> None</p> <p><b>Waiver:</b> None</p>
Castle Valley Municipal Watershed	BLM lands within the watershed. Includes split estate (private	Closed	X 10,321 acres			<p>The Castle Valley watershed would be closed to oil and gas leasing and other surface-disturbing activities.</p> <p><b>Purpose:</b> To protect the sole source, unconfined, surficial aquifer of Castle Valley.</p>

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Resource Of Concern	Applicable Area	Stipulation Code	Alternative			Stipulation Description
			B	PROPOSED PLAN	D	
	surface/Federal minerals) within Castle Valley					<p><b>Exception:</b> None</p> <p><b>Modification:</b> None</p> <p><b>Waiver:</b> None</p>
Castle Valley Municipal Watershed	BLM lands within the watershed. Includes split estate lands (private surface/Federal minerals) within Castle Valley	NSO		X 10,321 acres		<p>No surface-disturbing activities would be allowed within the Castle Valley watershed.</p> <p><b>Purpose:</b> To protect the sole source, unconfined, surficial aquifer of Castle Valley.</p> <p><b>Exception:</b> An exception could be granted for activities where it can be demonstrated that the proposed action would not result in a negative impact to the aquifer. No exception for oil and gas leasing.</p> <p><b>Modification:</b> None</p> <p><b>Waiver:</b> None</p>
Mill Creek-Spanish Valley Watershed (Moab area aquifer excluding the watershed within the WSA)	BLM lands within the watershed. Includes split estate lands (private surface/Federal minerals).	Closed	X 9,667 acres			<p>The Mill Creek-Spanish Valley watershed would be closed to oil and gas leasing and other surface-disturbing activities.</p> <p><b>Purpose:</b> To protect the Moab area aquifer.</p> <p><b>Exception:</b> None</p> <p><b>Modification:</b> None</p> <p><b>Waiver:</b> None</p>
Mill Creek-Spanish Valley Watershed (Moab area aquifer excluding the watershed within the WSA)	BLM lands within the watershed. Includes split estate lands (private surface/Federal minerals).	NSO		X 9,667 acres		<p>No surface-disturbing activities would be allowed within the Mill Creek-Spanish Valley watershed.</p> <p><b>Purpose:</b> To protect the Moab area aquifer.</p> <p><b>Exception:</b> An exception could be granted for activities where it can be demonstrated that the proposed action would not result in a negative impact to the aquifer. No exception for oil and gas leasing.</p> <p><b>Modification:</b> None</p> <p><b>Waiver:</b> None</p>
Moab Canyon Utility Corridor	Highway 191 Utility Corridor	NSO	X	X	X	<p>No surface-disturbing activities would be allowed within the utility corridor other than those associated with utilities.</p>

**Table C.1 Resources of Concern and Stipulations Including Exceptions, Modifications, and Waivers by Alternative**

Resource Of Concern	Applicable Area	Stipulation Code	Alternative			Stipulation Description
			B	PROPOSED PLAN	D	
	within Moab Canyon					<p><b>Purpose:</b> To prevent future surface use conflicts along Highway 191 and within the utility corridor.</p> <p><b>Exception:</b> An exception could be granted if it can be demonstrated that the action would not result in any surface use conflicts with utilities.</p> <p><b>Modification:</b> None</p> <p><b>Waiver:</b> None</p>
Areas with Wilderness Characteristics (non-WSA lands).	Beaver Creek, Fisher Towers, and Mary Jane Canyon	NSO	.	X 47,761 acres		<p>No surface-disturbing activities would be allowed. Certain lands within the Fisher Towers, Mary Jane, and Beaver Creek areas would be physically inaccessible to oil and gas drilling operations under a NSO stipulation and therefore would be closed to oil and gas leasing. These lands remain NSO for all other surface-disturbing activities.</p> <p><b>Purpose:</b> To protect areas with wilderness characteristics.</p> <p><b>Exception:</b> An exception could be authorized if the use is consistent and compatible with protection or enhancement of the resource values or the use would provide suitable opportunities for public enjoyment of the applicable resources. No exception for oil and gas leasing.</p> <p><b>Modification:</b> None</p> <p><b>Waiver:</b> None</p>
Potential ACEC	Behind the Rocks 17,836 acres in Alt B; 5,201 acres of designated ACEC in the Proposed Plan. For Alt. B, 12,635 acres are within the Behind the Rocks WSA and are closed to	NSO	X 5,201 acres	X 5,201 acres		<p>No surface-disturbing activities would be allowed in the Behind the Rocks ACEC (outside of the WSA).</p> <p><b>Purpose:</b> To protect scenic values, cultural resources, and sensitive plants.</p> <p><b>Exception:</b> An exception could be authorized if the use is consistent and compatible with protection or enhancement of the resource values or if the use would provide a public benefit or the use would provide suitable opportunities for public enjoyment of the resources. No exception for oil and gas leasing.</p> <p><b>Modification:</b> None</p>

**Table C.1 Resources of Concern and Stipulations Including Exceptions, Modifications, and Waivers by Alternative**

Resource Of Concern	Applicable Area	Stipulation Code	Alternative			Stipulation Description
			B	PROPOSED PLAN	D	
	leasing					<b>Waiver:</b> None
Potential ACEC	Bookcliffs 304,252 acres (Approximately 290,544 acres are within WSAs and are closed to leasing)	NSO	X 14,708 acres			No surface-disturbing activities would be allowed in the Bookcliffs ACEC. <b>Purpose:</b> To protect wildlife values. <b>Exception:</b> An exception could be authorized if the use is consistent and compatible with protection or enhancement of the resource values or the use would provide suitable opportunities for public enjoyment of these resources. No exception for oil and gas leasing. <b>Modification:</b> None <b>Wavier:</b> None
No exception for oil and gas leasing. Potential ACEC	Canyon Rims 23,400 acres	NSO	X			No surface-disturbing activities would be allowed in the Canyon Rims ACEC. Certain lands within the ACEC would be physically inaccessible to oil and gas drilling operations under a NSO stipulation and therefore would be closed to oil and gas leasing. These lands remain NSO for all other surface-disturbing activities. <b>Purpose:</b> To protect scenic values. <b>Exception:</b> An exception could be authorized if the use is consistent and compatible with protection or enhancement of the resource values or the use would provide suitable opportunities for public enjoyment of these resources. No exception for oil and gas leasing. <b>Modification:</b> None <b>Waiver:</b> None
Potential ACEC	Cisco White-tailed Prairie Dog Complex 117,481 acres	NSO	X			Allow no surface-disturbing activities that would result in a permanent, aboveground facility (construct or place structures, roads, facilities) within the Cisco White-tailed Prairie Dog Complex. <b>Purpose:</b> To protect prairie dog habitat, colonies, and potential expansion areas. <b>Exception:</b> An exception could be granted if it is determined

**Table C.1 Resources of Concern and Stipulations Including Exceptions, Modifications, and Waivers by Alternative**

Resource Of Concern	Applicable Area	Stipulation Code	Alternative			Stipulation Description
			B	PROPOSED PLAN	D	
						that the habitat is not occupied. <b>Modification:</b> The Field Manager may modify the boundaries of the stipulation area if it is determined that portions of the area do not include prairie dog habitat. <b>Waiver:</b> May be granted if it is determined that habitat no long exists or has been destroyed.
Potential ACEC	Colorado River, Corridor 50,483 acres (2,751 acres are within the Negro Bill Canyon WSA and are closed to leasing)	NSO	X 47,737 acres			No surface-disturbing activities would be allowed in the Colorado River Corridor ACEC. <b>Purpose:</b> To protect scenic and wildlife values. <b>Exception:</b> An exception could be authorized if the use is consistent and compatible with protection or enhancement of the resource values or the use would provide suitable opportunities for public enjoyment of these resources. Additional exceptions could be made for actions to maintain or improve infrastructure on the Colorado River along Highways 128. These exceptions (subject to appropriate mitigation to minimize impacts to the applicable resources) could include minor rights-of-way to service private land and temporary use authorizations. No exception for oil and gas leasing. <b>Modification:</b> None <b>Wavier:</b> None
Potential ACEC	Cottonwood-Diamond Watershed 35,830 acres (34,005 acres are within a WSA and are closed to leasing)	NSO	X 1,825 acres	X 1,825 acres		No surface-disturbing activities would be allowed within the Cottonwood-Diamond ACEC. <b>Purpose:</b> To provide for public safety and watershed stabilization. <b>Exception:</b> When the hazard is no longer present, manage according to the other management provisions for the area. <b>Modification:</b> None <b>Wavier:</b> None
Potential ACEC	Highway 279/Shafer Basin/Long	NSO	X	X		No surface-disturbing activities would be allowed in the Highway 279/Shafer Basin/Long Canyon ACEC,

**Table C.1 Resources of Concern and Stipulations Including Exceptions, Modifications, and Waivers by Alternative**

Resource Of Concern	Applicable Area	Stipulation Code	Alternative			Stipulation Description
			B	PROPOSED PLAN	D	
	Canyon 13,500 acres					<p><b>Purpose:</b> To protect rare plants, scenic, wildlife, and cultural resources.</p> <p><b>Exception:</b> An exception could be authorized if the use is consistent and compatible with protection or enhancement of the resource values or the use would provide suitable opportunities for public enjoyment of these resources. No exception for oil and gas leasing.</p> <p><b>Modification:</b> None</p> <p><b>Waiver:</b> None</p>
Potential ACEC	Labyrinth Canyon 8,528 acres	NSO	X			<p>No surface-disturbing activities would be allowed in the Labyrinth Canyon ACEC.</p> <p><b>Purpose:</b> To protect scenic and wildlife values.</p> <p><b>Exception:</b> An exception could be authorized if the use is consistent and compatible with protection or enhancement of the resource values or the use would provide suitable opportunities for public enjoyment of these resources. No exception for oil and gas leasing.</p> <p><b>Modification:</b> None</p> <p><b>Waiver:</b> None</p>
Potential ACEC	Mill Creek Canyon 13,501 acres in Alt B; 3,721 acres of designated ACEC in Proposed Plan. Within Alt B, 9,780 acres are within the Mill Creek Canyon WSA and are closed to leasing.	NSO	X 3,721 acres	X 3,721 acres		<p>No surface-disturbing activities would be allowed in the Mill Creek Canyon ACEC.</p> <p><b>Purpose:</b> To protect scenic, cultural, wildlife, and riparian values.</p> <p><b>Exception:</b> An exception could be authorized if the use is consistent and compatible with protection or enhancement of the resource values or the use would provide suitable opportunities for public enjoyment of these resources. No exception for oil and gas leasing.</p> <p><b>Modification:</b> None</p> <p><b>Waiver:</b> None</p>

**Table C.1 Resources of Concern and Stipulations Including Exceptions, Modifications, and Waivers by Alternative**

Resource Of Concern	Applicable Area	Stipulation Code	Alternative			Stipulation Description
			B	PROPOSED PLAN	D	
Potential ACEC	Ten Mile Wash 4,980 acres	NSO	X	X		<p>No surface-disturbing activities would be allowed within the Ten Mile ACEC.</p> <p><b>Purpose:</b> To protect cultural and riparian values.</p> <p><b>Exception:</b> An exception could be authorized if the use is consistent and compatible with protection or enhancement of the resource values or the use would provide suitable opportunities for public enjoyment of these resources. No exception for oil and gas leasing.</p> <p><b>Modification:</b> None</p> <p><b>Wavier:</b> None</p>
Potential ACEC	Upper Courthouse 11,529 acres	NSO	X			<p>No surface-disturbing activities would be allowed within the Upper Courthouse ACEC.</p> <p><b>Purpose:</b> To protect historic/cultural/paleontological resources and rare plants.</p> <p><b>Exception:</b> An exception could be authorized if the use is consistent and compatible with protection or enhancement of the resource values or the use would provide suitable opportunities for public enjoyment of these resources. No exception for oil and gas leasing.</p> <p><b>Modification:</b> None</p> <p><b>Waiver:</b> None</p>
Mesa-top Relict Vegetation	Upper Courthouse Wash Area 3,162 acres	NSO		X		<p>No surface-disturbing activities would be allowed on the mesa-tops in the upper Courthouse Wash area.</p> <p><b>Purpose:</b> To protect relict vegetation.</p> <p><b>Exception:</b> An exception could be authorized if the use is consistent and compatible with protection or enhancement of the resource values or the use would provide suitable opportunities for public enjoyment of these resources. No exception for oil and gas leasing.</p> <p><b>Modification:</b> None</p> <p><b>Waiver:</b> None</p>

**Table C.1 Resources of Concern and Stipulations Including Exceptions, Modifications, and Waivers by Alternative**

Resource Of Concern	Applicable Area	Stipulation Code	Alternative			Stipulation Description
			B	PROPOSED PLAN	D	
Potential ACEC	Westwater Canyon 5,069 acres	Closed	X			The potential ACEC is entirely within the Westwater Canyon WSA which is closed to oil and gas leasing. <b>Purpose:</b> To protect scenic values. <b>Exception:</b> None <b>Modification:</b> None <b>Wavier:</b> None
Potential ACEC	White Wash 2,988 acres	NSO	X			No surface-disturbing activities would be allowed within the White Wash ACEC. <b>Purpose:</b> To protect dunefield riparian values. <b>Exception:</b> An exception could be authorized if the use is consistent and compatible with protection or enhancement of the resource values or the use would provide suitable opportunities for public enjoyment of these resources. No exception for oil and gas leasing. <b>Modification:</b> None <b>Waiver:</b> None
Potential ACEC	Wilson Arch 3,700 acres	NSO	X			No surface-disturbing activities would be allowed in the Wilson Arch ACEC. <b>Purpose:</b> To protect scenic values. <b>Exception:</b> An exception could be authorized if the use is consistent and compatible with protection or enhancement of the resource values or the use would provide suitable opportunities for public enjoyment of these resources. No exception for oil and gas leasing. <b>Modification:</b> None <b>Wavier:</b> None
Special Status Species: Greater Sage-grouse	Lek Sites	CSU/TL	X 12,850 acres 2 mi.	X 3,068 acres mi. radius 2 & 0.5	X 1,986 acres 0.25	If Greater Sage-grouse leks are discovered, no surface-disturbing activities would be allowed (1) within 2 miles, 0.5 miles, or 0.25 miles of a lek (depending on selected alternative) from March 1 <sup>st</sup> through May 15 <sup>th</sup> , and (2) no permanent aboveground facilities would be allowed within the selected

**Table C.1 Resources of Concern and Stipulations Including Exceptions, Modifications, and Waivers by Alternative**

Resource Of Concern	Applicable Area	Stipulation Code	Alternative			Stipulation Description
			B	PROPOSED PLAN	D	
			radius		mi. radius	<p>buffer on a year-round basis.</p> <p><b>Purpose:</b> To protect occupied lek sites within Greater sage-grouse habitat.</p> <p><b>Exception:</b> An exception may be granted by the Field Manager if the operator submits a plan which demonstrates that impacts from the proposed action can be adequately mitigated.</p> <p><b>Modification:</b> The Field Manager may modify the boundaries of the stipulation area if (1) portions of the area do not include lek sites, or (2) the lek site(s) have been completely abandoned or destroyed, or (3) occupied lek site(s) occur outside the current defined area; as determined by the BLM.</p> <p><b>Waiver:</b> A waiver may be granted if there are no active lek site(s) in the leasehold and it is determined the site(s) have been completely abandoned or destroyed or occur outside current defined area, as determined by the BLM.</p>
Special Status Species: Greater Sage-grouse	Nesting and Brood Rearing Habitat	TL	X 12,850 acres	X 3,068 acres	X 1,986 acres	<p>Allow no surface-disturbing activities in occupied nesting and brood rearing habitat from March 15<sup>th</sup> to July 15<sup>th</sup>.</p> <p><b>Purpose:</b> To protect occupied nesting and brood rearing habitat for the Greater sage-grouse.</p> <p><b>Exception:</b> An exception may be granted by the Field Manager if the operator submits a plan which demonstrates that impacts from the proposed action can be adequately mitigated or it is determined the brooding/nesting habitat is <u>not active</u>.</p> <p><b>Modification:</b> The Field Manager may modify the boundaries of the stipulation area if (1) portions of the area do not include brooding/nesting habitat, or (2) the brooding/nesting habitat has been completely abandoned or destroyed, or (3) occupied brooding/nesting habitat occurs outside the current defined area; as determined by the BLM.</p> <p><b>Waiver:</b> A waiver may be granted if there is no active brooding/nesting habitat in the leasehold and it is determined the habitat has been completely abandoned or destroyed or occurs outside the current defined area, as determined by the BLM.</p>

**Table C.1 Resources of Concern and Stipulations Including Exceptions, Modifications, and Waivers by Alternative**

Resource Of Concern	Applicable Area	Stipulation Code	Alternative			Stipulation Description
			B	PROPOSED PLAN	D	
Special Status Species: Greater Sage-grouse	Winter Habitat	TL	X 12,850 acres	X 3,068 acres	X 1,986 acres	<p>Allow no surface-disturbing activities in occupied winter habitat from November 15<sup>th</sup> to March 14<sup>th</sup>.</p> <p><b>Purpose:</b> To protect occupied winter habitat for the Greater sage-grouse.</p> <p><b>Exception:</b> An exception may be granted by the Field Manager if the operator submits a plan which demonstrates that impacts from the proposed action can be adequately mitigated or it is determined the habitat is <u>not occupied</u> during the winter season.</p> <p><b>Modification:</b> The Field Manager may modify the boundaries of the stipulation area if (1) portions of the area do not include winter habitat, or (2) the brooding/nesting habitat has been completely abandoned or destroyed, or (3) occupied winter activity occurs outside the current defined area; as determined by the BLM.</p> <p><b>Waiver:</b> A waiver may be granted if the winter habitat in the leasehold has been completely abandoned or destroyed or occurs outside the current defined area, as determined by the BLM.</p>
Special Status Species: Gunnison Sage-grouse	Lek Sites	CSU/TL	X 246,107 acres 2 mi. radius	X 175,727 acres 2 & 0.5 mi. radius	X 41,620 acres 0.25 mi. radius	<p>If Gunnison sage-grouse leks are discovered, no surface-disturbing activities will be allowed (1) within 2 miles, 0.5 miles, or 0.25 miles of a lek (depending on selected alternative) from March 20<sup>th</sup> through May 15<sup>th</sup>, and (2) no permanent aboveground facilities would be allowed within the selected buffer on a year-round basis.</p> <p><b>Purpose:</b> To protect occupied lek sites within Gunnison sage-grouse habitat.</p> <p><b>Exception:</b> An exception may be granted by the Field Manager if the operator submits a plan which demonstrates that impacts from the proposed action can be adequately mitigated.</p> <p><b>Modification:</b> The Field Manager may modify the boundaries of the stipulation area if (1) portions of the area do not include lek sites, or (2) the lek site(s) have been completely abandoned or destroyed, or (3) occupied lek site(s) occur outside the current defined area; as determined by the BLM.</p>

**Table C.1 Resources of Concern and Stipulations Including Exceptions, Modifications, and Waivers by Alternative**

Resource Of Concern	Applicable Area	Stipulation Code	Alternative			Stipulation Description
			B	PROPOSED PLAN	D	
						<p><b>Waiver:</b> A waiver may be granted if there are no active lek site(s) in the leasehold and it is determined the site(s) have been completely abandoned or destroyed or occur outside current defined area, as determined by the BLM.</p>
<p>Special Status Species: Sagebrush/sage-grouse habitat</p>	<p>Planning area</p>	<p>CSU</p>	<p>X 2:1 ratio 258,957 acres</p>	<p>X 1:1 ratio 178,975 acres</p>	<p>X 1:1 ratio 43,606 acres</p>	<p>There will be no net loss of sagebrush/steppe habitat from federal actions. Loss of sagebrush/steppe habitat essential to wildlife (i.e., sage-grouse and other sagebrush obligate species) will be reclaimed or enhanced at the ratio established by the alternative.</p> <p><b>Purpose:</b> To protect sagebrush/sage steppe communities</p> <p><b>Exception:</b> An exception may be granted by the Field Manager if the operator submits a plan which demonstrates that impacts from the action would not result in any net loss of habitat.</p> <p><b>Modification:</b> The Field Manager may modify the boundaries of the stipulation area if portions of the area do not include habitat or are outside the current defined area, as determined by the BLM.</p> <p><b>Waiver:</b> May be granted to the stipulation area if it is determined the habitat no longer exists or has been destroyed.</p>
<p>Special Status Species: White-tailed Prairie Dog</p>	<p>White-tailed prairie dog habitat</p>	<p>CSU</p>	<p>X 199,505 acres Incl. 117,481 acres of ACEC</p>			<p>Do not allow surface-disturbing activities within 1300 feet of prairie dog colonies identified within prairie dog habitat (the size of the habitat varies by alternative). No permanent aboveground facilities would be allowed within the 1300 feet buffer. The ACEC acreage included in Alternative B would be managed according to the stipulation for the Cisco White-tailed Prairie Dog Complex ACEC).</p> <p><b>Purpose:</b> To protect white-tailed prairie dog habitat.</p> <p><b>Exception:</b> An exception may be granted if the applicant submits a plan that indicates that impacts of the proposed action can be adequately mitigated or, if due to the size of the town, there is no reasonable location to develop a lease and avoid colonies the Field Manager will allow for loss of prairie dog colonies and/or habitat to satisfy terms and conditions of the lease.</p>

**Table C.1 Resources of Concern and Stipulations Including Exceptions, Modifications, and Waivers by Alternative**

Resource Of Concern	Applicable Area	Stipulation Code	Alternative			Stipulation Description
			B	PROPOSED PLAN	D	
						<p><b>Modification:</b> The Field Manager may modify the boundaries of the stipulation area if portions of the area does not include prairie dog habitat or <i>active</i> colonies are found outside current defined area, as determined by BLM.</p> <p><b>Waiver:</b> May be granted if in the leasehold if is determined that habitat no longer exists or has been destroyed.</p>
<p>Special Status Species: White-tailed Prairie Dog</p>	White-tailed prairie dog habitat	<p>CSU Open with standard terms for oil and gas leasing. The 200 meter rule can be applied.</p>		<p>X 117,481 acres</p>	<p>X 31,186 acres</p>	<p>Do not allow surface-disturbing activities within 660 feet of prairie dog colonies identified within prairie dog habitat (the size of the habitat varies by alternative). No permanent aboveground facilities would be allowed within the 660 feet buffer.</p> <p><b>Purpose:</b> To protect white-tailed prairie dog habitat.</p> <p><b>Exception:</b> An exception may be granted if the applicant submits a plan that indicates that impacts of the proposed action can be adequately mitigated or, if due to the size of the town, there is no reasonable location to develop a lease and avoid colonies the Field Manager will allow for loss of prairie dog colonies and/or habitat to satisfy terms and conditions of the lease.</p> <p><b>Modification:</b> The Field Manager may modify the boundaries of the stipulation area if portions of the area does not include prairie dog habitat or <i>active</i> colonies are found outside current defined area, as determined by BLM.</p> <p><b>Waiver:</b> May be granted if in the leasehold if is determined that habitat no longer exists or has been destroyed.</p>
<p>Special Status Species: Gunnison Prairie Dog</p>	Gunnison prairie dog habitat	CSU	<p>X 10,740 acres</p>			<p>Do not allow surface-disturbing activities within 1300 feet of active prairie dog colonies identified within prairie dog habitat. No permanent aboveground facilities would be allowed within the 1300 feet buffer.</p> <p><b>Purpose:</b> To protect Gunnison prairie dog habitat.</p> <p><b>Exception:</b> An exception may be granted if the applicant submits a plan that indicates that impacts of the proposed action can be adequately mitigated or, if due to the size of the town, there is no reasonable location to develop a lease and avoid colonies the Field Manager will allow for loss of prairie</p>

**Table C.1 Resources of Concern and Stipulations Including Exceptions, Modifications, and Waivers by Alternative**

Resource Of Concern	Applicable Area	Stipulation Code	Alternative			Stipulation Description
			B	PROPOSED PLAN	D	
						<p>dog colonies and/or habitat to satisfy terms and conditions of the lease.</p> <p><b>Modification:</b> The Field Manager may modify the boundaries of the stipulation area if portions of the area does not include prairie dog habitat or <i>active</i> colonies are found outside current defined area, as determined by BLM.</p> <p><b>Waiver:</b> May be granted if it is determined that the habitat no longer exists or has been destroyed within the leasehold.</p>
<p>Special Status Species: Gunnison Prairie Dog</p>	Gunnison prairie dog habitat	<p>CSU</p> <p>Open with standard terms for oil and gas leasing. The 200 meter rule can be applied.</p>		<p>X</p> <p>10, 740 acres</p>		<p>Do not allow surface-disturbing activities within 660 feet of active prairie dog colonies identified within prairie dog habitat. No permanent aboveground facilities would be allowed within the 660 feet buffer.</p> <p><b>Purpose:</b> To protect Gunnison prairie dog habitat.</p> <p><b>Exception:</b> An exception may be granted if the applicant submits a plan that indicates that impacts of the proposed action can be adequately mitigated or, if due to the size of the town, there is no reasonable location to develop a lease and avoid colonies the Field Manager will allow for loss of prairie dog colonies and/or habitat to satisfy terms and conditions of the lease.</p> <p><b>Modification:</b> The Field Manager may modify the boundaries of the stipulation area if portions of the area does not include prairie dog habitat or <i>active</i> colonies are found outside current defined area, as determined by BLM.</p> <p><b>Waiver:</b> May be granted if it is determined that the habitat no longer exists or has been destroyed within the leasehold.</p>
<p>Wildlife: Desert Bighorn Sheep</p>	Desert Bighorn Lambing Grounds and Migration Corridors	NSO	<p>X</p> <p>130,419 acres</p>			<p>No surface-disturbing activities would be allowed within desert bighorn lambing grounds and migration corridors. Certain lands within the habitat would be physically inaccessible to oil and gas drilling operations under a NSO stipulation and therefore would be closed to oil and gas leasing. These lands remain NSO for all other surface-disturbing activities.</p> <p><b>Purpose:</b> To minimize disturbance within desert bighorn lambing grounds and migration corridors.</p>

**Table C.1 Resources of Concern and Stipulations Including Exceptions, Modifications, and Waivers by Alternative**

Resource Of Concern	Applicable Area	Stipulation Code	Alternative			Stipulation Description
			B	PROPOSED PLAN	D	
						<p><b>Exception:</b> The Field Manager may grant an exception if the operator submits a plan which demonstrates that impacts from the proposed action can be adequately mitigated.</p> <p><b>Modification:</b> The Field Manager may modify the boundaries of the stipulation area if a portion of the area is (1) not being used as desert bighorn lambing grounds or migration corridors (2) if habitat is being utilized outside of stipulation boundaries for and needs to be protected.</p> <p><b>Waiver:</b> A waiver may be granted if the habitat is determined as unsuitable for lambing or migration and there is no reasonable likelihood of future use as desert bighorn lambing grounds and migration corridors.</p>
Wildlife – Desert Bighorn Sheep	Desert Bighorn Lambing Grounds and Migration Corridors	NSO		X 101,897 acres		<p>No surface-disturbing activities would be allowed within desert bighorn lambing grounds and migration corridors.</p> <p><b>Purpose:</b> To minimize disturbance within desert bighorn lambing grounds and migration corridors.</p> <p><b>Exception:</b> Within migration corridors, pipeline and road construction and geophysical exploration for oil and gas development would be allowed from June 16<sup>th</sup> through October 14<sup>th</sup> and from December 16<sup>th</sup> through March 31<sup>st</sup>. The Field Manager may also grant an exception if the operator submits a plan which demonstrates that impacts from the proposed action can be adequately mitigated.</p> <p><b>Modification:</b> The Field Manager may modify the boundaries of the stipulation area if a portion of the area is (1) not being used as desert bighorn lambing grounds or migration corridors (2) if habitat is being utilized outside of stipulation boundaries for and needs to be protected.</p> <p><b>Waiver:</b> A waiver may be granted if the habitat is determined as unsuitable for lambing or migration and there is no reasonable likelihood of future use as desert bighorn lambing and/or rutting grounds and migration corridors.</p>
Wildlife – Desert Bighorn	Desert Bighorn Lambing and	TL			X 46,31	No surface-disturbing activities would be allowed from April 1 to June 15 and from October 15 to December 15 within desert

**Table C.1 Resources of Concern and Stipulations Including Exceptions, Modifications, and Waivers by Alternative**

Resource Of Concern	Applicable Area	Stipulation Code	Alternative			Stipulation Description
			B	PROPOSED PLAN	D	
Sheep	Rutting Grounds				9 acres	<p>bighorn lambing and rutting grounds.</p> <p><b>Purpose:</b> To minimize disturbance within bighorn lambing grounds.</p> <p><b>Exception:</b> None</p> <p><b>Modification:</b> The Field Manager may modify the boundaries of the stipulation area if a portion of the area is (1) not being used as desert bighorn lambing grounds or (2) if habitat is being utilized outside of stipulation boundaries and needs to be protected</p> <p><b>Waiver:</b> A waiver may be granted if the habitat is determined as unsuitable for lambing and there is no reasonable likelihood of future use as desert bighorn lambing grounds.</p>
Wildlife – Pronghorn	Pronghorn Fawning Grounds within Cisco Desert & Hatch Point (LaSal Wildlife Management Units)	TL  Open with standard terms for oil and gas leasing. The 60 day rule can be applied	X 882,001 acres	X 293,741 acres	X 78,477 acres	<p>Allow no surface-disturbing activities from May 1 to June 15 within fawning grounds. The acreage of habitat varies by alternative.</p> <p><b>Purpose:</b> To minimize stress and disturbance during critical antelope birthing time.</p> <p><b>Exception:</b> May be granted to these dates by the Field Manager if the operator submits a plan which demonstrates that impacts from the proposed action can be adequately mitigated or if it is determined the habitat is not being utilized for fawning in any given year.</p> <p><b>Modification:</b> The Field Manager may modify the boundaries of the stipulation area if a portion of the area is not being used as fawning grounds or if habitat is being utilized outside of stipulation boundaries as crucial fawning grounds and needs to be protected.</p> <p><b>Waiver:</b> May be granted if the fawning grounds are determined to be unsuitable or unoccupied and there is no reasonable likelihood of future use of the fawning grounds.</p>
Wildlife – Deer & Elk	Deer and Elk Winter Range	TL	X 635,774 acres	X 349,955 acres	X 349,955	<p>Do not allow surface-disturbing activities from November 1 to May 15 (Alt B), from November 15 to April 15 (Proposed Plan), and from December 1 to April 15 (Alt D). The acreage of habitat</p>

**Table C.1 Resources of Concern and Stipulations Including Exceptions, Modifications, and Waivers by Alternative**

Resource Of Concern	Applicable Area	Stipulation Code	Alternative			Stipulation Description
			B	PROPOSED PLAN	D	
					acres	<p>varies by alternative.</p> <p><b>Purpose:</b> To minimize stress and disturbance to deer and elk during critical winter months.</p> <p><b>Exception:</b> This stipulation does not apply to the maintenance and operation of existing and ongoing facilities. An exception may be granted by the Field Manager if the operator submits a plan which demonstrates that impacts from the proposed action can be adequately mitigated or it is determined the habitat is not being utilized during the winter period for any given year.</p> <p><b>Modification:</b> The Field Manager may modify the boundaries of the stipulation area (1) if a portion of the area is not being used as winter range by deer/elk or (2) if habitat is being utilized outside of stipulation boundaries as winter range and needs to be protected or (3) if the migration patterns have changed causing a difference in the season of use.</p> <p><b>Waiver:</b> May be granted if the winter range habitat is unsuitable or unoccupied during winter months by deer/elk and there is no reasonable likelihood of future winter range use.</p>

**Table C.1 Resources of Concern and Stipulations Including Exceptions, Modifications, and Waivers by Alternative**

Resource Of Concern	Applicable Area	Stipulation Code	Alternative			Stipulation Description
			B	PROPOSED PLAN	D	
Wildlife – Deer & Elk	Deer and Elk Fawning and Calving Habitat (Bookcliffs and La Sal Wildlife Management Units)	TL  Open with standard terms for oil and gas leasing. The 60 day rule can be applied	X  105,636 acres	X  105,636 acres	X  105,636 acres	<p>Allow no surface-disturbing activities in deer and elk fawning and calving habitat from May 15 to June 30.</p> <p><b>Purpose:</b> To minimize stress and disturbance during this critical period.</p> <p><b>Exception:</b> This stipulation does not apply to the maintenance and operation of existing and ongoing facilities. An exception may be granted by the Field Manager if the operator submits a plan which demonstrates that impacts from the proposed action can be adequately mitigated or it is determined the habitat is not being utilized during the critical period for any given year.</p> <p><b>Modification:</b> The Field Manager may modify the boundaries of the stipulation area (1) if a portion of the area is not being used as fawning and calving habitat or (2) if the habitat is being utilized outside of stipulation boundaries and needs to be protected or (3) if the migration patterns have changed causing a difference in the season of use.</p> <p><b>Waiver:</b> May be granted if the fawning and calving habitat is unsuitable or unoccupied during winter months by deer/elk and there is no reasonable likelihood of future winter range use.</p>

**Table C.2. Closed Areas (Nondiscretionary)**

Resource Of Concern	Applicable Area	Stipulation Code	Alternative			Stipulation Description
			B	PROPOSED PLAN	D	
Wilderness Study Areas	Behind The Rocks (12,635 acres), Black Ridge (52 acres), Coal Canyon (64,546 acres), Desolation Canyon (81,603 acres), Floy Canyon (72,605 acres), Flume Canyon (50,800 acres), Lost Spring Canyon (1,624 acres), Mill Creek Canyon (9,780 acres), Negro Bill Canyon (7,820 acres), Spruce Canyon (20,990 acres), West Water Canyon (31,160 acres). Total = 353,606 acres	Closed	X	X	X	Areas within Wilderness Study Areas are closed to oil and gas leasing and other surface-disturbing activities. <b>Purpose:</b> To protect wilderness values. <b>Exception:</b> None <b>Modification:</b> None <b>Waiver:</b> None
Designated wilderness	Black Ridge (5,200 acres)	Closed	X	X	X	The designated Black Ridge Wilderness is closed to oil and gas leasing and other surface-disturbing activities. <b>Purpose:</b> To protect wilderness values. <b>Exception:</b> None <b>Modification:</b> None <b>Waiver:</b> None

**Table C.3. Closed Areas Applicable Only to Oil and Gas Leasing (Discretionary)**

Resource Of Concern	Applicable Area	Stipulation Code	Alternative			Stipulation Description
			B	PROPOSED PLAN	D	
Areas with Wilderness Characteristics	Arches Adjacent, Beaver Creek, Behind the Rocks, Big Triangle, Coal Canyon, Dead Horse Cliffs, Desolation Canyon, Diamond Canyon, Dome Plateau, Fisher Towers, Goldbar, Gooseneck, Granite Creek, Harts Point, Hatch Wash, Hells Hole, Hideout Canyon, Horsethief Point, Hunter Canyon, Labyrinth Canyon, Lockhart/Hatch/Harts, Lost Spring Canyon, Mary Jane Canyon, Mexico Point, Mill Creek Canyon, Negro Bill Canyon (including Morning Glory and Porcupine Rim), Shafer Canyon, Spruce Canyon, Westwater Canyon, Westwater Creek, Yellow Bird  Total = 265,485 acres	Closed	X			Areas identified with wilderness characteristics are closed to oil and gas leasing and other surface-disturbing activities.  <b>Purpose:</b> To protect the resource values associated with wilderness characteristics. <b>Exception:</b> None <b>Modification:</b> None <b>Waiver:</b> None

**Table C.3. Closed Areas Applicable Only to Oil and Gas Leasing (Discretionary)**

Resource Of Concern	Applicable Area	Stipulation Code	Alternative			Stipulation Description
			B	PROPOSED PLAN	D	
Lands where a NSO stipulation is not reasonable because they would be physically inaccessible to oil and gas directional drilling operations	Within areas of Big Horn Sheep Habitat and Canyon Rims ACEC.	Closed	X			<p>The lands identified would be closed to oil and gas leasing because they would be physically inaccessible by directional drilling operations using current technology if a NSO stipulation were to be applied. These areas remain NSO for all other surface-disturbing activities.</p> <p><b>Purpose:</b> To protect the resource values within the areas identified.</p> <p><b>Exception:</b> None</p> <p><b>Modification:</b> None</p> <p><b>Waiver:</b> None</p>
Lands where a NSO stipulation is not reasonable because they would be physically inaccessible to oil and gas directional drilling operations.	Within areas of the Three Rivers Withdrawal, and within the Beaver Creek, Fisher Towers and Mary Jane areas with wilderness characteristics (25,306 acres).	Closed		X		<p>The lands identified would be closed to oil and gas leasing because they would be physically inaccessible by directional drilling operations using current technology if a NSO stipulation were to be applied. These areas remain NSO for all other surface-disturbing activities.</p> <p><b>Purpose:</b> To protect the resource values within the areas identified.</p> <p><b>Exception:</b> None</p> <p><b>Modification:</b> None</p> <p><b>Waiver:</b> None</p>

**Table C.4. Standard Terms and Conditions (Oil and Gas Lease Notices) Applicable to all Surface-disturbing activities Which are Required to Protect Special Status and Federally Protected Species and to Comply with the Endangered Species Act**

Resource Of Concern	Applicable Area	Stipulation Code	Alternative				Stipulation Description
			A	B	PROPOSED PLAN	D	
Special Status Species: Mexican Spotted Owl (MSO)	MSO Habitat and Nest Sites 121,686 acres	CSU/TL	X	X	X	X	<p>In areas that contain suitable habitat for MSO or designated Critical Habitat, actions would be avoided or restricted that may cause stress and disturbance during nesting and rearing of their young. Appropriate measures would depend on whether the action is temporary or permanent and whether it occurs within or outside the owl nesting season. A temporary action is completed prior to the following breeding season leaving no permanent structures and resulting in no permanent habitat loss. A permanent action continues for more than one breeding season and/or causes a loss of owl habitat or displaces owls through disturbances, i.e., creation of a permanent structure. Current avoidance and minimization measures include the following:</p> <p>Surveys will be required prior to implementation of the proposed action. All surveys must be conducted by qualified individual(s) acceptable to the BLM.</p> <p>Assess habitat suitability for both nesting and foraging using accepted habitat models in conjunction with field reviews. Apply the conservation measures below if project activities occur within 0.5 mile of suitable owl habitat. Determine potential effects of actions to owls and their habitat.</p> <p>Document type of activity, acreage and location of direct habitat impacts, type and extent of indirect impacts relative to location of suitable owl habitat.</p> <p>Document if action is temporary or permanent.</p> <p>Activities may require monitoring throughout the duration of the project. To ensure desired results are being achieved, minimization measures will be evaluated, and, if necessary, Section 7 consultation</p>

**Table C.4. Standard Terms and Conditions (Oil and Gas Lease Notices) Applicable to all Surface-disturbing activities Which are Required to Protect Special Status and Federally Protected Species and to Comply with the Endangered Species Act**

Resource Of Concern	Applicable Area	Stipulation Code	Alternative				Stipulation Description
			A	B	PROPOSED PLAN	D	
							<p>reinitiated.</p> <p>Any activity that includes water production should be managed to ensure maintenance of enhancement of riparian habitat.</p> <p>Where technically and economically feasible, use directional drilling or multiple wells from the same pad to reduce surface disturbance and eliminate drilling in canyon habitat suitable for MSO nesting.</p> <p>For all temporary actions that may impact owls or suitable habitat:</p> <ul style="list-style-type: none"> <li>a. If the action occurs entirely outside of the owl breeding season from <b>March 1 through August 31</b>, and leaves no permanent structure or permanent habitat disturbance, the action can proceed without an occupancy survey.</li> <li>b. If the action will occur during a breeding season, a survey for owls is required prior to commencing the activity. If owls are found, the activity should be delayed until outside of the breeding season.</li> <li>c. Rehabilitate access routes created by the project through such means as raking out scars, re-vegetation, gating access points, etc.</li> </ul> <p>For all permanent actions that may impact owls or suitable habitat:</p> <ul style="list-style-type: none"> <li>a. Survey two consecutive years for owls according to accepted protocol prior to commencing activities.</li> <li>b. If owls are found, no disturbing actions will occur within 0.5 mile of an identified site. If nest site is unknown, no activity will occur within the designated current and historic Protected Activity</li> </ul>

**Table C.4. Standard Terms and Conditions (Oil and Gas Lease Notices) Applicable to all Surface-disturbing activities Which are Required to Protect Special Status and Federally Protected Species and to Comply with the Endangered Species Act**

Resource Of Concern	Applicable Area	Stipulation Code	Alternative				Stipulation Description
			A	B	PROPOSED PLAN	D	
							<p>Center (PAC).</p> <p>c. Avoid permanent structures within 0.5 mile of suitable habitat unless surveyed and not occupied.</p> <p>d. Reduce noise emissions (e.g., use hospital-grade mufflers) to 45 dBA at 0.5 mile from suitable habitat, including canyon rims. Placement of permanent noise-generating facilities should be contingent upon a noise analysis to ensure noise does not encroach upon a 0.5 mile buffer for suitable habitat, including canyon rims.</p> <p>e. Limit disturbances to and within suitable habitat by staying on designated and/or approved routes.</p> <p>f. Limit new access routes created by the project.</p> <p>Modifications to the Surface Use Plan of Operations may be required in order to protect the MSO and/or habitat in accordance with Section 6 of the lease terms, the Endangered Species Act, and the regulations at 43 CFR 3101.1-2.</p> <p><b>Purpose:</b> To protect MSO habitat.</p> <p><b>Exception:</b> An exception may be granted by the Field Manager if authorization is obtained from USFWS (through applicable provisions of the ESA). The Field Manager may also grant an exception if an environmental analysis indicates that the nature or the conduct of the actions would not impair the primary constituent element determined necessary for the survival and recovery of the MSO and USFWS concurs with this determination.</p> <p><b>Modification:</b> The Field Manager may modify the boundaries of the stipulation area if an environmental analysis indicates and USFWS (through applicable</p>

**Table C.4. Standard Terms and Conditions (Oil and Gas Lease Notices) Applicable to all Surface-disturbing activities Which are Required to Protect Special Status and Federally Protected Species and to Comply with the Endangered Species Act**

Resource Of Concern	Applicable Area	Stipulation Code	Alternative				Stipulation Description
			A	B	PROPOSED PLAN	D	
							provisions of the ESA) determines a portion of the area is not being used as Critical Habitat. <b>Waiver:</b> A waiver may be granted if the MSO is de-listed and the Critical Habitat is determined by USFWS as not necessary for the survival and recovery of the MSO.
Federally Protected Species: Bald Eagles	Nest sites and winter roost areas within habitat for Bald Eagles 143,421 acres	CSU/TL	X	X	X	X	In areas that contain habitat for the bald eagle, actions would be avoided or restricted that may cause stress and disturbance during nesting and rearing of their young. Appropriate measures will depend on whether the action is temporary or permanent, and whether it occurs within or outside the bald eagle breeding or roosting season. A temporary action is completed prior to the following breeding or roosting season leaving no permanent structures and resulting in no permanent habitat loss. A permanent action continues for more than one breeding or roosting season and/or causes a loss of eagle habitat or displaces eagles through disturbances, i.e., creation of a permanent structure. Current avoidance and minimization measures include the following:  <ol style="list-style-type: none"> <li>1. Surveys would be required prior to operations unless species occupancy and distribution information is complete and available. All surveys must be conducted by qualified individual(s), and be conducted according to protocol.</li> <li>2. Lease activities would require monitoring throughout the duration of the project. To ensure desired results are being achieved, minimization measures would be evaluated.</li> <li>3. Water production would be managed to ensure maintenance or enhancement of riparian habitat.</li> </ol>

**Table C.4. Standard Terms and Conditions (Oil and Gas Lease Notices) Applicable to all Surface-disturbing activities Which are Required to Protect Special Status and Federally Protected Species and to Comply with the Endangered Species Act**

Resource Of Concern	Applicable Area	Stipulation Code	Alternative				Stipulation Description
			A	B	PROPOSED PLAN	D	
							<p>4. Temporary activities within 1.0 mile of nest sites would not occur during the breeding season of <b>January 1 to August 31</b>, unless the area has been surveyed according to protocol and determined to be unoccupied.</p> <p>5. Temporary activities within 0.5 miles of winter roost areas, e.g., cottonwood galleries, would not occur during the winter roost season of <b>November 1 to March 31</b>, unless the area has been surveyed according to protocol and determined to be unoccupied.</p> <p>6. No permanent infrastructure would be placed within 1.0 mile of nest sites.</p> <p>7. No permanent infrastructure would be placed within 0.5 miles of winter roost areas.</p> <p>8. Remove big game carrion to 100 feet from on lease roadways occurring within bald eagle foraging range.</p> <p>9. Avoid loss or disturbance to large cottonwood gallery riparian habitats.</p> <p>10. Where technically and economically feasible, use directional drilling or multiple wells from the same pad to reduce surface disturbance and eliminate drilling in suitable habitat. Utilize direction drilling to avoid direct impacts to large cottonwood gallery riparian habitats. Ensure that such direction drilling does not intercept or degrade alluvial aquifers.</p> <p>11. All areas of surface disturbance within riparian areas and/or adjacent uplands should be re-vegetated with native species.</p>

**Table C.4. Standard Terms and Conditions (Oil and Gas Lease Notices) Applicable to all Surface-disturbing activities Which are Required to Protect Special Status and Federally Protected Species and to Comply with the Endangered Species Act**

Resource Of Concern	Applicable Area	Stipulation Code	Alternative				Stipulation Description
			A	B	PROPOSED PLAN	D	
							<p>Additional measures may also be employed to avoid or minimize effects to the species between the lease stage and lease development stage.</p> <p><b>Purpose:</b> To protect bald eagle habitat.</p> <p><b>Exception:</b> An exception may be granted by the Field Manager if authorization is obtained from USFWS (through applicable provisions of the ESA). The Field Manager may also grant an exception if an environmental analysis indicates that the nature of the conduct of the actions, as proposed or conditioned, would not impair the primary constituent element determined necessary for the survival and recovery of the Bald Eagles and USFWS and UDWR concur with this determination.</p> <p><b>Modification:</b> The Field Manager may modify the boundaries of the stipulation area if an environmental analysis indicates, and USFWS and UDWR (through applicable provisions of the ESA) determines that a portion of the area is not being used as Bald Eagle nesting territories.</p> <p><b>Waiver:</b> May be granted if Bald Eagles are de-listed and if USFWS and UDWR determine it is not necessary to protect nesting territories according to the Endangered Species Act and The Bald Eagle Protection Act or if there is no reasonable likelihood of site occupancy over a minimum 10 year period.</p>
<p>Federally Protected Species:</p> <p>Golden Eagle</p>	<p>Golden Eagle nest sites and territories</p> <p>12,902 acres</p>	CSU/TL	X	X	X	X	<p>No surface-disturbing activities will be allowed within a 0.5 miles radius of documented Golden Eagle nest sites within nesting territories from <b>February 1 to July 15th</b> or until fledgling and dispersal of young. Any access created by the action will be outside of nesting season and will be eliminated once action is complete.</p>

**Table C.4. Standard Terms and Conditions (Oil and Gas Lease Notices) Applicable to all Surface-disturbing activities Which are Required to Protect Special Status and Federally Protected Species and to Comply with the Endangered Species Act**

Resource Of Concern	Applicable Area	Stipulation Code	Alternative				Stipulation Description
			A	B	PROPOSED PLAN	D	
							<p><b>Purpose:</b> To protect Golden Eagle nest sites and nesting territories.</p> <p><b>Exception:</b> An exception may be granted by the Field Manager if authorization is obtained from USFWS and UDWR. The Field Manager may also grant an exception if an environmental analysis indicates that the nature or the conduct of the actions, as proposed or conditioned, would not impair the primary constituent element determined necessary for the survival and recovery of the Golden Eagle.</p> <p><b>Modification:</b> The Field Manager may modify the boundaries of the stipulation area if an environmental analysis indicates and USFWS and UDWR determine a portion of the area is not being used as Golden Eagle nesting territories.</p> <p><b>Waiver:</b> A waiver may be granted if an individual Golden Eagle nest has been inactive (unoccupied) for at least a period of 3 years. Nest-monitoring data for a 3-year period would be required before the waiver could be granted.</p>
Special Status Species: Southwestern Willow Flycatcher	Southwestern Willow Flycatcher Habitat	CSU/TL	X	X	X	X	<p>In areas that contain riparian habitat within the range for the Southwestern willow flycatcher, actions would be avoided or restricted that may cause stress and disturbance during nesting and rearing of their young. Appropriate measures will depend on whether the action is temporary or permanent, and whether it occurs within or outside the nesting season. A temporary action is completed prior to the following breeding season leaving no permanent structures and resulting in no permanent habitat loss. A permanent action continues for more than one breeding season and/or causes a loss of habitat or displaces flycatchers through disturbances, i.e., creation of a</p>

**Table C.4. Standard Terms and Conditions (Oil and Gas Lease Notices) Applicable to all Surface-disturbing activities Which are Required to Protect Special Status and Federally Protected Species and to Comply with the Endangered Species Act**

Resource Of Concern	Applicable Area	Stipulation Code	Alternative				Stipulation Description
			A	B	PROPOSED PLAN	D	
							<p>permanent structure. Current avoidance and minimization measures include the following:</p> <ol style="list-style-type: none"> <li>1. Surveys would be required prior to operations unless species occupancy and distribution information is complete and available. All surveys must be conducted by qualified individual(s) and be conducted according to protocol.</li> <li>2. Activities would require monitoring throughout the duration of the project. To ensure desired results are being achieved, minimization measures would be evaluated and, if necessary, Section 7 consultation reinitiated.</li> <li>3. Water production would be managed to ensure maintenance or enhancement of riparian habitat.</li> <li>4. Where technically and economically feasible, use directional drilling or multiple wells from the same pad to reduce surface disturbance and eliminate drilling in suitable riparian habitat. Ensure that such directional drilling does not intercept or degrade alluvial aquifers.</li> <li>5. Activities would maintain a 300 feet buffer from suitable riparian habitat year long.</li> <li>6. Activities within 0.25 mile of occupied breeding habitat would not occur during the breeding season of <b>May 1 to August 15</b></li> <li>7. Ensure that water extraction or disposal practices do not result in change of hydrologic regime that would result in loss or degradation of riparian habitat.</li> <li>8. Re-vegetate with native species all areas of surface disturbance within riparian areas and/or</li> </ol>

**Table C.4. Standard Terms and Conditions (Oil and Gas Lease Notices) Applicable to all Surface-disturbing activities Which are Required to Protect Special Status and Federally Protected Species and to Comply with the Endangered Species Act**

Resource Of Concern	Applicable Area	Stipulation Code	Alternative				Stipulation Description
			A	B	PROPOSED PLAN	D	
							<p>adjacent land.</p> <p>Additional measures to avoid or minimize effects to the species may be developed and implemented in consultation with the USFWS between the lease sale stage and lease development stage to ensure continued compliance with the ESA.</p> <p><b>Purpose:</b> To protect southwestern willow flycatcher habitat.</p> <p><b>Exception:</b> An exception may be granted by the Field Manager if authorization is obtained from USFWS (through applicable provisions of the ESA). The Field Manager may also grant an exception if an environmental analysis indicates that the nature of the conduct of the actions, as proposed or conditioned, would not impair the primary constituent element determined necessary for the survival and recovery of the southwestern willow flycatcher and USFWS concurs with this determination.</p> <p><b>Modification:</b> The Field Manager may modify the boundaries of the stipulation area if an environmental analysis indicates, and USFWS (through applicable provisions of the ESA) determines that a portion of the area is not being used as southwestern willow flycatcher habitat.</p> <p><b>Waiver:</b> May be granted if the southwestern willow flycatcher is de-listed and if USFWS determines it is not necessary for the survival and recovery of the southwestern willow flycatcher.</p>
Special Status Species: Yellow-billed Cuckoo	Yellow-billed Cuckoo Habitat	CSU/TL	X	X	X	X	<p>No surface-disturbing activities would be conducted within 100 meters of Yellow-billed Cuckoo habitat (riparian areas) from May 15<sup>th</sup> through July 20<sup>th</sup>.</p> <p><b>Purpose:</b> To manage Yellow-billed Cuckoo habitat.</p>

**Table C.4. Standard Terms and Conditions (Oil and Gas Lease Notices) Applicable to all Surface-disturbing activities Which are Required to Protect Special Status and Federally Protected Species and to Comply with the Endangered Species Act**

Resource Of Concern	Applicable Area	Stipulation Code	Alternative				Stipulation Description
			A	B	PROPOSED PLAN	D	
							<p><b>Exception:</b> An exception may be granted by the Field Manager if authorization is obtained from USFWS (through applicable provisions of the ESA). The Field Manager may also grant an exception if an environmental analysis indicates that the nature of the conduct of the actions, as proposed or conditioned, would not impair the primary constituent element determined necessary for the survival and recovery of the Yellow-billed Cuckoo and USFWS concurs with this determination.</p> <p><b>Modification:</b> The Field Manager may modify the boundaries of the stipulation area if an environmental analysis indicates, and USFWS (through applicable provisions of the ESA) determines that a portion of the area is not being used as Yellow-billed Cuckoo habitat.</p> <p><b>Waiver:</b> May be granted if the Yellow-billed Cuckoo is de-listed and if USFWS determines it is not necessary for the survival and recovery of the Yellow-billed Cuckoo.</p>
Special Status Species–Sensitive Raptor Species: Ferruginous Hawk and Burrowing Owl	Raptor Habitat Ferruginous Hawk (158,928 acres) Burrowing Owl (1,652, 024 acres)	CSU/TL	X	X	X	X	<p>In habitat for raptor species, no surface disturbances or occupancy would be conducted during the breeding and nesting season (March 1 to August 31 for burrowing owl and March 1 – August 1 for ferruginous hawk) within spatial buffers (0.25 mile for burrowing owl and 0.5 mile for ferruginous hawk) of known nesting sites.</p> <p><b>Purpose:</b> To protect raptor habitat.</p> <p><b>Exception:</b> An exception would be granted if protocol surveys determine that nesting sites, breeding territories, and winter roosting areas are not occupied.</p> <p><b>Modification:</b> The Field Manager may modify the</p>

**Table C.4. Standard Terms and Conditions (Oil and Gas Lease Notices) Applicable to all Surface-disturbing activities Which are Required to Protect Special Status and Federally Protected Species and to Comply with the Endangered Species Act**

Resource Of Concern	Applicable Area	Stipulation Code	Alternative				Stipulation Description
			A	B	PROPOSED PLAN	D	
							boundaries of the stipulation area if portions of the area do not include habitat or are outside the current defined area, as determined by the BLM. <b>Waiver:</b> May be granted if it is determined the habitat no longer exists or has been destroyed.
Special Status Species: Critical Habitat of the Endangered Colorado River Fishes	Colorado River, , Green River, , Colorado River and Dolores River, Confluence, and all associated back waters 48,513 acres	NSO	X	X	X	X	Surface-disturbing activities within the 100 year floodplain of the Colorado River, Green River, and at the Dolores/Colorado River confluence would not be allowed. Other avoidance and minimization measures include: <ul style="list-style-type: none"> <li>• Surveys will be required prior to operations unless species occupancy and distribution information is complete and available. All surveys must be conducted by qualified individuals.</li> <li>• Lease activities will require monitoring throughout the duration of the project. To ensure desired results are being achieved, minimization measures will be evaluated and, if necessary, Section 7 consultation reinitiated.</li> <li>• Water production will be managed to ensure maintenance or enhancement of riparian habitat.</li> <li>• Avoid loss or disturbance of riparian habitats.</li> <li>• Conduct watershed analysis for leases in designated critical habitat and overlapping major tributaries in order to determine toxicity risk from permanent facilities</li> <li>• Implement the Utah Oil and Gas Pipeline Crossing Guidance.</li> <li>• In areas adjacent to 100 year floodplains, particularly in systems prone to flash floods, analyze the risk for flash floods to impact facilities,</li> </ul>

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Resource Of Concern	Applicable Area	Stipulation Code	Alternative				Stipulation Description
			A	B	PROPOSED PLAN	D	
							<p>and use closed loop drilling, and pipeline burial or suspension according to the Utah Oil and Gas Pipeline Crossing Guidance, to minimize the potential for equipment damage and resulting leaks or spills.</p> <p><b>Purpose:</b> To protect critical habitat of the endangered Colorado River fishes.</p> <p><b>Exception:</b> An exception may be granted by the Field Manager if:</p> <p>1) There is no practical alternative, and 2) the development would enhance riparian/aquatic values. This exception would require consultation with the USFWS. The Field Manager may also grant an exception if an environmental analysis indicates that the nature or the conduct of the actions, as proposed or conditioned, would not impair the primary constituent element determined necessary for the survival and recovery of the Endangered Colorado River , fishes.</p> <p><b>Modification:</b> The Field Manager may modify the boundaries of the stipulation area if an environmental analysis indicates, and USFWS (through applicable provisions of the ESA) determines a portion of the area is not being used as Critical Habitat.</p> <p><b>Waiver:</b> A waiver may be granted if the Endangered Colorado River Fishes are de-listed and the Critical Habitat is determined by USFWS as not necessary for the survival and recovery of the Endangered Colorado River fishes.</p>
Special Status Species: Kit Fox	Kit Fox Habitat	CSU	X	X	X	X	<p>In Kit Fox habitat, allow no surface disturbances within 200 meters of a kit fox den.</p> <p><b>Purpose:</b> To protect Kit Fox habitat.</p>

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Resource Of Concern	Applicable Area	Stipulation Code	Alternative				Stipulation Description
			A	B	PROPOSED PLAN	D	
							<p><b>Exception:</b> An exception would be granted if protocol surveys determine that Kit Fox dens are not present.</p> <p><b>Modification:</b> The Field Manager may modify the stipulation area if portions of the area do not contain habitat.</p> <p><b>Waiver:</b> A waiver may be granted if it is determined that the habitat no longer exists.</p>
Special Status Species: California Condor	California Condor Potential Habitat	CSU/TL	X	X	X	X	<p>Avoidance or use restrictions may be placed on portions on areas known or suspected to be used by condors. Application of appropriate measures will depend on whether the action is temporary or permanent, and whether it occurs within or outside potential habitat. A temporary action is completed prior to the following important season of use, leaving for habitat functionality. A permanent action continues for more than one season of habitat use, and/or causes a loss of condor habitat function or displaces condors through continued disturbance (i.e. creation of a permanent structure requiring repetitious maintenance, or emits disruptive levels of noise).</p> <p>Current avoidance and minimization measures include the following:</p> <p>Surveys will be required prior to operations unless species occupancy and distribution information is complete and available. All Surveys must be conducted by qualified individual(s) approved by the BLM, and must be conducted according to approved protocol.</p> <p>If surveys result in positive identification of condor use, all lease activities will require monitoring throughout the duration of the project to ensure desired results of applied mitigation and protection. Minimization</p>

**Table C.4. Standard Terms and Conditions (Oil and Gas Lease Notices) Applicable to all Surface-disturbing activities Which are Required to Protect Special Status and Federally Protected Species and to Comply with the Endangered Species Act**

Resource Of Concern	Applicable Area	Stipulation Code	Alternative				Stipulation Description
			A	B	PROPOSED PLAN	D	
							<p>measures will be evaluated during development and, if necessary, Section 7 consultation may be reinitiated.</p> <p>Temporary activities within 1.0 mile of nest sites will not occur during the breeding season.</p> <p>Temporary activities within 0.5 miles of established roosting sites or areas will not occur during the season of use, August 1 to November 31, unless the area has been surveyed according to protocol and determined to be unoccupied.</p> <p>No permanent infrastructure will be placed within 1.0 mile of nest sites.</p> <p>No permanent infrastructure will be placed within 0.5 miles of established roosting sites or areas.</p> <p>Remove big game carrion to 100 feet from on lease roadways occurring within foraging range.</p> <p>Where technically and economically feasible, use directional drilling or multiple wells from the same pad to reduce surface disturbance and eliminate drilling in suitable habitat Utilize directional drilling to avoid direct impacts to large cottonwood gallery riparian habitats. Ensure that such directional drilling does not intercept or degrade alluvial aquifers.</p> <p>Reinitiation of section 7 consultation with the Service will be sought immediately if mortality or disturbance to California condors is anticipated as a result of project activities. Additional site-specific measures may also be employed to avoid or minimize effects to the species. These additional measures will be developed and implemented in consultation with the U.S. Fish and Wildlife Service to ensure continued compliance with the ESA.</p> <p>Additional measures may also be employed to avoid</p>

**Table C.4. Standard Terms and Conditions (Oil and Gas Lease Notices) Applicable to all Surface-disturbing activities Which are Required to Protect Special Status and Federally Protected Species and to Comply with the Endangered Species Act**

Resource Of Concern	Applicable Area	Stipulation Code	Alternative				Stipulation Description
			A	B	PROPOSED PLAN	D	
							or minimize effects to the species between the lease sale and lease development stages. These additional measures will be developed and implemented in consultation with the U.S. Fish and Wildlife Service to ensure continued compliance with the Endangered Species Act.
Jones cycladenia ( <i>C. humilis</i> var. <i>jonesii</i> )	Potential, suitable, and occupied habitat	TL/CSU	X	X	X	X	<p>Potential, suitable, and occupied habitat are defined as follows:</p> <p><i>Potential habitat</i> is defined as areas which satisfy the broad criteria of the species habitat description; usually determined by preliminary, in-house assessment.</p> <p><i>Suitable habitat</i> is defined as areas which contain or exhibit the specific components or constituents necessary for plant persistence; determined by field inspection and/or surveys; may or may not contain clay reed-mustard; habitat descriptions can be found in Federal Register Notice and species recovery plan links at &lt;<a href="http://www.fws.gov/endangered/wildlife.html">http://www.fws.gov/endangered/wildlife.html</a>&gt;.</p> <p><i>Occupied habitat</i> is defined as areas currently or historically known to support clay reed-mustard; synonymous with "known habitat."</p> <p>Current avoidance and minimization measures include the following:</p> <ol style="list-style-type: none"> <li>1. Pre-project habitat assessments will be completed across 100% of the project disturbance area within potential habitat prior to any ground disturbing activities to determine if suitable Jones cycladenia habitat is present.</li> <li>2. Site inventories will be conducted within suitable</li> </ol>

**Table C.4. Standard Terms and Conditions (Oil and Gas Lease Notices) Applicable to all Surface-disturbing activities Which are Required to Protect Special Status and Federally Protected Species and to Comply with the Endangered Species Act**

Resource Of Concern	Applicable Area	Stipulation Code	Alternative				Stipulation Description
			A	B	PROPOSED PLAN	D	
							<p>habitat to determine occupancy. Where standard surveys are technically infeasible and otherwise hazardous due to topography, slope, etc., suitable habitat will be assessed and mapped for avoidance (hereafter, "avoidance areas"); in such cases, in general, 300' buffers will be maintained between surface disturbance and avoidance areas. However, site specific distances will need to be approved by FWS and BLM when disturbance will occur upslope of habitat. Where conditions allow, inventories:</p> <p>a. Must be conducted by qualified individual(s) and according to BLM and Service accepted survey protocols,</p> <p>b. Will be conducted in suitable and occupied habitat for all areas proposed for surface disturbance prior to initiation of project activities and within the same growing season, at a time when the plant can be detected (usually May 15<sup>st</sup> to June 30<sup>th</sup>, however, surveyors should verify that the plant is flowering by contacting a BLM or FWS botanist or demonstrating that the nearest known population is in flower ),</p> <p>c. Will occur within 300' from the centerline of the proposed right-of-way for surface pipelines or roads; and within 300' from the perimeter of disturbance for the proposed well pad including the well pad,</p> <p>d. Will include, but not be limited to, plant species lists and habitat characteristics, and</p> <p>e. Will be valid until May 1<sup>st</sup> the following year.</p> <p>3. Design project infrastructure to minimize impacts within suitable habitat:</p> <p>a. Where standard surveys are technically infeasible, infrastructure and activities will avoid all suitable</p>

**Table C.4. Standard Terms and Conditions (Oil and Gas Lease Notices) Applicable to all Surface-disturbing activities Which are Required to Protect Special Status and Federally Protected Species and to Comply with the Endangered Species Act**

Resource Of Concern	Applicable Area	Stipulation Code	Alternative				Stipulation Description
			A	B	PROPOSED PLAN	D	
							habitat (avoidance areas) and incorporate 300' buffers, in general; however, site specific distances will need to be approved by FWS and BLM when disturbance will occur upslope of habitat, b. Reduce well pad size to the minimum needed, without compromising safety, c. Where technically and economically feasible, use directional drilling or multiple wells from the same pad, d. Limit new access routes created by the project, e. Roads and utilities should share common right-of-ways where possible, f. Reduce the width of right-of-ways and minimize the depth of excavation needed for the road bed; where feasible, use the natural ground surface for the road within habitat, g. Place signing to limit off-road travel in sensitive areas, and h. Stay on designated routes and other cleared/approved areas. i. All disturbed areas will be revegetated with native species comprised of species indigenous to the area and non-native species that are not likely to invade other areas. 4. Within occupied habitat, project infrastructure will be designed to avoid direct disturbance and minimize indirect impacts to populations and to individual plants: a. Follow the above recommendations (#3) for project design within suitable habitats, b. To avoid water flow and/or sedimentation into occupied habitat and avoidance areas, silt fences, hay

**Table C.4. Standard Terms and Conditions (Oil and Gas Lease Notices) Applicable to all Surface-disturbing activities Which are Required to Protect Special Status and Federally Protected Species and to Comply with the Endangered Species Act**

Resource Of Concern	Applicable Area	Stipulation Code	Alternative				Stipulation Description
			A	B	PROPOSED PLAN	D	
							<p>bales, and similar structures or practices will be incorporated into the project design; appropriate placement of fill is encouraged,</p> <p>d. Construction of roads will occur such that the edge of the right of way is at least 300' from any plant and 300' from avoidance areas,</p> <p>e. Roads will be graveled within occupied habitat; the operator is encouraged to apply water for dust abatement to such areas from May 15<sup>th</sup> to June 30<sup>th</sup> (flowering period); dust abatement applications will be comprised of water only,</p> <p>f. The edge of the well pad should be located at least 300' away from plants and avoidance areas, in general; however, site specific distances will need to be approved by FWS and BLM when disturbance will occur upslope of habitat,</p> <p>g. Surface pipelines will be laid such that a 300' buffer exists between the edge of the right of way and plants and 300' between the edge of right of way and avoidance areas; use stabilizing and anchoring techniques when the pipeline crosses suitable habitat to ensure pipelines don't move towards the population; site specific distances will need to be approved by FWS and BLM when disturbance will occur upslope of habitat,</p> <p>h. Construction activities will not occur from May 15<sup>th</sup> through June 30<sup>th</sup> within occupied habitat,</p> <p>i. Before and during construction, areas for avoidance should be visually identifiable in the field, e.g., flagging, temporary fencing, rebar, etc.,</p> <p>j. Place produced oil, water, or condensate tanks in centralized locations, away from occupied habitat, and</p>

**Table C.4. Standard Terms and Conditions (Oil and Gas Lease Notices) Applicable to all Surface-disturbing activities Which are Required to Protect Special Status and Federally Protected Species and to Comply with the Endangered Species Act**

Resource Of Concern	Applicable Area	Stipulation Code	Alternative				Stipulation Description
			A	B	PROPOSED PLAN	D	
							<p>k. Minimize the disturbed area of producing well locations through interim and final reclamation. Reclaim well pads following drilling to the smallest area possible.</p> <p>5. Occupied Jones cycladenia habitats within 300' of the edge of the surface pipelines' right of ways, 300' of the edge of the roads' right of ways, and 300' from the edge of the well pad shall be monitored for a period of three years after ground disturbing activities. Monitoring will include annual plant surveys to determine plant and habitat impacts relative to project facilities. Annual reports shall be provided to the BLM and the Service. To ensure desired results are being achieved, minimization measures will be evaluated and may be changed after a thorough review of the monitoring results and annual reports during annual meetings between the BLM and the Service.</p> <p>6. Reinitiation of section 7 consultation with the Service will be sought immediately if any loss of plants or occupied habitat for the Jones cycladenia is anticipated as a result of project activities. Additional site-specific measures may also be employed to avoid or minimize effects to the species. These additional measures will be developed and implemented in consultation with the U.S. Fish and Wildlife Service to ensure continued compliance with the ESA.</p>

## APPENDIX D.

### LANDS IDENTIFIED FOR DISPOSAL IN REVISED MOAB RMP

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#### D.1 INTRODUCTION

The parcels listed below meet FLPMA Section 203 criteria for disposal by sale. These lands can also be considered for disposal under FLMPA Section 206 exchange or under the Recreation and Public Purposes Act (R&PP). However, Section 206 exchanges and R&PP disposals are not limited to this list if they meet the criteria for disposal outlined in Appendix A of this plan.

<u>Parcel #*</u>	<u>Legal Description</u>	<u>Acres</u>	
R-1	T. 20 S., R. 16 E.	sec. 21, SE $\frac{1}{4}$ SW $\frac{1}{4}$	40.00
		sec. 23, SW $\frac{1}{4}$ NW $\frac{1}{4}$	40.00
		sec. 25, All	640.00
		sec. 26, SW $\frac{1}{4}$ SW $\frac{1}{4}$ , W $\frac{1}{2}$ SW $\frac{1}{4}$ , SE $\frac{1}{4}$	280.00
		sec. 27, SE $\frac{1}{4}$ SE $\frac{1}{4}$	40.00
		sec. 28, lot 2, E $\frac{1}{2}$ NW $\frac{1}{4}$ , S $\frac{1}{2}$	439.84
		sec. 33, lots 1-3, NE $\frac{1}{4}$ , E $\frac{1}{2}$ NW $\frac{1}{4}$ , NE $\frac{1}{4}$ SW $\frac{1}{4}$ , N $\frac{1}{2}$ SE $\frac{1}{4}$	488.70
	sec. 34, W $\frac{1}{2}$ NW $\frac{1}{4}$	80.00	
	T. 21 S., R. 16 E.	sec. 1, lots 1, 4, 5, 8, 9, 12, 13, 16	263.00
		sec. 3, lot 25	70.16
		sec. 12, S $\frac{1}{2}$ SE $\frac{1}{4}$	80.00
		sec. 13, NE $\frac{1}{4}$ NE $\frac{1}{4}$	40.00
	T. 21 S., R. 17 E.	sec. 4, lots 11-14, N $\frac{1}{2}$ SW $\frac{1}{4}$ , SW $\frac{1}{4}$ SW $\frac{1}{4}$ , NW $\frac{1}{4}$ SE $\frac{1}{4}$ , SE $\frac{1}{4}$ SE $\frac{1}{4}$	360.00
		sec. 5, E $\frac{1}{2}$ SE $\frac{1}{4}$	80.00
		sec. 6, lots 2, 3, 4, 5, 7, 10	271.73
		sec. 7, lot 4, SE $\frac{1}{4}$ SW $\frac{1}{4}$ , SE $\frac{1}{4}$	233.94
		sec. 8, NW $\frac{1}{4}$ SW $\frac{1}{4}$ , SE $\frac{1}{4}$ SW $\frac{1}{4}$ , SE $\frac{1}{4}$	240.00
		sec. 9, NE $\frac{1}{4}$ , N $\frac{1}{2}$ NW $\frac{1}{4}$ , SW $\frac{1}{4}$ NW $\frac{1}{4}$ , S $\frac{1}{2}$	600.00
		sec. 17, N $\frac{1}{2}$ , N $\frac{1}{2}$ S $\frac{1}{2}$ , S $\frac{1}{2}$ SW $\frac{1}{4}$	560.00
		sec. 18, lots 1-4, E $\frac{1}{2}$ W $\frac{1}{2}$ , E $\frac{1}{2}$	615.60
		sec. 19, lot 1, E $\frac{1}{2}$ NW $\frac{1}{4}$ , E $\frac{1}{2}$	434.03
		secs. 20, 21, All	1280.00
		sec. 22, N $\frac{1}{2}$ NE $\frac{1}{4}$ , SW $\frac{1}{4}$ NW $\frac{1}{4}$ , E $\frac{1}{2}$ SW $\frac{1}{4}$ , SE $\frac{1}{4}$ SW $\frac{1}{4}$ , S $\frac{1}{2}$ SE $\frac{1}{4}$	320.00
R-2	T. 21 S., R. 16 E.	sec. 22, NE $\frac{1}{4}$ SE $\frac{1}{4}$	40.00
		sec. 23, SW $\frac{1}{4}$ , W $\frac{1}{2}$ SE $\frac{1}{4}$ , SE $\frac{1}{4}$ SE $\frac{1}{4}$	280.00
		sec. 25, NW $\frac{1}{4}$ , S $\frac{1}{2}$	480.00
		sec. 26, All	640.00
		sec. 35, N $\frac{1}{2}$ , E $\frac{1}{2}$ SW $\frac{1}{4}$ , SE $\frac{1}{4}$	560.00
	T. 21 S., R. 17 E.	sec. 30, lot 4	35.40

R-3	T. 21 S., R. 20 E.,	sec. 21, N $\frac{1}{2}$ NE $\frac{1}{4}$	20.00	
R-4	T. 19 S., R. 23 E.,	sec. 7, SW $\frac{1}{4}$ NE $\frac{1}{4}$ SW $\frac{1}{4}$	10.00	
R-5	T. 20 S., R. 24 E.,	sec. 18, SW $\frac{1}{4}$ NE $\frac{1}{4}$ , W $\frac{1}{2}$ SE $\frac{1}{4}$ , SE $\frac{1}{4}$ SE $\frac{1}{4}$	160.00	
R-6	T. 21 S., R. 23 E.,	sec. 23, NE $\frac{1}{4}$ SE $\frac{1}{4}$	40.00	
R-7	T. 21 S., R. 24 E.,	sec. 27, E $\frac{1}{2}$ NW $\frac{1}{4}$ SE $\frac{1}{4}$ , NE $\frac{1}{4}$ SW $\frac{1}{4}$ SE $\frac{1}{4}$	30.00	
		sec. 34, NE $\frac{1}{4}$ NE $\frac{1}{4}$ NE $\frac{1}{4}$ NE $\frac{1}{4}$	2.50	
		sec. 35, NE $\frac{1}{4}$ NW $\frac{1}{4}$ NW $\frac{1}{4}$ , N $\frac{1}{2}$ NW $\frac{1}{4}$ NW $\frac{1}{4}$ NW $\frac{1}{4}$ , SE $\frac{1}{4}$ NW $\frac{1}{4}$ NW $\frac{1}{4}$ NW $\frac{1}{4}$	17.50	
R-8	T. 23 S., R. 19 E.,	sec. 14, N $\frac{1}{2}$ NW $\frac{1}{4}$ , SW $\frac{1}{4}$ , E $\frac{1}{2}$	560.00	
		sec. 15, All	640.00	
		sec. 22, All	640.00	
		sec. 23, All	640.00	
R-9	T. 24 S., R. 23 E.,	sec. 21, within SE $\frac{1}{4}$ SE $\frac{1}{4}$	3.51	
		sec. 22, within NE $\frac{1}{4}$ SW $\frac{1}{4}$ , SW $\frac{1}{4}$ SE $\frac{1}{4}$	3.85	
		sec. 27, within NE $\frac{1}{4}$ NW $\frac{1}{4}$ NW $\frac{1}{4}$	2.58	
		NE $\frac{1}{4}$ NW $\frac{1}{4}$ SW $\frac{1}{4}$ NE $\frac{1}{4}$ , N $\frac{1}{2}$ NE $\frac{1}{4}$ SW $\frac{1}{4}$ NE $\frac{1}{4}$	7.43	
R-10	T. 26 S., R. 21 E	sec. 12, lots 2, 6, NE $\frac{1}{4}$ of lot 11, 12	129.25	
		sec. 13, lot 1	22.47	
	T. 26 S., R. 22 E	sec. 18, lot 1	39.23	
		sec. 20, lot 1	39.47	
		lot 89 (excluding the W $\frac{1}{2}$ NW $\frac{1}{4}$ , SE $\frac{1}{4}$ NW $\frac{1}{4}$ , SW $\frac{1}{4}$ , and W $\frac{1}{2}$ SE $\frac{1}{4}$ of the lot)	17.12	
		lot 8 (NE $\frac{1}{4}$ )	10.00	
		NE $\frac{1}{4}$ NW $\frac{1}{4}$ NW $\frac{1}{4}$ , N $\frac{1}{2}$ NW $\frac{1}{4}$ NW $\frac{1}{4}$ NW $\frac{1}{4}$	15.00	
		sec. 27, NW $\frac{1}{4}$ SW $\frac{1}{4}$ , N $\frac{1}{2}$ SW $\frac{1}{4}$ SW $\frac{1}{4}$ , N $\frac{1}{2}$ SW $\frac{1}{4}$ SW $\frac{1}{4}$ SW $\frac{1}{4}$ SE $\frac{1}{4}$ SW $\frac{1}{4}$ SW $\frac{1}{4}$ SW $\frac{1}{4}$ , SE $\frac{1}{4}$ SW $\frac{1}{4}$ SW $\frac{1}{4}$	77.50	
		sec. 28, lot 6, SE $\frac{1}{4}$ NE $\frac{1}{4}$ , NE $\frac{1}{4}$ SW $\frac{1}{4}$ NE $\frac{1}{4}$ , E $\frac{1}{2}$ NE $\frac{1}{4}$ SE $\frac{1}{4}$	70.00	
		sec. 34, W $\frac{1}{2}$ NE $\frac{1}{4}$ , E $\frac{1}{2}$ NE $\frac{1}{4}$ NW $\frac{1}{4}$ , NW $\frac{1}{4}$ NE $\frac{1}{4}$ NW $\frac{1}{4}$ N $\frac{1}{2}$ SW $\frac{1}{4}$ NE $\frac{1}{4}$ NW $\frac{1}{4}$ , N $\frac{1}{2}$ NE $\frac{1}{4}$ NW $\frac{1}{4}$ NW $\frac{1}{4}$ SE $\frac{1}{4}$ NE $\frac{1}{4}$ NW $\frac{1}{4}$ NW $\frac{1}{4}$ , E $\frac{1}{2}$ NE $\frac{1}{4}$ SE $\frac{1}{4}$ NW $\frac{1}{4}$ NE $\frac{1}{4}$ NW $\frac{1}{4}$ SE $\frac{1}{4}$ , NE $\frac{1}{4}$ NW $\frac{1}{4}$ NW $\frac{1}{4}$ SE $\frac{1}{4}$ N $\frac{1}{2}$ SE $\frac{1}{4}$ NW $\frac{1}{4}$ SE $\frac{1}{4}$ , SE $\frac{1}{4}$ SE $\frac{1}{4}$ NW $\frac{1}{4}$ SE $\frac{1}{4}$ N $\frac{1}{2}$ SE $\frac{1}{4}$ SE $\frac{1}{4}$ , N $\frac{1}{2}$ SW $\frac{1}{4}$ SE $\frac{1}{4}$ SE $\frac{1}{4}$ SE $\frac{1}{4}$ SW $\frac{1}{4}$ SE $\frac{1}{4}$ SE $\frac{1}{4}$ , SE $\frac{1}{4}$ SE $\frac{1}{4}$ SE $\frac{1}{4}$	185.00	
		sec. 35, SW $\frac{1}{4}$ SW $\frac{1}{4}$	40.00	
		T. 27 S., R. 22 E	sec. 2, lots 3 and 4, SE $\frac{1}{4}$ NW $\frac{1}{4}$	126.82
			sec. 11, N $\frac{1}{2}$ NE $\frac{1}{4}$ NE $\frac{1}{4}$ , N $\frac{1}{2}$ SW $\frac{1}{4}$ NE $\frac{1}{4}$ NE $\frac{1}{4}$ SE $\frac{1}{4}$ SW $\frac{1}{4}$ NE $\frac{1}{4}$ NE $\frac{1}{4}$ , SE $\frac{1}{4}$ NE $\frac{1}{4}$ NE $\frac{1}{4}$	37.50
			sec. 12, SW $\frac{1}{4}$ NW $\frac{1}{4}$	40.00

R-11	(deleted)		
R-12	T. 28 S., R. 23 E	sec. 31, SE $\frac{1}{4}$ NW $\frac{1}{4}$	40.00
R-13	T. 23 S., R. 17 E., sec. 31,	NW $\frac{1}{4}$ NE $\frac{1}{4}$ , S $\frac{1}{2}$ NE $\frac{1}{4}$ , E $\frac{1}{2}$ SE $\frac{1}{4}$	200.00

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# **APPENDIX E.**

## **MOAB FIELD OFFICE RECREATION RULES**

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### **E.1 CAMPING**

#### **E.1.1 CAMPING IN RESTRICTED AREAS**

Camping is restricted to improved recreation sites (i.e., campgrounds or camping areas) with facilities managed for overnight use. Fires are restricted to metal fire grills provided at the campgrounds. When camping in areas with developed facilities, camping is restricted to designated sites. Collection of firewood is prohibited (Colorado Riverway, Sand Flats, Ken's Lake/Flat Pass *Highway 313 corridor, including road to Canyonlands National Park*). Where indicated, camping in areas without developed facilities is restricted to designated, undeveloped campsites. Campers are required to carry out solid human body waste (unless toilets are provided), and must possess and utilize a toilet system that allows for the disposal of such waste through authorized sewage systems. *Fires are restricted to the designated site*, and collection of firewood is prohibited. The controlled camping areas (some of which may have zero sites designated) are: *Bartlett/Courthouse/Dubinky area, Long Canyon road corridor, Gemini Bridges road corridor and within Little Canyon, Seven Mile Canyon, the BLM land west of Arches National Park, Blue Hill-Black Ridge area, Utah Rims, White Wash Sand Dunes, Ten Mile Canyon (Dripping Spring Area), Mill Creek Canyon Management Area, areas within Spanish Valley, Kane Creek Crossing, land surrounding developed recreation areas in the Canyon Rims Recreation Area, the corridor of the Green River "Daily"*). As campgrounds are constructed in the above or in other areas, camping would be restricted to improved recreation sites (i.e., campgrounds or camping areas) with facilities managed for overnight use.

#### **E.1.2 DISPERSED CAMPING**

In all other locations, dispersed camping is permitted on public land. Vehicles associated with such camping are restricted to the designated road system. Campers are required to clean up their campsites. When damage to an area from dispersed camping becomes obtrusive, that area would be added to the "controlled camping" category, where camping is restricted to designated, undeveloped campsites with rules as outlined above. Obtrusive can refer to any or all of the following problems: human sanitation, trash, hacked trees, trampled vegetation and fire danger from excessive campfires.

#### **E.1.3 RIVER-TRIP CAMPING**

Campers on all overnight river trips (Colorado, Green and Dolores Rivers) must carry out all solid human waste, campfire ash, and charcoal and dispose of them properly. Solid human body waste must be disposed of in authorized sewage systems. All overnight boating trips must possess a durable metal fire pan at least 12 inches wide with a 1.5-inch lip, and restrict all fires to this fire pan. Collection of firewood is prohibited, except for driftwood. Campers in Westwater Canyon are restricted to designated sites, which are assigned at the Ranger Station. In addition,

no camping is allowed for a distance of two miles below Cisco Landing. Campers on the Colorado River "Daily" must camp in the campgrounds provided if camping on the south side of the river.

## **E.2 CAMPSITE USE LIMITATIONS**

Campsite occupancy is limited to posted numbers of vehicles and persons within campgrounds, camping areas, and controlled camping areas.

## **E.3 FEES**

Fees may be charged for any and all campgrounds on BLM administered land, and within the following areas: Colorado Riverway, Sand Flats, Westwater Canyon of the Colorado River, the Green River, the Dolores River, and on the Kokopelli's Trail.

## **E.4 OCCUPANCY STAY LIMITATION**

No person may occupy public lands for more than 14 days within a consecutive 28-day interval. Beyond the 14-day period, occupation of another site shall not be within a 30 mile air radius of the heretofore occupied location. When the 14 days have been reached, site occupation shall not reoccur until at least 14 days have expired from the last day of use.

Unattended personal property shall not be kept on public lands for a period of more than 48 hours, with the exception that vehicles may be parked in designated parking areas for up to 14 consecutive days.

## **E.5 FIRES**

In addition to the campfire restrictions above, fires are also prohibited in the following areas: *Mill Creek Canyon Management Area and Negro Bill Canyon.*

## **E.6 FIREWOOD CUTTING AND GATHERING**

Where indicated (Canyon Rims, Sand Flats, Green River "Daily" corridor, Colorado Riverway, Highway 313 corridor including Canyonlands National Park entrance road, Gemini Bridges Road corridor, Long Canyon road corridor, Black Ridge road corridor, Blue Hill road corridor, Ken's Lake, Mill Creek Canyon Management Area, Behind the Rocks, and Negro Bill) firewood cutting and gathering, Christmas tree cutting and firewood permits are prohibited, except for traditional and historic uses by Native Americans, BLM official uses, or military, fire, emergency or law enforcement actions.

If conditions warrant, areas of restricted firewood cutting and gathering may be enlarged.

## **E.7 FIREARMS DISCHARGE**

The discharge of firearms for all purposes is prohibited at improved recreation sites. Discharge of firearms for non-hunting purposes is prohibited in the Colorado Riverway SRMA, along the Green River "Daily" section, in the Mill Creek Planning Area, and in the Sand Flats Recreation Management Area. As numbers of visitors increase to any area, discharge of firearms restrictions may be extended to these areas to protect human life and safety.

## **E.8 SPARK ARRESTORS**

Spark arrestors are required on all public lands in the Moab Field Office as per CFR 8343.1(c).

## **E.9 POSSESSION OF ALCOHOL BY MINORS**

Persons under 21 years of age are prohibited from possessing alcoholic beverages consistent with State law.

## **E.10 RIVER USE**

### ***E.10.1 BOATING PERMITS***

Noncommercial float trip permits are required for the Colorado River in Westwater Canyon, on the Dolores River from the Utah line to the Colorado River confluence, and on the Green River within Labyrinth Canyon. These permits require the possession of first aid kits, air pumps, repair kits, portable toilet systems, and fire-pans. In addition, boaters may not gather firewood (except driftwood), must dispose of trash properly, must use biodegradable soap, may not bathe with any soap in tributary streams, and may not remove, damage or destroy any archaeological, historical or ecological resource.

### ***E.10.2 MOTORIZED BOAT TRAVEL***

No boats may be launched for upstream motorized travel at the Westwater Ranger Station from February 1 through October 15 for protection of bald eagle nests.

No boats may be launched for upstream or downstream motorized travel at Cisco Landing from February 1 through October 15 for protection of bald eagle nests.

## **E.11 ADDITIONAL SPECIAL RULES**

No casting of dinosaur tracks without a permit issued through the BLM Utah State Office.

No glass containers at the Moab Canyon Sand Hill and at the Powerhouse Lane Trailhead and lower Mill Creek for a distance of 1 mile from the trailhead.

No burning of wood pallets on public lands within the Moab Field Office.

No camping with vehicles within 200 feet of isolated springs and potholes to allow space for wildlife access to water.

No commercial or private equestrian use in Negro Bill Canyon. Commercial equestrian use in Mill Creek Canyon would only be allowed on the Steelbender Road.

## APPENDIX F.

### SPECIAL RECREATION MANAGEMENT AREAS: GOALS, SETTINGS, OUTCOMES, AND MANAGEMENT PRESCRIPTIONS

#### F.1 DEFINITIONS

These definitions are used throughout this Appendix:

##### Physical – Land & Facilities: The Character of the Natural Landscape

Primitive	Back Country	Middle Country	Front Country	Rural
Undisturbed natural landscape	Naturally appearing landscape having modifications not readily noticeable; primitive roads made of native materials	Naturally appearing landscape except for obvious primitive roads; maintained and marked trails, simple trailhead developments, improved signs, and very basic toilets	Landscape partially modified by roads, utility lines, etc., but none overpower natural landscape features; improved yet modest; rustic facilities such as campsites, restrooms, trails, and interpretive signs	Natural landscape substantially modified by agriculture or industrial development; modern facilities such as campgrounds and boat launches

##### Social – Visitor Use & Users: The Character of Recreation and Tourism Use

Primitive	Back Country	Middle Country	Front Country	Rural
Fewer than 3 encounters/day on travel routes; only footprints observed; no noise or litter	3-6 encounters per day; footprints and bicycle tracks observed; noise and litter infrequent; slight soil and vegetation disturbance at campsites and popular areas	7-14 encounters/day on travel routes; vehicle tracks observed; occasional noise and litter; vegetation and soils becoming worn at campsites and high-use areas	15-29 encounters/day on travel routes; vehicle tracks common; some noise and litter; vegetation and soils commonly worn at campsites, along travel routes, and at popular areas	People seem to be generally everywhere; frequent noise and litter; large but localized areas with vegetation damage and soil compaction

**Administrative – Administration and Services**

<b>Primitive</b>	<b>Back Country</b>	<b>Middle Country</b>	<b>Front Country</b>	<b>Rural</b>
No mechanized use; no visitor services available; no visitor controls apparent; no use limits; enforcement presence very rare	Mountain bikes; and mechanized use; basic maps, but area personnel seldom available to provide on-site assistance; signs at key access points on basic user ethics; may have back country use restrictions; enforcement presence rare	OHVs/mechanized use; area brochures and maps, area personnel occasionally present to provide on-site assistance; occasional regulatory signing; motorized and mechanized use restrictions; random enforcement presence	Two-wheeled drive vehicles predominant, but also OHV and mechanized use; information materials describe recreation areas and activities; area personnel are periodically available; rules clearly posted; periodic enforcement presence	Highway auto and truck traffic is characteristic; informational materials describe recreation areas and activities plus experience and benefit descriptions; area personnel do on-site education; regulations prominent; enforcement presence

## F.2 SPECIAL RECREATION MANAGEMENT AREAS

### Bookcliffs Special Recreation Management Area (undeveloped SRMA) 357,070 acres in Alternative B

<b>Description</b>		
<p>The Bookcliffs are located north of I-70 and extend the entire width of the Moab Field Office from the Green River to the Colorado state line. The SRMA is concentrated in the central and eastern portions, and much of the area is within Wilderness Study Areas (WSA). The area has a limited number of roads, making motorized access difficult. Recreation use of this area is very light, with hunting being the most common activity. The only current infrastructure consists of directional signs.</p>		
<b>Management Goals</b>		
<p>For a variety of visitor benefits, provide opportunities for hiking, backpacking, equestrian and primitive hunting in the mostly undeveloped areas of the Bookcliffs. For specific recreation management prescriptions, see Chapter 2.</p>		
<b>Setting</b>		
<p>Maintain the backcountry character and primarily undisturbed natural landscape to allow visitors to enjoy opportunities for solitude. Provide a very low level of facilities and management presence. Physical: Back country; Social: Primitive; Administrative: Primitive.</p>		
<b>Targeted Outcomes</b>		
<b>Activity</b>	<b>Experience</b>	<b>Benefit</b>
Hiking and backpacking	Savoring the total sensory experience of a natural landscape	Improved outdoor knowledge and self-confidence; closer relationship with the natural world
Equestrian	Developing your skills and abilities	Improved skills for outdoor enjoyment; improved outdoor knowledge and self-confidence.
Primitive hunting	Experiencing a greater sense of independence	Improved skills for outdoor enjoyment; Improved outdoor recreation skills
<b>Management Prescriptions from Other Programs</b>		
<p><u>Travel Management</u>: Primarily Closed, with remainder Limited to Designated Roads (See Map 2-11 for Designated Routes)</p> <p><u>Visual Resource Management (VRM)</u>: Primarily VRM I (see map 2-23)</p> <p><u>Oil and Gas Leasing</u>: Primarily closed, with remainder Open to Leasing with Special Stipulations (see map 2-5)</p>		

**Cameo Cliffs Special Recreation Management Area (Destination SRMA)  
15,597 acres in Alternatives B, D and Proposed Plan**

<b>Description</b>		
<p>Cameo Cliffs is located east of U.S. Highway 191 and south of Moab near Hook and Ladder Gulch. The SRMA has an OHV trailhead, an information kiosk; the SRMA is riddled with a series of old mining exploration roads. These roads are lightly marked for OHV travel. Recreation use of this area is very light, with ATV'ing, hiking and horseback riding occurring.</p>		
<b>Management Goals</b>		
<p>For a variety of visitor benefits, provide opportunities for ATV'ing and other motorized travel on old mining exploration roads; provide opportunities for equestrian use on the Old Spanish Trail and in other non-roaded locations; provide opportunities for hiking in Hook and Ladder Gulch.</p>		
<b>Setting</b>		
<p>Maintain the scenic qualities of the area to allow visitors to enjoy an uncrowded experience. Provide information and a management presence sufficient to ensure that travel occurs only on the designated route system. Physical: Middle Country; Social: Middle Country; Administrative: Middle Country.</p>		
<b>Targeted Outcomes</b>		
<b>Activity</b>	<b>Experience</b>	<b>Benefit</b>
ATV Riding	Enjoying having easy access to natural landscapes	Positive contributions to local economic stability
Horseback riding	Adventure and exploration on a National Historic trail	Increased sense of adventure and appreciation for history Increased local tourism revenue
Hiking	Enjoying an escape from crowds of people	Greater sense of adventure Increased local tourism revenue
<b>Management Prescriptions from Other Programs</b>		
<p><u>Travel Management</u>: Limited to Designated Roads in all Alternatives (see Map 2-11 for Designated Routes)</p> <p><u>Visual Resource Management</u>: Alternative B: VRM I, II, III and IV; <b>Proposed Plan</b>: VRM II, III, IV; Alternative D: VRM III and IV (see Map 2-23)</p> <p><u>Oil and Gas Leasing</u>: Primarily Open to Leasing with Special Stipulations (see Map 2-5)</p>		

**Canyon Rims Special Recreation Management Area (Destination SRMA)  
101,531 acres in Alternative B, D and Proposed Plan**

<b>DESCRIPTION</b>		
<p>Canyon Rims is located west of U.S. Highway 191 and south of Moab on a large plateau overlooking the Colorado River. The SRMA has three developed overlooks of the Colorado River, a scenic byway, two developed campgrounds, and a network of backcountry roads. Use includes scenic driving to the overlooks, camping, hiking and backcountry driving. Use levels are currently moderate.</p>		
<b>MANAGEMENT GOALS</b>		
<p>For a variety of visitor benefits, 1) Provide scenic driving opportunities on the Scenic Byway and on the backcountry road system; 2) provide facilities at the scenic overlooks to enhance visitor experience; 3) provide quality camping experiences in two developed campgrounds; 4) provide hiking and backpacking opportunities, especially in Hatch Wash. For specific recreation management prescriptions, see Chapter 2 of the RMP.</p>		
<b>SETTING</b>		
<p>Maintain the scenic character and open spaces of Canyon Rims to allow visitors to enjoy an uncrowded experience. Provide information and a management presence sufficient to protect these scenic values. Physical: Middle Country; Social: Middle Country; Administrative: Front Country.</p>		
<b>TARGETED OUTCOMES</b>		
<b>Activity</b>	<b>Experience</b>	<b>Benefit</b>
Visiting overlooks and scenic driving	Enjoying having easy access to natural landscapes	Increased local tourism revenue Improved appreciation of nature's splendor
Hiking and backpacking	Enjoying escape from crowds of people	Improved capacity for outdoor physical activity Increased local tourism revenue
Camping at developed campgrounds	Savoring the sensory experience of the natural landscape	Greater family bonding Increased local tourism revenue
<b>Management Prescriptions from other Programs</b>		
<p><u>Travel Management</u>: Limited to Designated Roads in all Alternatives (See Map 2-11 for Designated Routes)</p> <p><u>Visual Resource Management (VRM)</u>: Alternatives B, D and Proposed Plan: VRM II and III; percentage of VRM II is greatest in Alternative B, and least in Alternative D (see Map 2-23 for VRM Classes)</p> <p><u>Oil and Gas Leasing</u>: Alternatives B, D and Proposed Plan: Open to Leasing with Special Stipulations; No Surface Occupancy near the Scenic Byway and in Hatch Wash in all Alternatives (widths vary), and No Surface Occupancy on the western rim of the plateau in Alternative B only. (See Map 2-5 for Oil and Gas Leasing)</p>		

**Colorado Riverway Special Recreation Management Area (Destination SRMA)  
103,466 acres in Alternative B, 89,935 acres in Proposed Plan, and 79,102 acres in Alternative D**

<b>Description</b>		
<p>The Colorado Riverway consists of the lands accessed by Utah Highways 128 and 279 and Kane Creek, Entrada Bluffs, Onion Creek, Castle Valley and Potash Roads. The SRMA has 19 developed campgrounds, 6 boat ramps, and 7 developed hiking trails. The Riverway has a very high level of use, with at least 600,000 visitors per year. Recreation use includes driving for pleasure, camping, hiking, boating, BASE jumping, climbing and equestrian use.</p>		
<b>Management Goals</b>		
<p>For a variety of visitor benefits, 1) provide scenic driving opportunities on the scenic byways, as well as on the non-paved roads; 2) provide quality camping experiences in the developed campgrounds; 3) provide non-motorized opportunities, including hiking, boating, climbing, equestrian use and BASE jumping. For specific recreation management prescriptions, see Chapter 2.</p>		
<b>Setting</b>		
<p>Maintain the scenic character and important vistas of the Colorado Riverway to allow visitors to enjoy the unsurpassed visual resources. Provide information and a regular and continuous management presence to allow the large numbers of visitors to enjoy the area while protecting its natural resources. Physical: Middle Country; Social: Middle Country; Administrative: Front Country.</p>		
<b>Targeted Outcomes</b>		
<b>Activity</b>	<b>Experience</b>	<b>Benefit</b>
Scenic driving	Enjoying having easy access to natural landscapes	Increased tourism revenue Improved appreciation of nature's splendor
Camping at developed campgrounds	Savoring the sensory experience of the natural landscape	Great family bonding Increased tourism revenue
Boating	Enjoying unique outdoor opportunities	Greater sense of adventure Improved local economy
Hiking/equestrian	Enjoying physical activity in a scenic setting	Enhanced awareness and understanding of nature
Climbing/BASE jumping	Enjoying risk taking and adventures	Improved skills for outdoor adventure
<b>Management Prescriptions from Other Programs</b>		
<p><u>Travel Management</u>: Limited to Designated Roads in all Alternatives ( Map 2-11)  <u>Visual Resource Management (VRM)</u>: Alternatives B, D and Proposed Plan: VRM I and II; percentage of VRM I is greatest in Alternative B, and least in Alternative D (see Map 2-23 for VRM Classes)  <u>Oil and Gas Leasing</u>: No Surface Occupancy along the rivers (Alternatives B, D and Proposed Plan) and in the Richardson Amphitheater (Alternatives B and Proposed Plan). Remainder of SRMA is Open to Leasing with Special Stipulations. (See Map 2-5)</p>		

**Dee Pass Special Recreation Management Area (Destination SRMA)  
60,939 acres in Alternative D (Dee Pass is a subset of the Labyrinth SRMA for this alternative)**

<b>Description</b>		
Dee Pass SRMA is located south of I-70 and east of the Green River, about 40 miles northwest of Moab. The SRMA contains a great number of roads, user-made dirt bike trails and a sand dune area (White Wash Sand Dunes). The area is currently used primarily by dirt bikers and other motorized recreationists. Current use levels are light to moderate. There are no recreation facilities in the SRMA at the present time.		
<b>Management Goals</b>		
For a variety of visitor benefits, provide motorized trail riding opportunities on a series of designated roads and dirt bike trails in the majority of the SRMA. Provide a 3000 acre open OHV area centered around the White Wash Sand Dunes. Establish motorized staging areas near the Sand Dunes, with trails emanating from these staging areas. For specific recreation management prescriptions, see Chapter 2.		
<b>Setting</b>		
Maintain the backcountry setting and preserve the scenic values for the enjoyment of the motorized recreating public. Provide information and a management presence sufficient to maintain scenic designated trail riding opportunities. Provide facilities to promote responsible use of the area. Physical: Middle Country; Social: Middle Country; Administrative: Front Country.		
<b>Targeted Outcomes</b>		
<b>Activity</b>	<b>Experience</b>	<b>Benefit</b>
Dirt bike and ATV riding on designated trails Open riding on sand dunes	Adventure and exploration Exhilaration and excitement	Improved skills for outdoor enjoyment with others Greater freedom from urban living
<b>Management Prescriptions from Other Programs</b>		
<u>Visual Resource Management</u> : VRM Class III and IV (See Map 2-24-D)		
<u>Travel Management</u> : Limited to designated roads and trails, with the exception of the White Wash Sand Dunes area, which is open to cross country travel (See Map 2-10-D for map of open area; see Map 2-11-D for designated roads and trails)		
<u>Oil and Gas Leasing</u> : Primarily open to leasing with standard stipulations (See Map 2-5)		

**Dolores River Canyons Special Recreation Management Area (Undeveloped SRMA)  
31,661 acres in Alternatives B and Proposed Plan**

<b>Description</b>		
<p>The Dolores River Canyons SRMA is located about 25 miles east and south of Moab. The area has a limited number of roads, making motorized access difficult. Recreation use of this area is very light, with rafting and hiking being the most common activities. The only current infrastructure consists of directional signs.</p>		
<b>Management Goals</b>		
<p>For a variety of visitor benefits, provide opportunities for non-motorized boating, hiking and backpacking in the mostly undeveloped areas of the SRMA. For specific recreation management prescriptions, see Chapter 2 of the RMP.</p>		
<b>Setting</b>		
<p>Maintain the backcountry character and primarily undisturbed natural landscape to allow visitors to enjoy opportunities for solitude. Provide a very low level of facilities and management presence. Physical: Back country; Social: Primitive; Administrative: Primitive.</p>		
<b>Targeted Outcomes</b>		
<b>Activity</b>	<b>Experience</b>	<b>Benefit</b>
Non-motorized boating	Enjoying/going exploring on my/our own; enjoying an escape from crowds of people	Greater sense of adventure
Hiking and backpacking	Savoring the total sensory experience of a natural landscape	Improved outdoor knowledge and self-confidence; closer relationship with the natural world
<b>Management Prescriptions from Other Programs</b>		
<p><u>Visual Resource Management</u>: Primarily VRM II in both B and Proposed Plan Alternatives (See Map 2-23)</p> <p><u>Travel Management</u>: Limited to Designated Roads in all Alternatives (See Map 2-11 for map of designated roads)</p> <p><u>Oil and Gas Leasing</u>: Primarily Open to Leasing with No Surface Occupancy in both the B and Proposed Plan Alternatives (See Map 2-5)</p>		

**Extensive Recreation Management Area  
792,131 acres in Alternative B; 1,162,732 acres in Proposed Plan; and 1,543,903 acres in Alternative D**

<b>Description</b>		
<p>The Moab Extensive Recreation Management Area (ERMA) consists of the acreage of the Moab Field Office that is <b>not</b> managed as a Special Recreation Management Area. In all alternatives, Lisbon Valley, Black Ridge, Yellow Cat, the Dolores Triangle and the Cisco Desert are in the ERMA. In Alternatives C and D, the Bookcliffs are also in the ERMA. In Alternative D, South Moab, Utah Rims, the Labyrinth Rims/Gemini Bridges area, the Entrada Bluffs area, the Dolores River Canyons, the Westwater uplands and Lower Gray Canyon are all within the ERMA.</p>		
<b>Management Goals</b>		
<p>ERMAs are utilized for recreation management only where recreation use is very low. While BLM may manage the ERMA for low visitation, visitation numbers are often established regardless of BLM actions. That is, visitors may “discover” a portion of public lands, and recreation numbers may increase with no input from the BLM. This increase in visitation may be fueled by magazine articles, tourism promotion or simple word of mouth. However, ERMAs are to be managed for very low visitation, and to this end, the goal of the ERMA is to provide custodial management only for recreation use. The ERMA will allow recreation activities while protecting other resources. Facilities are to be provided only for public safety.</p>		
<b>Setting</b>		
<p>Maintain the public lands for other uses while allowing recreation to continue. Provide no information and minimal management presence.</p>		
<b>Targeted Outcomes</b>		
<b>Activity</b>	<b>Experience</b>	<b>Benefit</b>
Backcountry driving	Adventure and exploration	Improved skills for outdoor enjoyment
Primitive hiking, backpacking and equestrian use	Backcountry exploration	Improved opportunity to get away from the everyday world
<b>Management Prescriptions from Other Programs</b>		
<p><u>Travel Management</u>: Limited to Designated Roads in all Alternatives (See Map 2-11 for Designated Routes)</p> <p><u>Visual Resource Management (VRM)</u>: All 4 VRM Classes are managed for in the ERMA (see Map 2-23 for VRM Classes)</p> <p><u>Oil and Gas Leasing</u>: A combination of open with standard stipulations, open with special stipulations, open with no surface occupancy and closed; varies by alternative (See Map 2-5 for Oil and Gas Leasing)</p>		

**Labyrinth Special Recreation Management Area (Destination SRMA)  
300,650 acres in Alternatives B and Proposed Plan**

<b>Description</b>		
<p>Labyrinth SRMA includes the area between Labyrinth Canyon of the Green River, Highway 191, and the southwestern boundary of the field office. Scenic Byway 313 is within the SRMA. The SRMA has one developed campground and multiple designated campsites, multiple day use areas and numerous popular backcountry routes. Use includes river recreation, camping, hiking, scenic driving, mountain biking and backcountry driving. Use levels are moderate overall with some areas receiving heavy seasonal use.</p>		
<b>Management Goals</b>		
<p>For a variety of visitor benefits, provide opportunities for 1) quality river recreation experiences on Labyrinth Canyon; 2) quality camping experiences in one developed campground and other designated sites; 3) quality hiking experiences on- and off-trail; 4) quality scenic driving experiences on Highway 313; 5) quality on-route mountain biking and backcountry driving experiences on established routes throughout the SRMA. For specific recreation management prescriptions, see Chapter 2 of the RMP.</p>		
<b>Setting</b>		
<p>Maintain the scenic character of Labyrinth SRMA to allow visitors to enjoy an unconfined experience. Provide information and a management presence sufficient to protect these scenic values. Physical: Middle – Front Country; Social: Middle – Front Country; Administrative: Front Country.</p>		
<b>Targeted Outcomes</b>		
<b>Activity</b>	<b>Experience</b>	<b>Benefit</b>
River recreation	Enjoying an escape from crowds of people	A more outdoor-oriented lifestyle
Scenic Driving	Learning more about things here	Greater sense of adventure
Mountain Biking	Enjoying/going exploring on my/our own	Restored mind from unwanted stress
Backcountry Driving	Developing your skills and abilities	Improved skills for outdoor enjoyment
BASE jumping	Enjoying outdoor challenge	Improved skills
<b>Management Prescriptions from Other Programs</b>		
<p><u>Travel Management</u>: Limited to Designated Roads in all Alternatives (See Map 2-11 for Designated Routes),</p> <p><u>Visual Resource Management (VRM)</u>: Alternative B: VRM I, II, III. <b>Proposed Plan</b>: VRM II, III, IV (See Map 2-23 for VRM Classes)</p> <p><u>Oil and Gas Leasing</u>: Alternative B: Open to Leasing with Special Stipulations, No Surface Occupancy. <b>Proposed Plan</b>: Open with Standard Stipulations, No Surface Occupancy. (See Map 2-5 for Oil and Gas Leasing)</p>		

**Lower Gray Canyon Special Recreation Management Area (Destination SRMA)  
3,760 acres in Alternatives B and Proposed Plan**

<b>Description</b>		
Lower Gray Canyon SRMA is located along the east side of the Green River near the City of Green River. The SRMA has one developed campground, two day use areas, and hiking/equestrian trails. Use includes whitewater boating, camping, hiking and horseback riding. Use levels are currently moderate.		
<b>Management Goals</b>		
For a variety of visitor benefits, provide opportunities for 1) scenic river recreation opportunities on the Green River Daily; 2) quality camping experiences in one developed campground and other designated sites; 3) quality hiking and horseback riding experiences on existing trails. For specific recreation management prescriptions, see Chapter 2 of the RMP.		
<b>Setting</b>		
Maintain the scenic character of Lower Gray Canyon to allow visitors to enjoy an unconfined experience. Provide information and a management presence sufficient to protect these scenic values. Physical: Middle Country; Social: Middle Country; Administrative: Front Country.		
<b>Targeted Outcomes</b>		
<b>Activity</b>	<b>Experience</b>	<b>Benefit</b>
Whitewater boating	Enjoying having easy access to natural landscapes	Improved outdoor recreation skills and increased local tourism revenue
Camping	Enjoying the closeness of family	Stronger ties with my family and friends
Hiking	Enjoying an escape from crowds of people	Restored mind from unwanted stress
Horseback riding	Learning more about things here	Improved appreciation of nature's splendor
<b>Management Prescriptions From Other Programs</b>		
<p><u>Travel Management</u>: Limited to Designated Roads in all Alternatives (See Map 2-11 for Designated Routes)</p> <p><u>Visual Resource Management (VRM)</u>: Alternatives B and Proposed Plan: VRM I and II. (See Map 2-23 for VRM Classes)</p> <p><u>Oil and Gas Leasing</u>: Alternatives B and Proposed Plan: No Surface Occupancy and Closed (predominantly Closed). (See Map 2-5 for Oil and Gas Leasing)</p>		

**Sand Flats Special Recreation Management Area (Destination SRMA)  
6,246 acres in Alternatives B, D and Proposed Plan**

<b>Description</b>		
Sand Flats SRMA is located two miles east of the city of Moab. The area has 9 campgrounds with 120 sites, the Slickrock Bike Trail, the Porcupine Rim Trail and two well known jeep routes, Hell's Revenge and Fins and Things. Recreation use averages 100,000 visitors per year. Use includes camping, mountain biking, four wheel driving (including ATV's and dirt bikes), and hiking.		
<b>Management Goals</b>		
For a variety of visitor benefits, 1) provide facilities for quality camping experiences; 2) provide the unique experience of biking the Slickrock Trail; 3) provide four wheel drive challenge routes; 4) provide opportunities for hiking. Continue the partnership between Grand County and the BLM. For specific recreation management prescriptions, see Chapter 2 of the RMP.		
<b>Setting</b>		
Maintain the scenic character of Sand Flats to allow visitors to enjoy an outdoor adventure experience. Provide information and a high degree of management presence to protect the scenic values and to allow for a large number of visitors. Physical: Front Country; Social: Front Country; Administrative: Front Country.		
<b>Targeted Outcomes</b>		
<b>Activity</b>	<b>Experience</b>	<b>Benefit</b>
Mountain Biking	Enjoying a physical challenge	Improved skills for outdoor enjoyment and physical activity Increased local tourism revenue
Motorized touring	Enjoying the great outdoors and testing one's skills	Greater sense of adventure Increased local tourism revenue
Camping in Developed Sites	Enjoying time with family and friends in an outdoor setting	Greater freedom from urban living Greater family bonding
<b>Management Prescriptions from other Programs</b>		
<u>Travel Management</u> : Limited to Designated Roads in all Alternatives (See Map 2-11 for Designated Routes)		
<u>Visual Resource Management (VRM)</u> : All Alternatives: VRM II (see Map 2-23 for VRM Classes)		
<u>Oil and Gas Leasing</u> : Alternatives B and Proposed Plan: No Surface Occupancy; Alternative D: Open to Leasing with Special Stipulations (See Map 2-5 for Oil and Gas Leasing)		

**South Moab Special Recreation Management Area (Destination SRMA)  
63,999 acres in Alternatives B and Proposed Plan**

<b>Description</b>		
<p>The South Moab Special Recreation Management Area is located south of Moab, with US 191 being an approximate bisection. It includes popular day use areas such as Ken’s Lake, as well as portions of the Mill Creek Canyon WSA. Most of the area is easily accessible from Moab, and receives moderate to heavy recreation use, both motorized and non-motorized. Infrastructure ranges from developed campgrounds to directional signing only.</p>		
<b>Management Goals</b>		
<p>For a variety of visitor benefits, provide opportunities for hiking, camping, motorized and mechanized touring. For specific recreation management prescriptions, see Chapter 2 of the RMP.</p>		
<b>Setting</b>		
<p>Maintain the mainly front country character to allow visitors to enjoy hiking, camping and scenic touring activities. Physical: Front country; Social: Front country; Administrative: Front country.</p>		
<b>Targeted Outcomes</b>		
<b>Activity</b>	<b>Experience</b>	<b>Benefit</b>
Hiking	Enjoying having easy access to natural landscapes; enjoying getting some needed physical exercise	A more outdoor-oriented lifestyle
Camping	Experiencing a greater sense of independence; enjoying the closeness of family	Improved outdoor knowledge and self-confidence
Motorized touring	Developing your skills and abilities; enjoying having easy access to natural landscapes	Enlarged sense of community dependency on public lands
Mechanized touring	Enjoying strenuous physical exercise; experiencing a greater sense of independence	Improved physical capacity to do my favorite recreation activities
<b>Management Prescriptions from Other Programs</b>		
<p><u>Visual Resource Management</u>: A combination of VRM I, II and III (See Map 2-23)  <u>Travel Management</u>: Limited to Designated Roads in all Alternatives (See Map 2-11 for map of designated roads)  <u>Oil and Gas Leasing</u>: A combination of Open, Open with Special Stipulations, Open with No Surface Occupancy Stipulation and Closed (WSA’s) (See Map 2-5)</p>		

**Two Rivers Special Recreation Management Area (Destination SRMA  
29,838 acres in Alternatives B and Proposed Plan; 14,056 acres in Alternative D**

<b>Description</b>		
Two Rivers SRMA is located along the Colorado River (from the Colorado/Utah state line to Dewey Bridge) and the Dolores River. The SRMA contains river sections very popular for scenic floating and/or whitewater boating, including the lower portion of the Ruby/Horsethief Canyon trip and Westwater Canyon. Use includes river running, camping, and hiking. Use levels are moderate to high.		
<b>Management Goals</b>		
For a variety of visitor benefits, provide opportunities for 1) high quality river running opportunities on the Colorado and Dolores Rivers; 2) high quality camping experiences along the river corridors; 3) high quality hiking opportunities in proximity to the river. For specific recreation management prescriptions, see Chapter 2 of the RMP.		
<b>Setting</b>		
Maintain the scenic character of Two Rivers SRMA to allow visitors to enjoy a backcountry experience. Provide information and a management presence sufficient to protect this type of experience. Physical: Back Country; Social: Back Country – Middle Country; Administrative: Middle Country.		
<b>Targeted Outcomes</b>		
<b>Activity</b>	<b>Experience</b>	<b>Benefit</b>
River Recreation	Savoring the total sensory experience of a natural landscape	Closer relationship with the natural world
Camping	Escaping everyday responsibilities for a while	A more outdoor-oriented lifestyle
Hiking	Enjoying an escape from crowds of people	Restored mind from unwanted stress
<b>Management Prescriptions From Other Programs</b>		
<p><u>Travel Management</u>: Limited to Designated Roads and Closed in all Alternatives (See Map 2-11 for Designated Routes)</p> <p><u>Visual Resource Management (VRM)</u>: Alternatives B, D and Proposed Plan: VRM I and II. (See Map 2-23 for VRM Classes)</p> <p><u>Oil and Gas Leasing</u>: Alternatives B, D and Proposed Plan: Open to Leasing with Special Stipulations, No Surface Occupancy and Closed. (See Map 2-5 for Oil and Gas Leasing).</p>		

**Utah Rims Special Recreation Management Area (Community SRMA)  
15,424 acres in Alternatives B and Proposed Plan**

<b>Description</b>		
Utah Rims is located south of Interstate 70 adjacent to the Colorado/Utah border and near the Colorado River. The SRMA has one developed camping area, and a network of backcountry routes. Use includes trail-based motorcycle and mountain bike riding, camping and horseback riding. Use levels are currently low.		
<b>Management Goals</b>		
For a variety of visitor benefits, provide opportunities for 1) quality scenic trail-based motorcycling and mountain biking experiences on the backcountry route system; 2) quality camping experiences in one developed camping area; 3) quality horseback riding experiences on existing routes and in non-roaded locations. For specific recreation management prescriptions, see Chapter 2 of the RMP.		
<b>Setting</b>		
Maintain the scenic character and wide open spaces of Utah Rims to allow visitors to enjoy an uncrowded experience. Provide information and a management presence sufficient to protect these scenic values. Physical: Middle Country; Social: Middle Country; Administrative: Middle Country.		
<b>Targeted Outcomes</b>		
<b>Activity</b>	<b>Experience</b>	<b>Benefit</b>
Motorcycling	Enjoying being able to frequently participate in desired activities and settings	Increased desirability as a place to live or retire
Mountain biking	Enjoying strenuous physical exercise	Improved skills for outdoor enjoyment
Horseback riding	Developing your skills and abilities	Greater sense of adventure
Camping	Enjoying an escape from crowds of people	Restored mind from unwanted stress
<b>Management Prescriptions From Other Programs</b>		
<u>Travel Management</u> : Limited to Designated Roads in all Alternatives (See Map 2-11 for Designated Routes)		
<u>Visual Resource Management (VRM)</u> : Alternatives B and Proposed Plan: VRM II and III (predominantly VRM III). (See Map 2-23 for VRM Classes)		
<u>Oil and Gas Leasing</u> : Alternatives B and Proposed Plan: Open to Leasing with Standard Stipulations and Open to Leasing with Special Stipulations. (See Map 2-5 for Oil and Gas Leasing)		

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# **APPENDIX G.**

## **TRAVEL PLAN DEVELOPMENT**

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### **G.1 INTRODUCTION**

Travel management is the process of planning for and managing access and travel systems on the public lands. Comprehensive travel management planning should address all resource use aspects, such as recreational, traditional, casual, agricultural, commercial, and educational, and accompanying modes and conditions of travel on public lands, not just motorized or off-highway vehicle activities (BLM Land-use Planning Handbook 1601-1). This includes travel needs for all resource management programs administered by the BLM, including but not limited to the mineral industry, livestock grazing, and recreation.

Though historically focused on motor vehicle use, comprehensive travel management also encompasses all forms of transportation including travel by mechanized vehicles such as bicycles, as well as the numerous forms of motorized vehicles from two-wheeled (motorcycles) and four-wheeled such as all-terrain vehicles (ATVs) to cars and trucks.

The term off-road vehicle (ORV) is an outdated term that has the same meaning as off-highway vehicle (OHV), which is currently in use. The term off-highway vehicle (OHV) refers to the latter group noted above – "any motorized vehicle capable of, or designated for, travel on or immediately over land, water, or other natural terrain," as defined in the National Management Strategy for Motorized Off-Highway Vehicle Use on Public Lands, finalized by the Bureau of Land Management (BLM) in January 2001. The intent of the National Strategy was to update and revitalize management of off-highway motor vehicle use on BLM administered lands. The national strategy provides guidance and recommendations to accomplish that purpose.

The process of development and content of the draft Moab travel plan are described in this document.

### **G.2 HOW TO READ/USE THIS DOCUMENT**

This document addresses the process by which the BLM Moab Field Office Interdisciplinary (ID) Team and its cooperating agencies have developed the Draft Environmental Impact Statement (DEIS)/Resource Management Plan (RMP) alternatives for motorized and mechanized use in the Moab Field Office. This document takes the reader through the process of travel planning within the Moab Field Office and addresses the following issues and concerns.

- The Land-use Planning decisions of the travel plan define the areas within the field office that are determined to be Open, Limited, or Closed, and the number of miles of designated routes under the Limited category.
- The Implementation decisions of the travel plan include the designation of routes within areas delineated as Limited to Designated Roads and Trails. Other implementation actions include signage, maps, public information, kiosks, monitoring, and working with partners. Enforcement of OHV designations should be clear once routes are signed. An implementation plan will be prepared at a later time with details regarding these actions.
- Issues identified during public scoping for this travel plan process are described in Section 6.

- The planning criteria, data collection, and alternatives development by which the BLM and its cooperating agencies arrived at the routes designated for the alternatives in the DEIS/RMP are outlined in Sections 7, 8 and 9. Lists of routes for non-motorized, equestrian/stock, and foot travel are also provided in Secti 9.
- Future changes to route designations are addressed in Section 10.
- The cooperating agencies involved with developing the travel plan are identified in Section 11. Other coordination is also included.
- The analysis of impacts for the travel plan will be completed within the DEIS/RMP.
- Definitions commonly used in addressing off-road vehicle use are found in Appendix A. Route by route information can be found in the GIS records accompanying the plan. These are available upon request. Maps 2-11-A through D display the designated routes by alternative.

### G.3 SUMMARY

Land-use Planning Decisions – The Federal Regulations at 43 CFR Part 8340 and Executive Order 12608 require BLM to designate all public lands as Open, Limited, or Closed for OHV use. These designations are made in the Resource Management Plans (RMPs) or in plan amendments. Additionally, the criteria for route designation are established in the RMP.

Table 1 lists the lands within the Open, Limited, and Closed OHV categories within the Moab Field Office as determined by the ID Team. These acreages are subject to change depending on any changes made during the on-going alternative evaluation process. The acreages exclude BLM lands within the MFO boundary, but managed by the Vernal FO.

**Table 1. OHV Categories (acreage) by Alternative**

Category	Alternative A <sup>1</sup>	Alternative B	PROPOSED PLAN	Alternative D
Closed	29,654	358,126	349,843	29,654
Limited to Existing	1,065,683	0	0	0
Limited to Designated	47,787	1,463,248	1,469,665	1,788,372
Open	678,250	0	1,866	3,348
Totals <sup>2</sup>	1,821,374	1,821,374	1,821,374	1,821,374

<sup>1</sup> No Action takes as baseline the 1985 Grand RMP and subsequent Federal Register actions.  
<sup>2</sup>Excludes lands in the Moab Field Office managed by the BLM Vernal Field Office.

Implementation Decisions – The designation of routes within the areas specified as "Limited to Designated" is an implementation decision. Designation involves the selection and identification of roads and trails to be included in a travel plan system.

Table 2 and Table 3 provide a summary of the miles of designated routes (full sized) by alternative for Grand County and San Juan County, respectively.

**Table 2. Designated Routes (miles) by Alternative for Grand County**

Road Type	Grand Co Inventory (all lands)	Grand Co Inventory (BLM lands)	Grand Co Proposed Travel Plan <sup>1</sup>	Grand Co Proposed Travel Plan (BLM lands)	Alternative B	PROPOSED PLAN	Alternative D
"A" roads	280	184	280	184	184	184	184
"B" roads	1441	995	1441	995	995	995	995
"D" roads/other <sup>2</sup>	5544	4171	2940	1898	1417	1703	1831
Total miles	7265	5350	4661	3077	2596	2882	3010

<sup>1</sup> Includes routes recommended by Grand County for designation as motorized as well as a number of "undetermined" routes. Some of these are outside of the County 's jurisdiction (e.g. tribal, USFS), or left to the BLM 's discretion.  
<sup>2</sup> "Other" consists primarily of old railroad grades and mapped pack trails totaling 86.4 miles.

**Table 3. Designated Routes (miles) by Alternative for San Juan County**

Road Type	San Juan Co Travel Plan	San Juan Co Travel Plan/BLM	Alternative B	PROPOSED PLAN	Alternative D
"A" roads	51	20	20	20	20
"B" roads	343	171	171	171	171
"D" roads	1246	862	745	824	858
Total miles	1640	1053	936	1015	1049

Table 4 summarizes the miles of designated routes (motorcycle) on BLM lands which are entirely within Grand County. This Table also includes Grand County roads which are part of the motorcycle trail system.

**Table 4. Designated Motorcycle Routes (miles) by Alternative.**

Route	Inventory	Alternative B	Proposed Plan	Alternative D
On existing Grand Co roads	142	122	163	151
Single-track	129	0	150	196
Total	271	122	313	347

Management common to all action alternatives include the following, as developed by the ID Team in preliminary alternative development meetings:

- In areas limited to designated routes, only designated routes are open to motorized use.
- Off-highway vehicle use includes *motorized* (e.g., autos, trucks, ATVs, motorcycles, dirt bikes, 4x4s); and *mechanized* (e.g., bicycles).
- There will be no cross-country travel for game retrieval or antler gathering in areas designated as limited or closed. This policy is consistent with the policies of the National Forest Service in Utah.

- No cross-country travel associated with dispersed camping is allowed.
- Any fire, military, emergency or law enforcement vehicle when used for emergency purposes is exempted from OHV decisions.
- Wilderness Study Areas are to be either designated as limited or closed to OHV use, and must be managed and monitored to comply with the interim management policy non-impairment standard.
- As required in 43 CFR Sec. 8342.3 (Designation changes): "The authorized officer shall monitor effects of the use of off-road vehicles. On the basis of information so obtained, and whenever the authorized officer deems it necessary to carry out the objectives of this part, designations may be amended, revised, revoked, or other actions taken pursuant to the regulations in this part."

#### **G.4 AUTHORITY AND GUIDANCE**

- Federal Land Policy and Management Act (FLPMA), 43 U.S.C 1701 – Land-use plans and revision should be based on principles of multiple use and sustained yield.
- National Environmental Policy Act, (NEPA), 42 U.S.C. 4321.
- Executive Order No. 11644, Feb 8, 1972 - This order established criteria by which federal agencies were to develop regulations for the management of OHVs on lands under their management. Agencies are to "monitor the effects" of OHV use on their public lands and, "on the basis of the information gathered, they shall from time to time amend or rescind designation of areas for OHV use "as necessary to further" its policy.
- Executive Order No. 11989, May 25, 1977 – This order modified ED 11644 – This order authorized agencies to adopt a policy that particular lands can be considered closed to OHVs once it is determined that OHV use "will cause or is causing considerable adverse effects" to particular resources.
- Executive Order No. 12898, 1994 – Indicates that Federal planning efforts should give consideration to how plans will affect local economies.
- 43 C.F.R. Part 8340 – the OHV Regulations – Establish criteria for designating lands as open, limited, or closed to the use of OHVs.
- Archeological Resources Protection Act (ARPA), 1979, as amended. And other Cultural protection laws and regulations.
- Taylor Grazing Act, 43 U.S.C. 315a.
- Endangered Species Act, 16 U.S.C. 1531 – Federal agencies shall give consideration to ensure agency actions do not jeopardize the continued existence of any endangered species.
- Land and Water Conservation Fund Act, 16 U.S.C. 460 1-6a.
- National Historic Preservation Act, as amended, 1966.
- Wild and Scenic Rivers Act, 16 U.S.C. 1281c.
- National Trails System Act, 16 U.S.C. 1241.
- U.S. Department of the Interior, BLM, Interim Management Policy for Lands Under Wilderness Review, H-8559-1.
- Resource Management Plan, BLM San Juan Resource Area, March 1991.
- IB 99-181, OHV Use in Wilderness Study Areas (WSAs).

- IM UT 2001-090, Implementation of Utah Recreation Guidelines.
- IM [WO] No. 2004 – Clarification of Cultural Resource Considerations for Off-Highway (OHV) Route Designation and Travel Management.
- IM 2004-005, Clarification of OHV Designations and Travel Management in the BLM Land-use Planning Process.
- IM UT 2004-008, Clarification of OHV Designations and Travel Management in the BLM Land-use Planning Process.
- IM UT 2004-061, Designating Off Highway Vehicle Routes in the Land-use Planning Process.
- OHV – National Management Strategy for Motorized Off-Highway Vehicle Use on Public Lands, USDI, BLM, January 2001.
- Standards for Public Land Health and Guidelines for Recreation Management for BLM Lands in Utah, 2001.

## **G.5 TRAVEL PLAN DESIGNATION PROCESS**

A goal of the BLM Moab Field Office planning process is to develop, with its cooperators, a travel plan that provides access to public lands. The goals and objectives of this travel plan apply to all areas of travel management including access to resources, appropriate recreation opportunities that at the same time protect public land resources, ensuring public safety, minimizing conflicts among the various public land-uses, and providing for support of the local economy.

### **G.5.1 BACKGROUND**

Areas designated as "open" are open to cross-country motorized travel. Areas designated as "closed" are entirely closed to motorized travel. Areas designated as "limited" restrict motorized travel to either existing or designated routes.

The 1985 Grand Resource Area RMP included designations for Open, Closed, and Limited OHV areas with limited applying to both existing and designated roads and trails. Since 1992, the Moab Field Office has instituted several revisions to the original RMP (through plan amendments) as well as Federal Register notices regarding OHV use. These changes have resulted in changes from Open to Limited to Existing Roads and Trails, and in some cases from Open to Limited to Designated Routes. These changes attempted to reduce damage resulting from unrestricted cross-country travel.

In the current RMP process, state and national guidance for the OHV Limited category designation has changed. Designating Open, Closed, and Limited areas for OHV use continues to be mandated, but under the Limited category only the "Limited to Designated Roads and Trails" sub-category is recommended. The designation of the sub-category "Existing Roads and Trails" is no longer a recommended option. Eliminating the "Existing Roads and Trails" sub-category prevents confusion and enforcement problems concerning new unauthorized routes being created and then used by the public because they are then "existing". By policy (IM No. 2004-005) BLM discourages the use of the "Limited to Existing" category.

### **G.5.2 INTERDISCIPLINARY (ID) TEAM PROCESS**

Guidance for developing a Travel Plan includes utilizing the ID Team approach (8342.21A and 43 CFR 1601.1-3). The individuals who participated in the completion of the plan are listed in Table 5.

**Table 5: Moab FO Interdisciplinary (ID) Team Members and Cooperators**

<b>Name</b>	<b>Resource /Organization</b>
Maggie Wyatt	Field Office Manager
Eric Jones	Acting Associate Field Office Manager, Petroleum Engineer
Lynn Jackson	Acting Associate Field Office Manager, RA/Science and Outreach
Brent Northrup	RMP Planning Coordinator, RA/Lands and Minerals
Russ von Koch	Branch Chief, Recreation
Bill Stevens	Travel Plan Lead, Recreation Planner
Doug Wight	GIS Coordinator
Jean Carson	GIS Specialist
Rob Sweeten	Landscape Architect/VRM
Ann Marie Aubry	Hydrologist
Stephanie Ellingham	Natural Resources Specialist
Donna Jordan	Resource Clerk
Pam Riddle	Wildlife Biologist
Daryl Trotter	Environmental Protection Specialist/NEPA Coordinator
Donna Turnipseed	Cultural, Paleontology
Mary von Koch	Realty Specialist
Chad Niehaus	Recreation Planner
Katie Stevens	Recreation Planner
Jon Sering	BLM Law Enforcement Ranger
James Ward	BLM Law Enforcement Ranger
Alex VanHemert	Recreation Planner
Jerry McNeely	Chair, Grand County Council
Dave Vaughn	Grand County Assistant Road Supervisor/GIS Specialist
Evan Lowry	San Juan County, Planner
Ben Nielson	San Juan County, Assistant Planner

Between October, 2004 and September, 2005, the ID Team held 21 meetings specifically concerning the travel plan [meeting minutes are in the RMP Administrative Record]. In addition, BLM staff met with representatives of the National Park Service, Utah State Parks, and Utah School and Institutional Trust Lands Administration, to determine what concerns they might have with the travel planning process. BLM staff also contacted adjacent BLM offices to ensure that Moab's travel planning did not conflict with theirs. BLM also used the Manti-LaSal National Forest route designation map to ensure proper route continuity. Finally, Moab BLM staff was in constant contact with the Monticello Field Office, to provide as much consistency as possible in

travel planning. This was especially important for routes in San Juan County, as this county lies within both BLM offices.

## **G.6 IDENTIFICATION OF ISSUES**

OHV/Travel issues were identified by BLM resource specialists in the pre-plan, through the Public Scoping process for the Monticello/Moab Field Offices RMP, by input from the public in response to Planning Bulletin #3 -- Request for Route Data, and through proposals for travel routes presented to BLM from organizations.

BLM staff identified the following issues concerning travel in the field office.

- Route designations in the current RMP are outdated and do not address the current level of use.
- OHV designations need to be reviewed and revised as necessary to protect other resources.
- Maps need to be developed to identify uses of competing resources, and to show the public where OHV use is allowed.
- Implementing designated routes on-the-ground through signing and maps.
- OHV designations must be consistent with Wilderness Study Areas (WSAs).
- Dependence of local industry on public lands (including the recreation industry).
- Increased recreation use and demand.
- Conflicts between OHV use and other resources including riparian, wildlife, sensitive soils, visual, vegetation, and cultural. Conflicts also exist between OHV use and resource uses such as grazing and oil and gas activities.
- Conflicts between user groups such as non-motorized and motorized users, between river runners and OHV users, between commercial and private users, and OHV use associated with unregulated camping.

Comments received from public scoping were placed in one of three categories:

- Issues to be addressed in the resource management plan (RMP). Specific to this travel plan, these are the OHV/Travel issues considered in the Moab Field Office;
- Issues that can be addressed through policy or administrative actions; or
- Issues beyond the scope of the plan (e.g., RS 2477 claims, new wilderness proposals).

Comments from the six public scoping meetings included 440 comments on recreation and OHV/Travel or 35% of the total 1,250 comments. Comments received in letters concerning the Moab Field Office OHV and Travel program totaled 4,134 or 39% of the total comments, with the remaining 61% of the comments addressing the 14 remaining resource or planning categories (Moab and Monticello RMP Revisions, Scoping Summary, July 2004). Of all the written comments received regarding the Moab RMP, 92.9% commented on OHV use to one degree or another.

Input from Public Scoping both through the public meetings (June 4, 2003 through December 31, 2004), and through input responses to Planning Bulletin # 3, identified the following issues, many of which are similar to those noted above:

- How can increased recreation use, especially motorized vehicle use, be managed while protecting natural resource values?
- Which areas should be designated as open, limited or closed to OHV use, and which routes should be designated within the limited category?
- What types of recreation travel should be available on designated routes and under what limitations?
- Where could adaptive management be applied in response to unacceptable resource impacts?
- How should recreational uses be managed to limit conflicts with other recreational users?
- How should camping, hunting access, human waste, fires, and wood collection be managed [in terms of OHVs]?
- How should conflicts with other resource uses be reduced?
- What management actions should be implemented to mitigate damage caused by recreational uses, including vehicles, on other resources and sensitive areas, especially riparian areas?
- How should recreation in the planning areas be managed to ensure public health and safety?

## **G.7 DEVELOPING PLANNING CRITERIA**

Considerations of both social and physical elements help define the criteria for a travel plan. The social aspects include public demands, historical uses, existing rights-of-way, permitted uses, public access, resource development, law enforcement and safety, conflicts between existing or potential uses, recreation opportunities, local uses, cultural and economic issues. Physical aspects include the terrain, soils, water, vegetation, and watersheds, connectedness of routes, special designations such as WSAs, demands for specific types of vehicle use, and manageability considerations.

General planning criteria for the Resource Management Plan (RMP) process includes:

- Decisions - All decisions made in the RMP will only apply to public lands managed by the BLM.
- Existing Rights – The plan recognizes current, valid existing rights.

Specific to the travel plan, the criteria include:

- National OHV Policy - Decisions regarding OHV travel will be consistent with the BLM's National OHV Strategy.
- R.S. 2477 - No regulations to either assert or recognize R.S. 2477 rights-of-way currently exist. While R.S. 2477 claims have been asserted by Grand and San Juan Counties, it is beyond the scope of this document to recognize or reject R.S. 2477 assertions, and this issue is not addressed further in this Travel Plan. Nothing in this document is intended to provide evidence bearing on or addressing the validity of any R.S. 2477 assertions. At such time as a decision is made of R.S. 2477 assertions, BLM will adjust travel routes accordingly, where necessary.

- Access to Utah School and Institutional Trust Lands Administration (SITLA) State Sections - BLM is required to provide access to State lands, as requested.

### **G.7.1 OHV DESIGNATION CRITERIA**

The guidance found at 8342.1 lists the following criteria that must be met by BLM in the travel planning process:

*Protection Requirements* – the following resource protection criteria must be met:

1. Cultural and Natural Resources – Designations must minimize damage to all cultural and natural resources. Examples of these include, but are not limited to, the following: historical and archeological sites, soil, water, air, vegetation, and scenic values.
2. Wildlife – Designations must minimize harassment of wildlife and/or significant disruption of wildlife habitat.
3. Endangered Species – Special attention must be given to protect endangered or threatened species and their habitat.
4. Wilderness – Designations must not impair the wilderness suitability of lands under consideration for inclusion in the wilderness system.

*User Access Requirements* – the following criteria are used to assure adequate consideration for the requirements for each resource activity (i.e., minerals, range, forestry, recreation, etc.) as they relate to access needs:

1. Operational needs – designations must consider user access requirements for inventory, exploration, use supervision, maintenance, development, and extraction of public land resources as well as maintenance of facilities on public lands.
2. State and Private Land – designations must consider the access and use needs for areas and routes located within intermingled State and private land.

*Public Safety* – The designation of areas and routes for OHV use must be completed so as to promote public safety, recognizing that challenge and risk are desirable factors for some uses.

1. Hazards – Designations must minimize or eliminate OHV use in areas of extreme natural or man-made hazards unless such hazards can be mitigated.
2. Safety Factors – Designations must separate uses in situations where public safety factors present unacceptable risks (e.g., rifle ranges, children's play areas, mines, etc.)

*Conflict Resolution* – The designation of areas and routes for OHV use must assure full consideration of the multiple-use values of public lands consistent with the following criteria:

1. Balanced Approach – Designations must provide as wide and as balanced an approach to public land access as possible to protect public land resource values while at the same time meeting user access needs.
2. Other Uses – Designations must minimize conflicts between OHV use and other existing or proposed uses of the public lands.
3. Compatibility – Designations must ensure the compatibility of OHV uses with existing conditions in populated and other sensitive areas by taking into account noise, air pollution, and other factors of the human environment.

## **G.7.2 MOAB FIELD OFFICE CRITERIA FOR TRAVEL PLAN**

Criteria for travel planning include Standards for Rangeland Health; establishing purpose and need (P/N) for routes per above mentioned guidance; defining conflicts between resources; defining conflicts among users; evaluation and consideration of routes in terms of WSAs; administration and emergency uses, and access to private and SITLA lands.

Standards for Rangeland Health of BLM land in Utah relate to all uses of public land, including recreation, and describe natural resource conditions that are needed to sustain public land health. The Standards encompass upland soils; riparian systems; plant and animal communities; special, threatened, and endangered species; and water quality. The Rangeland Health Standards provide guidance for management of resources.

### **G.7.2.1 PURPOSE AND NEED**

The methodology used during the route designation ID Team meetings to develop a well-designed travel network was a mix between guidance received from the State Office and guidance from the Washington Office:

- IM UT 2004-061, from the UTSO, states that Field Offices should begin the route designation process with existing inventory and data, and then determine purpose and need for the existing routes.
- IM 2004-005, from the WO, recommends choosing individual roads and trails for designation, "rather than using inherited roads and trails", because most existing roads "were created by use over time, rather than planned and constructed for specific activities and needs".

The purpose and need for travel routes are examined in terms of the existing situation on-the-ground in terms of why the route is currently utilized. The Moab Field Office considered the following criteria for routes in the travel plan:

- Desired future conditions
  - Potential for adverse or positive economic impacts
  - Resource and use conflicts
  - Standards for Public Land Health and Guidelines for Recreation
  - Management for BLM Lands in Utah
- Public health and safety
  - Abandoned Mine Lands
  - Hazardous Materials
- Access
  - Routes identified in guide books, including popular routes used in the Easter Jeep Safari event
  - Scenic overlooks
  - Access to private and SITLA lands
  - Elimination of route redundancy
  - Special Recreation Management Areas

- Special designation prescriptions including Areas of Critical Environmental Concern (ACECs), Wilderness Study Areas (WSAs), and Wild and Scenic Rivers (WSRs)
- Cultural and paleontological resources
- Fire considerations
- Mineral resources/energy development
- Rangeland standards
- Recreation opportunities and experiences
- Watershed resources
  - Erosive soils
  - Saline soils
  - Municipal watersheds
- Vegetative resources including relict vegetation
- Wildlife resources
  - Special Status Species
  - Crucial winter habitats
  - Rutting, calving, kidding, lambing, and fawning habitat
  - Raptor nesting locations
- Woodlands resources
- Visual resources

### **G.7.2.2 MITIGATIONS**

Mitigations that can be utilized to address conflicts could include:

1. Non-designation;
2. The season and timing of use;
3. The types of vehicle use, motorized and non-motorized;
4. Re-routing of segments; and
5. Other methods of travel.

### **G.7.2.3 ROUTE NUMBERS**

Grand County has unique identifiers for each of the route segments in its inventory, with segments usually defined between intersections. San Juan County also has route numbers for each road in its inventory, although these numbers tend to correspond to an entire route, rather than a route segment. The Moab Field Office uses the same route numbers as the counties in the travel plan analysis.

In collaboration with the Manti-LaSal National Forest, which has its own numbering system, BLM and San Juan County have suggested that the BLM provide its joint numbering system with the county as an adjunct to that of the Forest for signing routes on-the-ground. It is possible that routes on the National Forest will bear two different numbered signs, one for the forest and one denoting the route number of the county route on a separate post. These two systems will be incorporated into the implementation plan in mapping and written public information.

#### **G.7.2.4 ROUTE DESIGNATIONS IN WILDERNESS STUDY AREAS (WSAs)**

Information Bulletin No. 99-181 (BLM) directs BLM to comply with the wilderness 'non-impairment' mandate (FLPMA, Section 603(c)). BLM must monitor and regulate the activities of off-highway vehicles in the Wilderness Study Areas to assure that their use does not compromise these areas by impairing their suitability for designation as wilderness.

The BLM's Off Road Vehicle Regulations (43 CFR 8342.1) require that BLM establish off-road vehicle designations of areas and routes that meet the non-impairment mandate. It is the BLM's policy that cross-country vehicle use in the WSAs does cause the impairment of wilderness suitability. Thus, the BLM should establish off-road vehicle designations in WSAs that limit vehicular access to boundary roads, or "ways" existing inside a WSA that were identified during the inventory phase of the wilderness review.

#### **G.7.2.5 ADMINISTRATIVE ACCESS AND USE**

Routes considered for Administrative Use Only were discussed by the ID Team. These administrative categories could include routes to stock ponds and other range improvements, guzzlers, and BLM facilities. The Moab Field Office reserves the right to allow travel on these routes to permittees, BLM employees, or whomever it deems appropriate on a case-by-case basis.

#### **G.7.2.6 EMERGENCY USES**

By regulation, any fire, military, emergency or law enforcement vehicle when used for emergency purposes is exempted from OHV decisions. Emergency uses in WSAs are covered under the IMP, Section I.B.11 and 12.

#### **G.7.2.7 EMERGENCY LIMITATION OR CLOSURE**

Whenever the authorized officer determines that OHV use will cause or is causing considerable adverse effects on resources (i.e., soil, vegetation, wildlife, wildlife habitat, cultural, historic, scenic, recreation, or other resources), the area must be immediately closed to the type of use causing the adverse effects (43 CFR 8341.2). Such limitation or closures are not OHV designations.

### **G.8 MOAB FIELD OFFICE TRAVEL PLAN -DATA COLLECTION**

#### **G.8.1 INTRODUCTION**

As part of the BLM's RMP process, a travel plan has been prepared for the Moab Field Office. This process includes preparing a range of alternatives for inclusion in the Draft Environmental Impact Statement (DEIS). The BLM will provide a range of alternatives as to which areas of the Field Office will be *open* to OHV travel, which areas will be *closed* to OHV travel, and which areas will be *limited* to designated routes. Within the limited areas, BLM will provide a range of alternatives by varying miles of designated routes. An initial step was to verify the road maps submitted to the BLM by Grand and San Juan Counties (and also routes submitted by private parties, discussed later). The maps and associated GIS data encompass tens of thousands of road segments in an area covering more than 1.8 million acres. This makes an on the ground

verification of each road segment impractical; fortunately, methods exist which can greatly reduce the road verification workload and still achieve satisfactory results.

For road verification in Grand County, BLM relied on statistical sampling and aerial photography wherever possible for road verification. The purpose of the study is not to draw conclusions as to the condition, extent of use or function of these road segments, but simply to verify that they exist. Details of the study are described below.

For road verification in San Juan County, BLM replicated the procedures described above for Grand County. In addition, an on the ground verification of all road segments within a limited area was also undertaken. This latter approach simply provided a different mechanism for accomplishing the same overall goal. Details of both approaches are described below.

### **G.8.2 GRAND COUNTY ROAD VERIFICATION**

Verification of Grand County road data encompassed the following steps:

1. Grand County provided the BLM with GIS data (as of May 8, 2003) of all County-documented road segments within Grand County. The data includes not only roads on BLM, but also private roads, National Park Service Roads, and some road data in those parts of San Juan County in close proximity to Grand County. BLM used ArcView 3.3 GIS software to export to MS Excel only those road segments identified as being in Grand County and being part of the "D" road system (maintained "A" and "B" roads were not part of the road verification analysis). This process resulted in a selection of 21,285 road segments. Grand County submitted additional data (as of November 12, 2003), resulting in an additional 1167 segments which consisted of 1082 "D" roads as well as a few private roads. These additional segments totaled 787 miles.
2. BLM used commonly available statistics software<sup>1</sup> to determine how many road segments would need verification in order to establish at a 95% confidence level that the Grand County road data was accurate. This step produced a sample size of 377 segments for the May 2003 data, and 208 segments for the additional November 2003 data.
3. The above step assumes that the segments selected are chosen randomly. To accomplish this, BLM assigned (using MS Excel) a unique random number to each of the 21,285 segments identified in step 1. These segments were then sorted in random number order, with the first 377 segments brought forward for verification. A similar process was applied to the November 2003 data.
4. BLM next used ArcView 3.3 to display the road segments chosen in step 3, but now overlaid with digital aerial photographs taken in 2001-2002. In most cases, the road segment in question was easily recognized on the digitized aerial photo. In a few cases, the photo resolution was insufficient for positive verification. In those cases, BLM examined the original hard copy of the photo. If the segment could not be verified in this manner, BLM undertook a field trip to conduct on the ground verification.

Using the above steps, BLM was able to positively verify the existence of 376 of the 377 (or 99.7%) May 2003 segment sample. The one segment not verifiable by aerial photograph analysis was visited by BLM personnel, but could not be found (see map and photos in the RMP administrative record). The segment in question lies on the edge of the White Wash Sand Dunes,

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<sup>1</sup> A good website for this is [www.pearsonncs.com/research-notes/sample-calc.htm](http://www.pearsonncs.com/research-notes/sample-calc.htm)

an area characterized by blowing and drifting sand, adding to the difficulty of finding routes on the ground. Since the segments examined were a true random sample of the population of interest, BLM can be at least 95% confident that the May 2003 data provided by Grand County is 99.7% accurate.

The sample derived from the additional November 2003 data, in general, provided more of a verification challenge. Most of these routes were very faint in aerial photographs; nonetheless, all but three were identifiable in this manner. BLM undertook field verification of the remaining three segments. Combining the results of the two samples, and from aerial photography alone, BLM was thus able to verify 581 of 585 segments, or 99.3%.

In July, 2004, Grand County provided BLM, as part of RMP scoping, a travel plan for the County, which divided their original inventory into routes recommended for motorized use, routes preferred for such use, routes recommended for non-motorized use, and undetermined (mainly roads in Moab City and San Juan County, over which Grand County lacks jurisdiction). The net result of this plan was to recommend 2273 miles of the original inventory (on BLM) for non-motorized use. Table 6 summarizes the Grand County road inventory and its proposed travel plan data, both in total miles within Grand County and on BLM lands within Grand County:

**Table 6. Road Inventory and Proposed Travel Plan provided by Grand County (miles)**

Road Type	Grand Co Inventory (all lands)	Grand Co Inventory (BLM lands)	Grand Co Proposed Travel Plan <sup>1</sup> (all lands)	Grand Co Proposed Travel Plan (BLM lands)
"A" roads	280	184	280	184
"B" roads	1441	995	1441	995
"D" roads/other <sup>2</sup>	5544	4171	2940	1898
Total miles	7265	5350	4661	3077

<sup>1</sup> Includes routes recommended by Grand County for designation as open to motorized, as well as a number of "undetermined" routes. Some of these are outside Grand County's jurisdiction (e.g., tribal, USFS), or left to the BLM's "discretion".

<sup>2</sup>"other" consists primarily of old railroad grade and mapped pack trails, totaling 86.4 miles

Trail Mix, an entity established by Grand County, submitted data to BLM on December 15, 2004. Trail Mix represents various groups of generally non-motorized trail users (hikers, mountain bikers, equestrians) from Grand County, with some input as well from motorcycle users. Trail Mix's proposal, summarized in Table 7, pertains to designation of various routes for specific uses (the last two categories contain recommendations which conflicted with the Grand County Travel Plan, discussed earlier).

**Table 7. Trail Mix Route Proposal**

Route	Miles (BLM)
Proposed mechanized (both new single-track and existing, unmapped routes)	22.3
Proposed motorcycle	4.1
Proposed conversion of motorized to mechanized	15.9
Proposed conversion of motorized to non-mechanized	1.36

### **G.8.3 SAN JUAN COUNTY ROAD VERIFICATION**

As discussed above, Grand County first presented BLM with an *inventory* of all routes mapped by the County. Grand County followed this with a travel *plan*, comprising far fewer routes than had been inventoried. In contrast, San Juan County did its inventory and travel plan simultaneously while in the field. This was accomplished, basically, by noticing that a route in question was receiving regular use, thus establishing that it had a purpose and need. Routes receiving no obvious use were seen, generally, as lacking purpose and need. Unlike Grand County, San Juan County did not inventory numerous routes visible on the ground.

The verification process for San Juan County (within the Moab Field Office boundary) consisted of two distinct steps. For the first step, BLM undertook an on the ground verification of all routes in the County's database within a limited geographical area. BLM undertook this approach because of the availability of manpower in the area of interest, and also to compare and contrast the results from the two verification approaches. The area chosen for analysis was the Canyon Rims Recreation Area, and encompasses all San Juan road data west of Hatch Wash to the Moab Field Office boundary. The current on-site verification excluded those road segments already verified as part of the 1999 BLM Wilderness Inventory (located primarily near the western rim of Hatch Wash).

BLM personnel used hard copies of maps depicting San Juan County road data to locate and photograph each route so depicted. This process produced 322 Class D road segments<sup>2</sup> to verify, of which 317 were positively verified on the ground. Virtually all of the routes on the west rim of Hatch Wash had been documented in conjunction with the 1999 BLM Utah Wilderness Inventory. Field personnel were able to verify all but five of the remaining routes in late summer, 2003. As part of the 2003 process, BLM personnel prepared detailed logs of each road verified, accompanied by 215 digital photographs. The remaining 5 segments (inadvertently missed by field personnel) were easily identified from digital aerial photographs, using ArcView 3.3 GIS software.

The roads selected for verification in the process described above are not a random sample of all San Juan County road data within the boundaries of the Moab Field Office. To complete the road verification process, BLM performed a statistical analysis similar to that done for Grand County:

1. Using ArcView 3.3 GIS software and road data provided by San Juan County, BLM personnel segregated all "D" roads within the Moab Field Office boundary. This process produces 1576 road segments.
2. Using the same statistics software outlined earlier, BLM was able to determine that a random sample of 309 road segments would provide a 95% confidence level.
3. Using an ArcView extension, a random sample of 309 road segments was drawn from the original 1576 segment population.
4. BLM personnel used a variety of techniques to verify the existence of the sample segments, including on-site verification and use of digitized aerial photographs from 2001. Of the 309 segments sampled, 40 were verified using the data from step 1; nine were verified using data from the 1999 Utah Wilderness Inventory; and 259 were verified from digitized aerial photographs in GIS.

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<sup>2</sup> Road segments ranged from 2.2 to 2733.1 meters in length, with typically many smaller segments comprising one "road". Thus, the number of "roads" which the typical observer might count is greater than the sum of the segments comprising these roads.

In March, 2005, BLM received information on 54 additional segments in the Moab Field Office from San Juan County. These routes totaled 50.8 miles, and were all verified using aerial photographs in GIS. As was the case with the additional data provided by Grand County, the data provided by San Juan County was generally fainter than their original data, but still definitely in existence.

#### **G.8.4 ROAD DATA RECEIVED FROM PRIVATE SOURCES**

On December 29, 2003, BLM received a communication from Ber Knight to the effect that he had GPS data on routes in San Juan County within the Moab Field Office that were not included in the San Juan County database. No information was provided on purpose and need for these routes, but simply on their existence. BLM has most (perhaps all) of this data in GIS. BLM initially attempted to verify this data with the same sampling techniques outlined above. It quickly became apparent that this approach would not be viable for this data, since a relatively large number of route segments could not be found. If any of these routes were to become part of the MFO transportation plan, it would be necessary to map and verify all of the new data.

To verify the Knight data, BLM started with the ArcView data in GIS. This data was then segregated to include only those routes that met the following criteria:

1. The route had to be in San Juan County, within the boundaries of the Moab Field Office, and at least a portion of it on public lands.
2. All routes lying entirely within the Canyon Rims Recreation Area (CRRA) were initially excluded. This is because San Juan County and BLM recently had reached agreement on a travel route designation plan for this area.

This process produced a population of 322 distinct route segments for verification. The segments had a mean length of 694 feet, with a range of less than 3 to more than 3700 feet. The verification process itself posed significantly greater challenges than had been posed for the Grand and San Juan County databases. Much of the Knight data had been gathered in an era when GPS technology was less advanced than today. This resulted in many route segments being discontinuous or poorly aligned with the (presumed) route being mapped. In many cases, it was difficult to determine which of several routes present in an aerial photograph was being mapped. In other cases, no route at all was visible, either due to GPS errors, or to the passage of time since the original measurement, during which the route may have become overgrown and difficult to locate. In still other cases, a Knight route turned out to be a "floating" segment, unconnected to any other route in the database. The great majority of routes (with the exception of those identical to routes in the San Juan County inventory) were very faint in aerial photographs, especially when compared to County data. Generally, routes which are difficult to locate on such photos are even more difficult to locate on the ground.

Despite these difficulties, BLM was able to locate 289 of the 322 segments. To give these data the benefit of the doubt (and to recognize the inherent measurement error in older GPS technology), BLM considered a route "verified" if it lay within at least 100 feet of a visible route, and had the same approximate configuration.

Although BLM has reached agreement with San Juan County on travel routes within the Canyon Rims Recreation Area (CRRA), BLM felt it advisable to verify the Knight routes that lay within CRRA boundaries. Many of these routes are the same as San Juan County road data, and did not

needed additional verification. Others, however, are not part of the County inventory, and thus need additional verification. Using the same techniques as discussed above, BLM was able to verify through aerial photography all but 35 of 787 Knight routes in CRRA (keeping in mind that many of these 787 routes coincided with San Juan County inventory data). Most of the routes which are not part of the County inventory are extremely faint seismic routes, and would likely be difficult for the average traveler to locate on the ground (most of these were GPS 'd some time ago, and may have been more visible at that time).

The purpose of the BLM road verification process was not to judge the condition, degree of maintenance, extent of use, or function of these routes, but simply to verify their physical existence.

The RMP administrative record contains maps of the road segments verified, photo and route logs, and photos.

In addition to the Ber Knight submission, discussed above, BLM received data from a variety of private sources as part of its scoping process. Table 8 summarizes the data received, and how it has been incorporated into the travel planning process.

**Table 8. Routes Submitted by Private Sources**

<b>Submitted by:</b>	<b>Submission</b>	<b>Action</b>
Book Cliff Rattlers	OHV routes	Routes not part of Grand County road inventory were added to the GIS travel plan database. These routes were verified through a series of field trips (discussion follows later in this document).
Dale Parriott	Motorcycle routes	Routes not part of Grand County road inventory were added to the GIS travel plan database. Some routes appear to be nearly identical to Rattler routes. Through a series of field trips, BLM was only able to find clear evidence of one of these routes ("Mel's Loop South"); with the remaining routes either not fully identified or identified for only a short segment.
Red Rock 4Wheelers (several identical requests from others)	Several Jeep routes	Routes not part of Grand County road inventory were added to the GIS travel plan database. Verified by field checks.
Jim Bulkeley	Two jeep routes	One route similar to above, but with non-existent connection (at least for full-size vehicles) to Cliffhanger route. Almost the entire first route is on State land. Second route (Devil's Slide off Hell's Revenge) not accompanied by maps, and therefore not analyzed.
Robert Telepak	Numerous routes	All routes (except one) seem to already be included in County or Red Rock 4 Wheelers road inventory data. "Missing" route added to the GIS travel plan database and verified from aerial photo.
Jeff Stevens	Two segments of a Jeep Safari route	In GIS travel plan database.
Robert Norton	Numerous routes	All MFO routes (for which data provided) in GIS travel plan database.

**Table 8. Routes Submitted by Private Sources**

Submitted by:	Submission	Action
Ber Knight	Numerous routes in San Juan Co/MFO but not on SJ Co road map	Verified using same approach as for Grand and San Juan inventory data. See discussion above.
SULU/SPEAR	ATV trail recommendations, including approximately 32 miles of San Juan County "D" roads in MFO	Verified; proposal also suggests (as yet) unmapped additional routes not on San Juan inventory.
Jeremy Parriott	Short route in wash from private property to San Juan road	Proposed for inclusion in travel plan; added to the GIS travel plan database for consideration
Red Rock Heritage	Comprehensive travel plan for MFO	All routes based on Grand and San Juan road inventories. Excludes numerous routes included in both inventories, in order to enhance non-motorized recreation opportunities. Update received September 7, 2004, including rationale for previously provided map. Most, but not all, closure recommendations lie within areas proposed by the group for wilderness (see "Alternatives Eliminated from Further Analysis" in Chapter 2 of the Draft RMP/EIS for more information).
Moab Trail Alliance (MTA)	Mountain bike and equestrian routes	MTA provided BLM with a table and GIS data recommending a variety of new single track mountain biking trails, and one equestrian route. Additionally, MTA provided recommendations on converting several Grand County roads to mountain bike use. The new trail proposals were forwarded for consideration in the Recreation section of the RMP, while the recommendations for changes from motorized to non-motorized status were added to the GIS travel plan database for consideration.

**Table 8. Routes Submitted by Private Sources**

Submitted by:	Submission	Action
Rory Tyler	OHV use in Hell-Roaring Canyon and in the Mill Creek WSA off the Steelbender 4WD route	<p>On December 3, 2004, BLM received two maps and attached narratives outlining OHV damage in these two areas. Tyler specifically recommended that several spurs off the Steelbender route into the WSA be closed to motorized use, and that the upper reaches of Hell-Roaring Canyon also be closed to motorized use.</p> <p>Both problem areas addressed by Mr. Tyler are in areas currently closed to motorized travel (Mill Creek WSA), or limited to existing roads and trails (Hell Roaring Canyon). The Grand County inventory indicates no "claimed" spur at the Steelbender intersection referenced, and thus will not likely be part of the BLM travel plan under any alternative. The Grand County travel plan indicates a route up Hell-Roaring Canyon, which will be considered as part of BLM's alternative development. This route, however, does not go as far as the problem spots identified by Mr. Tyler. Should this area become closed or limited to designated routes, the travel observed by Mr. Tyler will become a law enforcement, rather than a travel plan, issue.</p>

## G.9 MOAB FIELD OFFICE TRAVEL PLAN - ALTERNATIVES DEVELOPMENT

### G.9.1 GOAL

The goal of the travel plan is to provide opportunities for a range of motorized access and recreation experiences on public lands while protecting sensitive resources and minimizing conflicts among various users.

### G.9.2 BLM POLICY: OHV DESIGNATIONS

OHV Designation Categories – BLM National Strategy mandates that all public lands administered by the BLM must be designated as Open, Limited, or Closed.

- Open – The BLM designates areas as "open" for intensive OHV use where there are no compelling resource protection needs, user conflicts, or public safety issues to warrant limiting cross-country travel. However, motor vehicles may not be operated in a manner causing or likely to cause significant, undue damage to or disturbance of the soil, wildlife, wildlife habitat improvements, cultural or vegetative resources or other authorized uses of the public lands (See 43 CFR 8341).
- Limited – The "limited" designation is used where OHV use must be restricted to meet specific resource management objectives. In the current guidance context, this means limited to designated roads and trails, i.e., a route network designated by the BLM in its RMP. These routes may also be limited to:

- A time or season of use depending on the resources in the area (i.e., Threatened and Endangered Species ' habitat or nesting areas, crucial winter ranges, etc.); and/or
- Type of vehicle use (ATV, Motorcycle, four-wheel vehicle, etc.)
- **Closed** – The BLM designates areas as "closed" if closure to all vehicular use is necessary to protect resources, ensure visitor safety, or reduce resource or use conflicts. Access by means other than motor vehicle access is generally allowed. The Field Office Manager may allow motor vehicle access on a case-by-case basis or for emergencies.

A summary of the OHV designation categories (acres) developed for the alternatives in the travel plan is provided in Table 9.

**Table 9. Open, Limited and Closed Areas (acres) for the Moab Field Office**

Category	Alt A No Action <sup>1</sup>	Alt B Conservation	PROPOSED PLAN Balanced	Alt D Commodity
Closed	29,654	358,126	349,843	29,654
Limited to Existing	1,065,683	0	0	0
Limited to Designated	47,787	1,463,248	1,469,665	1,788,372
Open	678,250	0	1,866	3,348
Totals <sup>2</sup>	1,821,374	1,821,374	1,821,374	1,821,374

<sup>1</sup>No Action takes as baseline the 1985 Grand RMP and subsequent Federal Register actions.

<sup>2</sup>Excludes lands in the Moab Field Office managed by the BLM Vernal Field Office.

### **G.9.3 ROUTE DESIGNATION AND ID TEAM MEETINGS**

Twenty-one ID team meetings to address route/resource conflicts and route designations were held from October 2004 through September 2005. The Field Office Manager conducted each meeting (except one), and every route proposed for designation in either Grand or San Juan County 's travel plans was evaluated. Additionally, the ID team evaluated whether there were routes not recommended for designation by either of the Counties that had a purpose and need requiring designation. The purpose of the route designation ID Team meetings was three-fold:

- Gather input from ID team on conflicts identified and mitigation proposed by each resource specialist. Identify (where known) the purpose and need for the route in question. Where conflicts with resources existed, these conflicts were discussed and resolved during the meeting, and final proposals for the various alternatives were established.
- Formulate three action alternatives for the travel plan. The Conservation alternative emphasizes resource conflicts over the purpose and need for the route. The Commodity alternative emphasizes the purpose and need for the route over resource conflicts. The Balanced alternative weighs both resource conflicts and the purpose and need.
- Develop a designed system of designated routes that fulfills the management goal for the planning area.

The RMP administrative record contains details of the conflicts identified for each route or route segment and BLM's conclusions as to designation, by alternative.

The ID team process was as follows. The Field Office Manager conducted all but one meeting. Each county's road inventory and travel recommendations were examined area by area, usually by USGS quad. In addition to County inventories, proposals by private groups were examined in the same fashion. Grand County, in its travel plan, had proposed that a large number of "D" roads in its inventory not be designated for motorized travel. In these cases, the County had been unable to identify a purpose and need for the routes in question. Many of these routes were considered redundant, in that other routes existed in the vicinity that were more suitable for motorized travel. In most cases, BLM agreed with the County's characterization of these routes, and did not include these in any of the action alternatives for designation. These routes were 2,594.8 miles in total. Routes proposed by either County for motorized designation were evaluated by the ID team for purpose and need (in consultation with the Counties), as well as potential resource concerns.

As discussed above, resource specialists identified potential conflicts with proposed routes, and characterized the severity of the conflict. In general, routes with serious resource conflicts (or less severe, but multiple conflicts), and no obvious purpose and need, were recommended for non-designation. There were many routes where resource concerns conflicted with established purpose and need. These routes typically were recommended for non designation in the Conservation alternative, but were designated in the Commodity alternative. Whether or not to designate a route in the Balanced alternative was decided by a weighing of the route's importance against the severity of the identified resource conflicts. In many cases, the potential conflict was resolved by reducing the number of parallel and redundant routes. Throughout the process, representatives of Grand and San Juan Counties were involved, and, in general, concurred with staff recommendations. The GIS data identifies those route segments which are recommended for non-designation, by alternative, and the principal resource concern(s) identified. These GIS files identify conflicts as cultural, riparian, recreation, soils, wilderness, and/or wildlife. The following sections explain the conflicts that existing routes could pose to these resources. In addition to resource issues identified through the ID team process, there is a large body of literature identifying potential impacts from OHV travel on a variety of resources.

The United States Geologic Survey (USGS) has compiled an extensive review of the available literature on the effects of OHV travel on public lands<sup>3</sup>. Their literature and Internet searches yielded approximately 700 peer-reviewed papers, magazine articles, agency and non-governmental reports, and internet websites regarding effects of OHV use as they relate to the Bureau of Land Management's (BLM) standards of land health. In its Executive Summary, the USGS summarized their finding for a variety of natural resources and also socioeconomic implications as follows:

### **G.9.3.1 SOILS AND WATERSHED**

The primary effects of OHV activity on soils and overall watershed function include altered soil structure (soil compaction in particular), destruction of soil crusts (biotic and abiotic) and desert pavement (fine gravel surfaces) that would otherwise stabilize soils, and soil erosion. Indicators of soil compaction discussed in the OHV effects literature include soil bulk density (weight per unit of volume), soil strength (the soil's resistance to deforming forces), and soil permeability

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<sup>3</sup> *Environmental Effects of Off-Highway Vehicles on Bureau of Land Management Lands: A Literature Synthesis, Annotated Bibliographies, Extensive Bibliographies, and Internet Resources*, Douglas S. Ouren et al., United States Geological Survey, Department of the Interior, 2007.

(the rate at which water or air infiltrate soil). Generally, soil bulk density and strength increase with compaction, whereas permeability decreases with compaction. As soil compaction increases, the soil's ability to support vegetation diminishes because the resulting increases in soil strength and changes in soil structure (loss of porosity) inhibit the growth of root systems and reduce infiltration of water. As vegetative cover, water infiltration, and soil stabilizing crusts are diminished or disrupted, the precipitation runoff rates increase, further accelerating rates of soil erosion.

### **G.9.3.2 VEGETATION**

Plants are affected by OHV activities in several ways. As stated above, soil compaction affects plant growth by reducing moisture availability and precluding adequate taproot penetration to deeper soil horizons. In turn, the size and abundance of native plants may be reduced. Above-ground portions of plants also may be reduced through breakage or crushing, potentially leading to reductions in photosynthetic capacity, poor reproduction, and diminished litter cover. Likewise, blankets of fugitive dust raised by OHV traffic can disrupt photosynthetic processes, thereby suppressing plant growth and vigor, especially along OHV routes. In turn, reduced vegetation cover may permit invasive and/or non-native plants—particularly shallow rooted annual grasses and early successional species capable of rapid establishment and growth—to spread and dominate the plant community, thus diminishing overall endemic biodiversity.

### **G.9.3.3 WILDLIFE AND HABITAT**

Habitats for native plants and animals, including endangered and threatened species, are impacted by OHVs in several ways. A salient effect is habitat fragmentation and reduced habitat connectivity as OHV roads and trails proliferate across the landscape. Reduced habitat connectivity may disrupt plant and animal movement and dispersal, resulting in altered population dynamics and reduced potential for recolonization if a species is extirpated from a given habitat fragment. Wildlife is also directly affected by excessive noise (decibel levels/noise durations well above those of typical background noise) and other perturbations associated with OHV activities. Disturbance effects range from physiological impacts—including stress and mortality due to breakage of nest-supporting vegetation, collapsed burrows, inner ear bleeding, and vehicle-animal collisions—to altered behaviors and population distribution/dispersal patterns, which can lead to declines in local population size, survivorship, and productivity.

### **G.9.3.4 WATER QUALITY**

The effects of OHV activities on water quality can include sedimentation (deposited solids), turbidity (suspended solids), and pollutants within affected watersheds. Sedimentation increases because compacted soils, disrupted soil crusts, and reduced vegetation cover can lead to increased amounts and velocities of runoff; in turn, this accelerates the rates at which sediments and other debris are eroded from OHV-use areas and flushed to aquatic systems downslope. Pollutants associated with deposition of OHV emissions and spills of petroleum products may be adsorbed to sediments, absorbed by plant material, or dissolved in runoff; once mobilized, these contaminants may enter aquatic systems.

### **G.9.3.5 AIR QUALITY**

Air quality is affected when OHV traffic raises fugitive dust and emits by-products of combustion. Because wind can disperse suspended particulates over long distances, dust raised by OHV traffic can blanket plant foliage and disperse dust-adsorbed contaminants well beyond a given OHV-use area. Primary combustion by-products potentially affecting air quality in OHV use areas include (but are not limited to) polycyclic aromatic hydrocarbons, sulfur dioxide (SO<sub>2</sub>), nitrogen oxides (NO<sub>x</sub>), and ozone (O<sub>3</sub>). Although leaded gasoline has not been used in the United States since 1996, lead emissions deposited prior to the ban on leaded gasoline may persist for decades and continue impacting ecosystems as wind and water erosion continue to mobilize lead and other contaminants downwind (or downslope) of contaminated soils.

### **G.9.3.6 SOCIOECONOMIC IMPLICATIONS**

Although not one of BLM's land health considerations, the socioeconomic implications of OHV use have significant direct and indirect effects on land health. As the popularity of OHV recreation increases, socioeconomic factors become increasingly important considerations in understanding and mitigating the overall effects of OHV use on land health. OHV recreation can have significant economic value to local communities where and when OHV use is popular; however, the economic costs to those communities remain unknown. OHV use also can lead to conflicts among different land-users—both OHV users and people seeking non-motorized forms of recreation—within OHV-use areas and nearby areas. Crowding of designated OHV areas may encourage unauthorized use in closed areas, and adjacent or overlapping use types may cause dissatisfaction or discourage recreation altogether, which can diminish public support for land management programs.

The report goes on for approximately 60 pages summarizing relevant literature. The references cited section runs 150 pages. The USGS concludes that the impacts of OHV use on a variety of resources are diverse and potentially profound. They argue that the results of impacts studies in the immediate vicinity of single trails and OHV sites have been reasonably consistent in documenting potentially negative impacts. They conclude that the results are less conclusive for wildlife, air and water quality than for the other resources examined. They emphasize the need for additional research on the cumulative effects on natural resources of OHV use, but speculate that the impacts could be greater in a network of OHV routes than for a single route.

### **G.9.3.7 CULTURAL**

Existing routes may go through identified cultural or paleontological sites. Use of these routes may hasten erosion, exposing more of the site to natural or human-caused damage. Cross-country travel in particular can exacerbate this problem. Site densities may be such that any access to the area could put such resources at risk. Routes identified with cultural conflicts totaled 136.9 miles.

### **G.9.3.8 RECREATION**

Scoping has shown a desire on the part of some publics for more areas to be managed for non-motorized recreation. In response to this, BLM may decide to manage certain areas for more primitive forms of recreation, or to reduce user conflicts between motorized and non-motorized users. In such areas, and under different plan alternatives, the existence of certain roads (or a

redundancy of such) may pose a conflict with underlying recreation management goals and objectives. Routes identified with recreation conflicts totaled 88.3 miles.

### **G.9.3.9 RIPARIAN**

There are numerous streams, rivers, and other watercourses that run through the "limited" OHV category area. Routes are often located in riparian areas in canyons and drainage bottoms to avoid the more difficult uplands. Use of these routes can contribute to loss of riparian vegetation, degrade stream banks, and lead to erosion problems. There are also numerous washes within the "limited" OHV category area that do not support riparian vegetation, and merely provide a channel for water during storm events. Compaction of soils in these washes can lead to accelerated flood velocity, further contributing to erosion and sedimentary transfer. Routes identified with riparian conflicts totaled 118.9 miles; routes identified with floodplain conflicts totaled 230.2 miles.

### **G.9.3.10 SOILS**

The primary watershed concern identified in the RMP (1985) was the prevention and reduction of salinity and sedimentation from public lands. Any surface disturbing activity, including routes, on sensitive soils will cause increases in salinity and sedimentation levels.

Roads and off-road travel can cause impacts to watersheds by impacting soil health and water quality. Impacts can include soil compaction, decreased soil stability, loss of vegetation and biotic soil crusts, loss of functioning floodplains, accelerated erosion, water quality degradation, and increased salinity contributions.

In order to meet Utah Rangeland Health Standards, surface disturbing activities, including roads, should be limited on highly saline soils, highly erodible soils, steep slopes, and drought intolerant soils. Routes identified with soils conflicts of all types totaled 662.5 miles.

### **G.9.3.11 WILDERNESS**

Wilderness study areas (WSA) are managed under the BLM's Interim Management Policy and Guidelines for Lands Under Wilderness Review (IMP) so as not to impair their suitability for preservation as wilderness. Each of these WSAs has wilderness characteristics. They are greater than 5,000 acres in size, natural in appearance, and provide outstanding opportunities for solitude and/or primitive recreation. Many also possess supplemental wilderness values including cultural resources and wildlife values.

The IMP specifies that, at a minimum, motorized vehicles are only allowed on pre-existing inventoried ways in WSAs. Use of vehicles off boundary routes and on these ways is permitted only for emergencies, search and rescue operations, official purposes for the protection of human life, safety, and property; protection of lands and their resources, and to build and maintain structures and installations permitted under the IMP.

Today's OHVs are more varied, powerful machines capable of accessing steeper and rougher terrain than was possible over 20 years ago when the WSAs were designated. Motorized use in and around certain WSAs has increased dramatically, and involves sports utility vehicles (SUVs), trucks, all terrain vehicles (ATVs), and motorcycles. As discussed earlier, designating motorized routes within WSAs can lead to the impairment of wilderness character, whether

through increased risks of off-road travel or intruding upon the solitude that wilderness users seek (See also 7.2.4). Routes identified with wilderness conflicts totaled 51.5 miles.

**G.9.3.12 WILDLIFE**

In general, roads can produce threats to wildlife populations due to habitat fragmentation, stress caused by human activities at critical times such as lambing, and impacts to resources (e.g., water, vegetation) upon which wildlife depend. Off-road travel can exacerbate these effects. Several species in the Moab Field Office may be particularly susceptible to human disturbance.

Big Game (bighorn sheep, deer, elk, pronghorn)

Disturbance from human activity can cause increased stress, making animals more susceptible to disease and parasites, and leading to habitat abandonment and fragmentation of habitat. Within bighorn sheep habitat, the Range-wide Plan for Managing Habitat for Desert Bighorn Sheep on Public Lands (U.S. Department of the Interior, BLM, undated) recommends that new road construction be minimized and roads no longer serving a definite purpose be closed. The Plan further recommends that off-road vehicles be limited to existing roads and trails.

Birthing grounds are, by far, the most crucial habitat. Additional stress and pressure from human activities can deplete energy reserves, as well as disease and parasite resistance in pregnant and lactating animals with young at their sides. This reduces the survival rate of newborns.

White-tailed and Gunnison Prairie Dogs

Populations have been decimated by sylvan plague, and restoration of habitat is required for re-colonization. Limiting new roadways and decommissioning unnecessary roads, as well as reclaiming illegal trails, will help to lessen the impacts to prairie dog habitat fragmentation.

Greater and Gunnison Sage-grouse

Within the Moab FO, reduction of human disturbance and fragmentation is needed to protect remaining sage-grouse habitat. Limiting new roadways, decommissioning unnecessary roads and reclaiming illegal trails will help reduce habitat fragmentation and protect the birds and their habitat from human disturbance.

Routes identified with wildlife conflicts totaled 129.9 miles, of which 52.6 miles conflicted with bighorn sheep habitat.

**Table 10. Miles of Route Designated/not designated for Motorized Travel Due To Resource Conflicts, By Alternative**

Resource Conflicts		Alternatives			
		A	B	PROPOSED PLAN	D
Cultural	Designated	148.2	101.7	131.6	144.6
	Not Designated		46.5	16.6	3.6
Recreation	Designated		57.6	118.4	148.5
	Not Designated	178.2	120.6	59.8	29.7

Riparian	Designated	321.9	110.3	269.8	305.2
	Not Designated		179.6	50.1	14.7
Soils	Designated	960.3	622.7	792.8	909.3
	Not Designated		337.6	167.5	51.0
Wilderness	Designated	82.5	0.0	1.7	16.0
	Not Designated		82.5	80.8	66.5
Wildlife	Designated	367.4	235.1	315.6	356.3
	Not Designated		132.3	51.8	11.1

#### **G.9.4. MECHANIZED ROUTES (SEE MAPS OF MECHANIZED ROUTES)**

Mechanized use includes mechanical devices such as bicycles that are not motorized. Moab BLM concluded that routes not designated for motorized travel generally would be available for mechanized, foot, and equestrian travel. As with all designations in the travel plan, BLM reserves the right to change designations in the future, should resource issues warrant such action. Exceptions to permitting mechanized use on routes not designated for motorized use are "ways" in WSAs. In those cases where motorized use on such routes is prohibited, the same prescriptions would apply to mechanized use, as a means of enhancing wilderness values. The same would apply to routes not designated for motorized use in those areas the BLM chooses to manage to preserve wilderness characteristics (in those alternatives of the DEIS containing such areas). In addition, routes not designated for motorized use will not be available for mechanized use in areas identified as hiking or other non-mechanized focus areas.

Exceptions to the non-mechanized policy in WSAs include the Hidden Valley trail and the Porcupine Rim trail (single-track portion). Under IMP, BLM reserves the right to close these trails to mechanized use, should such use lead to degradation of resource values.

#### **G.9.5 FOOT AND EQUESTRIAN TRAVEL**

Foot and equestrian travel would continue to be allowed in all areas of the Field Office, except as specifically prohibited. Under all alternatives, the following trails would be open to foot traffic only:

- Negro Bill Canyon Trail
- Hunter Canyon Trail
- Fisher Towers Trail
- Amphitheater Loop Trail
- Mill Canyon Dinosaur Trail
- Copper Ridge Sauropod Trail
- Corona Arch Trail
- Windwhistle Nature Trail

Under all alternatives, the following trails would be open to foot and equestrian traffic only:

- Trough Springs Trail
- Onion Creek Benches Trail
- Ida/Stearns Gulch Equestrian Trail System
- Castle Creek Equestrian Trail
- Rattlesnake Trail above Nefertiti Boat Launch
- Upper portions of Seven Mile Canyons
- Red Rock Horse Trails (near Ken 's Lake)

## **G.10 PLAN MAINTENANCE AND CHANGES TO ROUTE DESIGNATIONS**

The RMP must include indicators to guide future plan maintenance, amendments, or revisions related to OHV area designations or the approved road and trail system within "Limited" areas. Indicators could include results of monitoring data, new information, or changed circumstances (IM 04-005, Attachment 2). Actual route designations within the "Limited" category can be modified without completing a plan amendment, although NEPA compliance is still required. The Federal regulations at 43 CFR 8342.3 state:

The authorized officer shall monitor effect of the use of off-road vehicles. On the basis of information so obtained, and whenever the authorized officer deems it necessary to carry out the objectives of this part, designations may be amended, revised, revoked, or other action taken pursuant to the regulation in this part.

Within the RMP, Field Offices must establish procedures for making modifications to their designated route networks. Because future conditions may require the designation or construction of new routes or closure of routes in order to better address resources and resource use conflicts, a Field Office will expressly state how modification would be evaluated. As noted in IM 2004-061, plan maintenance can be accomplished through additional analysis and land-use planning, e.g., activity level planning. BLM will collaborate with affected and interested parties in evaluating the designated road and trail network for suitability for active OHV management and envisioning potential changes in the existing system or adding new trails that would help meet current and future demands. In conducting such evaluations, the following factors would be considered:

- Routes suitable for different categories of OHVs including dirt bikes, ATVs, dune buggies, and 4-wheel drive touring vehicles, as well as opportunities for joint trail use;
- Needs for parking, trailheads, informational and directional signs, mapping and profiling, and development of brochures or other materials for public dissemination;
- Opportunities to tie into existing or planned route networks;
- Measures needed to avoid onsite and offsite impacts to current and future land-uses and important natural resources; among others, issues include noise and air pollution, erodible soils, stream sedimentation, non-point source water pollutions, listed and sensitive species' habitats, historic and archeological sites, wildlife, special management areas, grazing operations, fence and gate security, needs of non-motorized recreationists, and recognition of property rights for adjacent landowners;

- Public land roads or trails determined to cause considerable adverse effects or to constitute a nuisance or threat to public safety would be considered for relocation or closure and rehabilitation after appropriate coordination with applicable agencies and partners.
- Those areas managed as Closed will not be available for new motorized or mechanized route designation or construction.

Regulations at 43 CFR 8342.2 require BLM to monitor the effects of OHV use. Changes should be made to the Travel Plan based on the information obtained through monitoring. Procedures for making changes to route designations after the ROD is signed are established in the RMP. Site specific NEPA documentation is required in order to change the route designations in this Travel Plan.

## **G.11 COOPERATING AGENCIES AND OTHER COORDINATION**

A Cooperating Agency is an agency other than the lead agency which has jurisdiction by law or special expertise with respect to any environmental impact involved in a major federal action.

### **G.11.1 COOPERATING AGENCIES**

Copies of meeting minutes are found in the BLM Moab Field Office Administrative Record.

*Grand and San Juan Counties.* As described in this document, both counties have played integral roles in the Moab Field Office's travel plan development.

*State of Utah, State Parks.* Meetings were held with State Parks personnel regarding the travel plan.

*State of Utah, School Institutional Trust Land Administration (SITLA).* A meeting with SITLA representatives held was at the Moab Field Office. On-going consultations continue to address BLM and SITLA management concerns.

*State of Utah, Department of Wildlife Resources (DWR).* DWR provided input to the draft alternatives matrix.

*State of Utah, State Historic Preservation Office (SHPO).* The USHPO is consulted on cultural aspects both through the RMP process and for all pertinent activity level, site-specific NEPA where cultural resources are concerned.

*U.S. Fish and Wildlife Service (USFWS).* Letters from the USFWS concerning on-going issues with sensitive species are the basis for choices made by the ID team in evaluating wildlife conflicts.

*National Forest Service, Manti La Sal National Forest.*

*National Park Service, Arches and Canyonlands National Parks.*

### **G.11.2 OTHER COORDINATION**

*Native American Tribes.* Native American Tribes are consulted on all site-specific NEPA where there are cultural concerns.

*BLM Monticello Field Office.* Coordination with the Monticello FO has been consistent from the outset of travel planning and the RMP process. Edge matching of boundaries has been accomplished.

*Other Adjoining BLM Field Offices.* The Moab Field Office has contacted the Vernal, Grand Junction, Montrose and Durango Field offices in the course of travel plan development (with the exception of Vernal, these Field Offices' adjoining areas are currently Open to OHV travel).

## **G.12 IMPLEMENTATION PROCESS**

Implementation decisions are actions to implement land-use plans and generally constitute BLM's final approval allowing on-the-ground actions to proceed. These types of decisions are based on site-specific planning and NEPA analyses and are subject to the administrative remedies set forth in the regulations that apply to each resource management program of the BLM. Implementation decisions are not subject to protest under the planning regulations. Instead, implementation decisions are subject to various administrative remedies. Where implementation decisions are made as part of the land-use planning process, they are still subject to the appeals process of other administrative review as prescribed by specific resource program regulations after BLM resolves the protests to land-use plan decisions and make a decision to adopt or amend the RMP.

Travel planning and implementation process includes the following:

- A map of roads and trails for all travel modes.
- Notations of any limitation for specific roads and trails.
- Criteria to select or reject roads and trails in the final travel management network, add new roads or trails, and to specify limitations.
- Guidelines for management, monitoring, and maintenance of the system.
- Needed easements and rights-of-ways (to be issued to the BLM or others) to maintain the existing road and trail network providing public land access.

In addition, travel management networks should be reviewed periodically to ensure that current resource and travel management objectives are being met (43 CFR 8342.3).

In the final RMP decisions, designated OHV routes will be portrayed by a map entitled "Field Office Travel Plan and Map". This map will be the basis for signing and enforcement. The Field Office will prioritize actions, resources, and geographic areas for implementation. The implementation goals include completing signage, maps, public information, kiosks, and working with partners.

## **G.13 REFERENCES**

- 43 C.F.R. Part 8340
- BLM Moab and Monticello Field Office, Planning Bulletin #3 – Request for Route Data, November 1, 2003
- BLM Moab and Monticello RMP Revisions, Scoping Summary, July 2004
- BLM Moab Field Office, Analysis of Management Situation (AMS), January 2005
- BLM Land-use Planning Handbook 1601

- NRCC Technical Team, State-wide OHV Trail Signing Standards (from Utah BLM State Office, September 5, 2001)
- Natural Resource Coordinating Council (NRCC) Utah Interagency OHV Steering Committee, Final Report, April 1, 2004
- Standards for Rangeland Health of BLM Land in Utah, May 1997
- U.S. Department of the Interior, BLM, Interim Management Policy for Lands Under Wilderness Review, H-8559-1
- U.S. Department of the Interior, BLM, National Management Strategy for Motorized Off-Highway Vehicle Use on Public Lands, January 2001
- Utah OHV Transactions by County and Fiscal Year, 2005

## ATTACHMENT A: DEFINITIONS

**All-Terrain Vehicle (ATV)** – A wheeled or tracked vehicle, other than a snowmobile or work vehicle, designed primarily for recreational use of the transportation of property or equipment exclusively on undeveloped road rights of way, marshland, open country or other unprepared surfaces. (BLM, National Management Strategy for Motorized Off-Highway Vehicle Use on Public Lands, January 2001)

**Closed Designations** – Areas or trails are designated closed if closure to all vehicular use is necessary to protect resources, promote visitor safety, or reduce use conflicts. (8342.06 E)

**Considerable Adverse Impacts** – Any OHV related adverse environmental impact that causes: (a) significant damage to cultural or natural resources, including but not limited to historic, archaeological, soil, water, air, vegetation and scenic values, or (b) significant harassment of wildlife and/or significant disruption of wildlife habitats; or (c) significant damage to endangered or threatened species or their habitat, or (d) impairment of wilderness suitability; *and* is irreparable due to the impossibility or impracticality of performing corrective or remedial actions. The significance of these damages is determined on a case-by-case basis by BLM's authorized officers in the field (normally District [Field Office] Managers) in the context of local conditions. (8341.05)

**Designation** – The formal identification of public land areas and trails where off-road vehicles use has been authorized, limited, or prohibited through publication in the *Federal Register*. The types of designation used by the BLM are open, limited, or closed to off-road vehicle use. (8342.05)

**Emergency Limitations or closures** – Limiting use or closing areas and trails on public lands to ORV use under the authority of 43 CFR 8341.2. Such limitations or closures are not OHV designations. (8341.05)

**Implementation Plan** - A site-specific plan written to implement decisions made in the land-use plan. An implementation plan usually selects and applies best management practices (BMP) to meet land-use plan objectives. Implementation plans are synonymous with "activity" plans. Examples of implementation plans include interdisciplinary management plans, habitat management plans, and allotment management plans. (BLM, National Management Strategy for Motorized Off-Highway Vehicle Use on Public Lands, January 2001)

**Land-use Plan:** A set of decisions that establish management direction for land within an administrative areas, as prescribed under the planning provisions of FLPMA; and assimilation of land-use plan-level; decisions developed through the planning process outlines in 43 CFR 1600, regardless of the scale at which the decisions were developed. (BLM, National Management Strategy for Motorized Off-Highway Vehicle Use on Public Lands, January 2001)

**Limited Designations** – The limited designation is used where OHV use must be restricted to meet specific resource management objectives. Examples of limitations include: number or types of vehicles; time or season of use; permitted or licensed use only; use limited to designated roads and trails; or other limitations if restrictions are necessary to meet resource management objectives including certain competitive or intensive use areas which have special limitations. (8342.06 F)

**Mechanized Travel** – Moving by a mechanical device such as a bicycle, not powered by a motor

**Minimize OHV Damage** – To reduce ORV effects to the maximum extent feasible short of eliminating ORV use, consistent with established land management objectives as determined by economic, legal, environmental, and technological factors. (8342.05)

**Motorized Travel** – Moving by means of vehicles that are propelled by motors such as cars, trucks, OHVs, motorcycles, etc.

**Non-Motorized Travel** – Moving by foot, stock or pack animal, boat, or mechanized vehicle such as a bicycle

**Off-Highway Vehicle (OHV):** OHV is synonymous with, and the more current term for, Off-Road Vehicles (ORV). ORV is defined in 43 CFR 8340.0-5(a): Off-road vehicle means any motorized vehicle capable of, or designed for, travel on or immediately over land, water, or other natural terrain, excluding: 1) Any non-amphibious registered motorboat; 2) Any military, fire, emergency, or law enforcement vehicle while being used for emergency purposes; 3) Any vehicle whose use is expressly authorized by the authorized officer, or otherwise officially approved; 4) Vehicles in official use; and 5) Any combat or combat support vehicle when used in times of national defense emergencies.

**OHV area designations:** Refers to the land-use plan decisions that permit, establish conditions, or prohibit OHV designations (43 CFR 8342.1). The CFR requires all BLM-managed public lands to be designated as open, limited, or closed to off-road vehicles, and provides guidelines for designation. The definitions of open, limited, and closed are provided in 43 CFR 8340-5 (f), (g), and (h), respectively.

**Open Designations** – Open designations are used for intensive ORV use areas where there are no special restrictions or where there are no compelling resource protection needs, user conflicts, or public safety issues to warrant limiting cross-country travel. (8342.06 D)

**RMP area** - Most RMPs cover a large planning and management area. As a result, the planning area may be divided into smaller areas, each with differing values, issues, needs and opportunities that may warrant differing management prescriptions. (Attachment to IM 2004-005)

**Road Definitions (State of Utah Highway Codes 27-12-21, 22, 23):**

Class A: State Highways

Class B: County roads constructed and maintained from the state road fund.

Class C: City streets within the corporate limits of the cities and towns of the state that are not class A or class B roads.

Class D (27-15-1): Any road, way, or other land surface route that has been or is established by use or constructed and is maintained (passable for vehicles with four or more wheels) to proved usage by the public that is neither a class A, class B, or class C road.

**Road and Trail Selection** - For each limited area, the BLM should choose a network of roads and trails that are available for motorized use, and other access needs including non-motorized and non-mechanized use, consistent with the goals and objectives and other consideration described in the plan. (Attachment to IM 2004-005)

**Road and Trail Identification:** For the purposes of this guidance, road and trail identification refers to the on-the-ground process (including signs, maps and other means of informing the public about requirements) of implementing the road and trail network selected in the land-use plan or implementation plan. Guidance on the identification requirements is in 43 CFR 9342.2©. (Attachment to IM 2004-005)

**"Ways"** - See pp 11-12 Section 7.2.4 – Route Designations in Wilderness Study Areas.

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# APPENDIX H.

## HYDRAULIC CONSIDERATIONS FOR PIPELINES CROSSING STREAM CHANNELS; TECHNICAL NOTE 423

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#### Suggested citations:

Fogg, J. and H. Hadley. 2007. Hydraulic considerations for pipelines crossing stream channels. Technical Note 423. BLM/ST/ST-07/007+2880. U.S. Department of the Interior, Bureau of Land Management, National Science and Technology Center, Denver, CO. 18 pp. <http://www.blm.gov/nstc/library/techno2.htm>.

U.S. Department of the Interior. 2007. Hydraulic considerations for pipelines crossing stream channels. Technical Note 423. BLM/ST/ST-07/007+2880. Bureau of Land Management, National Science and Technology Center, Denver, CO. 18 pp. <http://www.blm.gov/nstc/library/techno2.htm>.

**ABSTRACT**

High flow events have the potential to damage pipelines that cross stream channels, possibly contaminating runoff. A hydrologic analysis conducted during the design of the pipeline can help determine proper placement. Flood frequency and magnitude evaluations are required for pipelines that cross at the surface. There are several methods that can be used, including reconnaissance, physiographic, analytical, and detailed methods. The method used must be appropriate for the site's characteristics and the objectives of the analysis. Channel degradation and scour evaluations are required for pipelines crossing below the surface. Proper analysis and design can prevent future pipeline damage and reduce repair and replacement costs.

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## INTRODUCTION

In 2002, the U.S. Fish and Wildlife Service raised concerns about the potential for flash floods in ephemeral stream channels to rupture natural-gas pipelines and carry toxic condensates to the Green River, which would have deleterious effects on numerous special-status fish species (Figure 1). In November of the same year, BLM hydrologists visited the Uinta Basin in Utah to survey stream channels and compute flood magnitudes and depths to better understand possible flooding scenarios. From this they developed construction guidance for pipelines crossing streams in Utah. This guidance was later modified so that it was generally applicable to the arid and semiarid lands of the intermountain west. It may also have general applicability in other areas of the western United States. The purpose of this document is to present the modified guidance for placement of pipelines crossing above or below the surface of stream channels to prevent inundation or exposure of the pipe to the hydraulic forces of flood events.



**Figure 1. Pipeline breaks during flooding can release condensate toxic to sensitive fish species.**

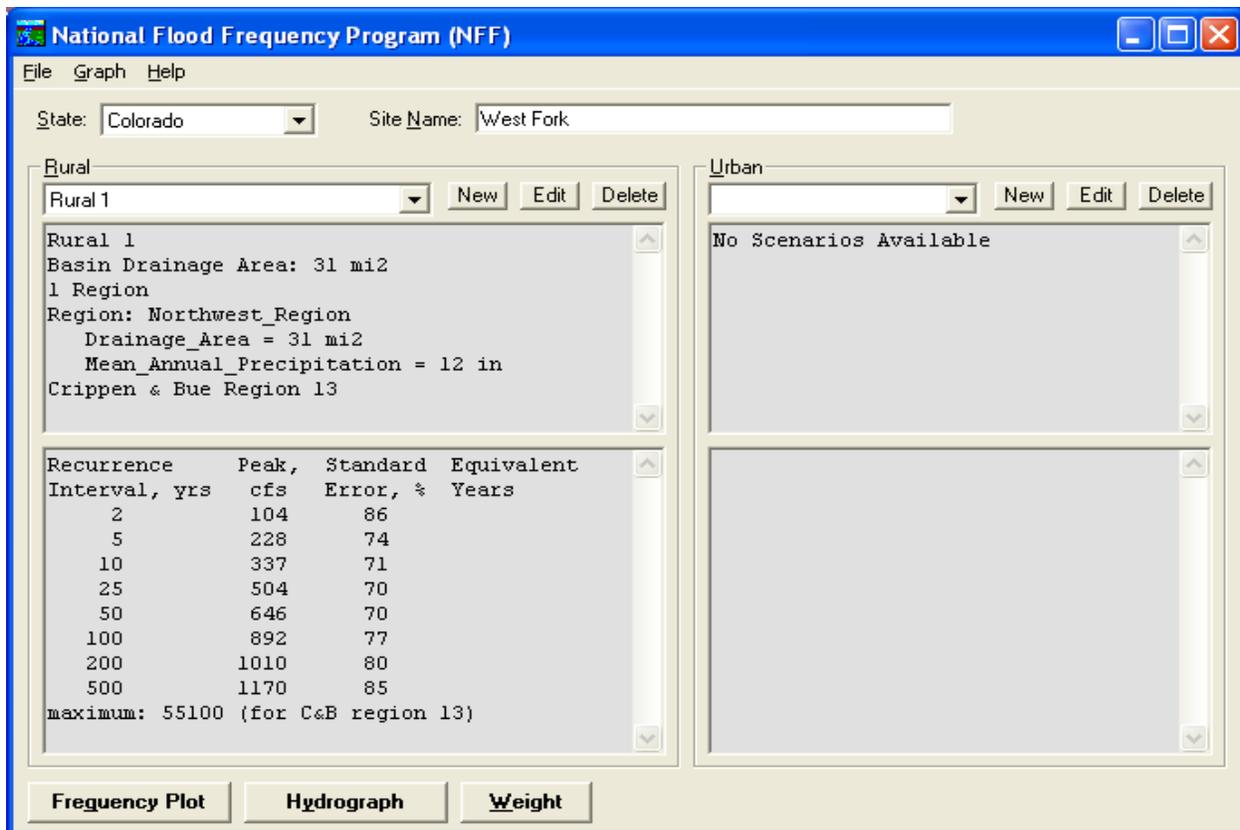
## SURFACE CROSSINGS

Pipelines that cross stream channels on the surface should be located above all possible floodflows that may occur at the site. At a minimum, pipelines must be located above the 100-year flood elevation and preferably above the 500-year flood elevation. Two sets of relationships are available for estimating flood frequencies at ungaged sites in Utah. Thomas and Lindskov (1983) use drainage basin area and mean basin elevation for flood estimates for six Utah regions stratified by location and basin elevation (Table 1). Thomas et al. (1997) also use drainage area and mean basin elevation to estimate magnitude and frequency of floods throughout the southwestern U.S., including seven regions that cover the entire State of Utah. Results from both sets of equations should be examined to estimate the 100- and 500-year floods, since either of the relations may provide questionable results if the pipeline crosses a stream near the boundary of a flood region or if the drainage area or mean basin elevation for the crossing exceed the limits of the data set used to develop the equations.

**Table 1. Examples of Flood Frequency Equations for Ungaged Sites in Utah**

Regression equations for peak discharges for Uinta Basin (from Thomas and Lindskov 1983)			
Discharge Q in cubic feet per second, Area in square miles, Elevation in thousands of feet			
Recurrence interval (yrs)	Equation	Number of stations used in analysis	Average standard error of estimate (%)
2	$Q = 1,500 A^{0.403} E^{-1.90}$	25	82
5	$Q = 143,000 A^{0.374} E^{-3.66}$	25	66
10	$Q = 1.28 \times 10^6 A^{0.362} E^{-4.50}$	25	64
25	$Q = 1.16 \times 10^7 A^{0.352} E^{-5.32}$	25	66
50	$Q = 4.47 \times 10^7 A^{0.347} E^{-5.85}$	25	70
100	$Q = 1.45 \times 10^8 A^{0.343} E^{-6.29}$	25	74

Procedures for estimating 100-year and 500-year flood magnitudes for other States are described in the U.S. Geological Survey's National Flood Frequency Program (Ries and Crouse 2002) (Figure 2). Full documentation of the equations and information necessary to solve them is provided in individual reports for each State. The National Flood Frequency (NFF) Website (<http://water.usgs.gov/software/nff.html>) provides State summaries of the equations in NFF, links to online reports for many States, and factsheets summarizing reports for States with new or corrected equations. Background information in each State's flood frequency reports should be checked to ensure that application of the equations is not attempted for sites with independent variables outside the range used to develop the predictive equations.



**Figure 2. View of the output from NFF.**

Once the flood frequency for a site has been estimated, determining the depth of flow associated with an extreme flood (i.e., the elevation of the pipeline at the crossing) may be approached in a number of ways. Procedures for estimating depth of flow for extreme floods in Utah are presented in Thomas and Lindskov (1983). Similar procedures presented in Burkham (1977, 1988) are generally applicable for locations throughout the Great Basin and elsewhere. The reconnaissance, physiographic, analytical, and detailed methods described in those reports will be summarized briefly in this paper. Burkham (1988) describes an additional method (historical method) not presented here, since the data for its use (high-water marks for an extreme historical flood with known discharge and recurrence interval) are rarely available in public land situations for which this guidance is intended.

### **RECONNAISSANCE METHOD**

The reconnaissance method (as the name implies) is a fairly rough and imprecise method for delineating flood-prone areas (Burkham 1988; Thomas and Lindskov 1983). It is most applicable to stable or degrading alluvial channels with multiple terrace surfaces, although such terraces may be difficult to detect on severely degrading streams. In this procedure, the channel of interest is examined to approximate the area that would be inundated by a large flood. A geomorphic reconnaissance of the site is conducted, and it may be supplemented with aerial photos, maps, and historical information available for the reach of interest. In addition to the

morphology of the channel, floodplain, and terraces, information on vegetation (e.g., species, flood tolerance, drought tolerance) and soils (e.g., development, stratification, and drainage) can be helpful for identifying flood-prone areas (Burkham 1988). For best results, the geomorphic analysis should include reaches upstream and downstream of the site and should attempt to determine the general state of the stream channel as aggrading, degrading, or stable. (Additional guidance on detection of stream degradation is presented in the section on subsurface crossings).

In the reconnaissance method, identification of bankfull elevation and the active floodplain (i.e., floodplain formed by the present flow regime) provides **inadequate** conveyance for extreme flood events (Figure 3). Past floodplains or present terraces also must be identified, since these surfaces may be inundated by extreme floods in the present flow regime, especially in arid and semiarid environments. Pipelines should be constructed so that they cross at or above the elevation of the highest and outermost terrace (Figure 4). The highest terrace is unlikely to be accessed in the modern flow regime by any but the most extreme floods.

Practitioners of the reconnaissance method need considerable experience in geomorphology, sedimentation, hydraulics, soil science, and botany. Also, since this method is based on a geomorphic reconnaissance of the site, no flood frequency analysis is required and no recurrence interval can be assigned to the design elevation. An additional drawback to the method is that the accuracy of the results is unknown. However, the reconnaissance method may be the most rational one for delineating flood-prone areas on some alluvial fans and valley floors where channels become discontinuous (Burkham 1988). While this is the quickest approach to designing a pipeline that crosses a channel, it likely will result in the most conservative estimate (i.e., highest elevation and greatest construction cost) for suspension of the pipeline.



**Figure 3. Although this pipeline crossed above the bankfull channel indicators, it was not high enough to escape more extreme floods.**



**Figure 4. This New Mexico pipeline crosses the channel near the elevation of the highest terrace, which places it above even the most extreme flood events.**

### ***PHYSIOGRAPHIC METHOD***

A slightly more intensive approach to designing pipelines that cross streams is based on the physiographic method for estimating flood depths at ungaged sites described by Thomas and Lindskov (1983) and Burkham (1988). The procedure uses regional regression equations (similar to the flood frequency equations described above) to estimate **maximum** depth of flow associated with a specified recurrence-interval flood (Table 2). Flood depth is then added to a longitudinal survey of the channel **thalweg** in the vicinity of the crossing (10 to 20 channel widths in length), resulting in a longitudinal profile of the specified flood. Elevation of the flood profile at the point of pipeline crossing is the elevation above which the pipeline must be suspended. The method is generally applicable where 1) the project site is physiographically similar to the drainage basins used to develop the regression equations and 2) soil characteristics are the same at the project site as in the basins where the regression equations were developed. While this procedure requires a field survey and calculation of flood depths at points along the channel, it may result in a lower crossing elevation (and possibly lower costs) for the pipeline. Also, since the regional regression equations estimate flood depths for specific recurrence-interval floods, it is possible to place a recurrence interval on the crossing design for risk calculations. However, regional regression equations linking depth of flood to recurrence interval have not been developed for many areas. In States where they have been developed (e.g., Alabama, Colorado, Illinois, Kansas, and Oklahoma), standard errors of the estimates have ranged from 17 to 28 percent, with an average standard error of 23 percent (Burkham 1988).

**Table 2. Examples of Depth Frequency Equations for Ungaged Sites in Utah**

Regression equations for flood depths for Uinta Basin (from Thomas and Lindskov 1983)			
Flood depth <u>D</u> in feet, <u>A</u> rea in square miles, <u>E</u> levation in thousands of feet			
Recurrence interval (yrs)	Equation	Number of stations used in analysis	Average standard error of estimate (%)
2	$D = 1.03 A^{0.159}$	16	30
5	$D = 13.3 A^{0.148} E^{-1.03}$	16	28
10	$D = 68.6 A^{0.131} E^{-1.69}$	16	26
25	$D = 556 A^{0.128} E^{-2.59}$	16	24
50	$D = 1330 A^{0.123} E^{-2.95}$	15	24
100	$D = 1210 A^{0.130} E^{-2.86}$	14	22

### **ANALYTICAL METHOD**

The analytical method described by Burkham (1988) uses uniform flow equations to estimate depth of flow associated with a particular magnitude and frequency of discharge. Typically, a trial-and-error procedure is used to solve the Manning uniform flow equation for depth of flow, given a design discharge (i.e., a flood of specified recurrence interval), a field-surveyed cross section and channel slope, and an estimate of the Manning roughness coefficient ( $n$ ). Numerous software packages are available to facilitate the trial-and-error solution procedure (e.g., WinXSPRO). Since the Manning formula is linear with respect to the roughness coefficient, estimating this coefficient can be a significant source of error and is likely the most significant weakness in this approach. Estimating roughness coefficients ( $n$  values) for ungaged sites is a matter of engineering judgment, but  $n$  values typically are a function of slope, depth of flow, bed-material particle size, and bedforms present during the passage of the flood wave. Guidance is available in many hydraulic references (e.g., Chow 1959). Selecting  $n$  values for flows above the bankfull stage is particularly difficult, since vegetation plays a major role in determining resistance to flow. Barnes (1967) presents photographic examples of field-verified  $n$  values, and Arcement and Schneider (1989) present comprehensive guidance for calculating  $n$  values for both channels and vegetated overbank areas (i.e., floodplains). Depth of flow determined with uniform flow equations, such as the Manning equation, represents **mean** depth of flow to be added to the **cross section** at the site of the pipeline crossing.

Burkham (1977, 1988) also presented a simplified technique for estimating depth of flow, making use of the general equation for the depth-discharge relation:

$$d = C Q^f$$

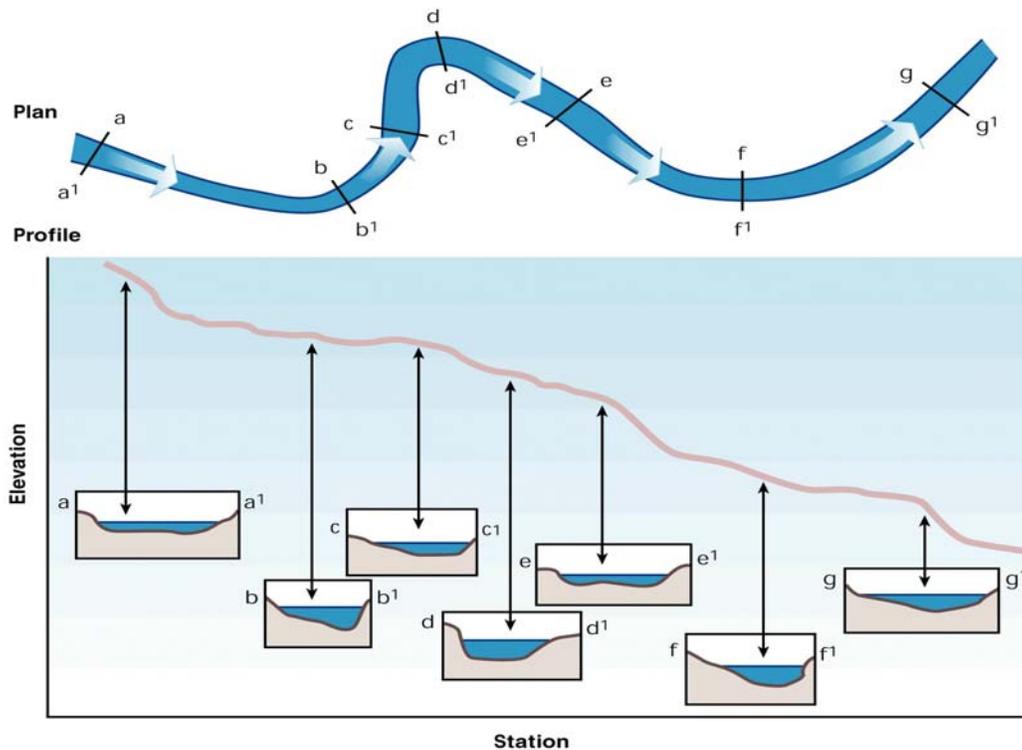
Values of  $f$  (the slope of the relationship when plotted on logarithmic graph paper) can be determined from "at-station" hydraulic geometry relationships at gaging stations in the region. Only the upper portion of the gaging-station ratings should be used to derive the slope ( $f$  value) for application to extreme floods, since a substantial portion of the flow may be conveyed in the

overbank area. Alternatively, Burkham (1977, 1988) presents a simplified procedure for estimating  $f$  that requires only a factor for channel shape. Leopold and Langbein (1962) computed a theoretical value of 0.42 for natural channels, while Burkham (1988) computed a theoretical value of 0.46 for parabolic cross sections. Burkham (1977) earlier reported an average  $f$  value of 0.42 from 539 gaging stations scattered along the eastern seaboard and upper Midwest, while Leopold and Maddock (1953) reported an average  $f$  value of 0.40 for 20 river cross sections in the Great Plains and the Southwest. Park (1977) summarized  $f$  values from 139 sites around the world and found most values occurred in the range of 0.3 to 0.4. Additional assumptions in Burkham (1977, 1988) enable an estimate of the coefficient  $C$  in the depth-discharge relationship with only a single field measurement of width and maximum depth at some reference level in the channel (e.g., bankfull stage) (Burkham 1977, 1988). Depth of flow determined from Burkham's simplified technique represents **maximum** depth of flow to be added to the **thalweg** at the cross section.

The analytical methods described by Burkham (1977, 1988) generally will be more accurate than the physiographic and reconnaissance methods described previously; thus, they may result in lower pipeline elevations and construction costs than the previous methods. However, analysis of flood elevations for the most sensitive situations should probably be conducted with the detailed method described below.

### **DETAILED METHOD**

Additional savings in construction costs for pipelines crossing channels may be realized by applying a detailed water-surface-profile model of flow through the crossing site. The water-surface-profile model requires a detailed survey of both the longitudinal channel profile (at least 20 channel widths in length) and several cross sections along the stream (Figure 5). Design flows (e.g., 100-year and 500-year floods) are calculated for the channel at the crossing with the regional regression equations described above and routed through the surveyed channel reach using a step-backwater analysis. The step-backwater analysis uses the principles of conservation of mass and conservation of energy to calculate water-surface elevations at each surveyed cross section. Computed water-surface elevations at successive cross sections are linked to provide a water-surface profile for the flood of interest through the reach of interest. The computations are routinely accomplished in standard software, such as the U.S. Army Corps of Engineers' HEC-RAS model. Whereas the analytical methods described previously assume steady, uniform flow conditions through the reach, a detailed water-surface-profile model is capable of handling both gradually and (to some extent) rapidly varied flow conditions. Since the computation uses a detailed channel survey, it is the most accurate method to use; however, it is likely the most expensive method for the same reason. Burkham (1988) indicates that the error in flood depths predicted from step-backwater analysis can be expected to be less than 20 percent. The step-backwater computations require an estimate of the Manning roughness coefficient ( $n$ ) as an indicator of resistance to flow and assume fairly stable channel boundaries. Estimation of the roughness coefficient ( $n$ ) includes the same considerations discussed previously for the analytical methods. The assumption of fairly stable channel boundaries is not always met with sand-bed channels and is an issue of considerable importance for designing subsurface pipeline crossings as well.



**Figure 5. Application of a water-surface-profile model requires both a longitudinal channel profile and several surveyed cross sections (Federal Interagency Stream Restoration Working Group 1998).**

Of the methods presented for determining elevation of floods for pipelines crossing channels, the detailed method is the most accurate and should be used for situations with high resource values, infrastructure investment, construction costs, or liabilities in downstream areas. In undeveloped areas, the physiographic and analytical methods may be used to provide quick estimates of flood elevations for sites with fewer downstream concerns. The reconnaissance method provides the roughest estimates but may be all that is warranted in very unstable areas, such as alluvial fans or low relief valley floors (e.g., near playas). The detailed, analytical, and physiographic methods all assume relatively stable channel boundaries but may be used on sand channels with an accompanying loss of accuracy. In very sandy channels, the accuracy of results from the detailed method may not be significantly better than the results from one of the intermediate methods unless a mobile-boundary model is used (Burkham 1988).

## **SUBSURFACE (BURIED) CROSSINGS**

Since many of the pipelines are small and most of the channels are ephemeral, it is commonplace to bury the pipelines rather than suspending them above the streams. The practice of burying pipelines at channel crossings likely is both cheaper and easier than suspending them above all floodflows; however, an analysis of channel degradation and scour should be completed to ensure the pipelines are not exposed and broken during extreme runoff events (Figure 6). Without such an analysis, channels should be excavated to bedrock and pipelines placed beneath all alluvial material.



**Figure 6. Channel degradation or scour during flash-flood events may expose buried pipelines, resulting in costly breaks.**

Buried pipelines may be exposed by streambed lowering resulting from channel degradation, channel scour, or a combination of the two. Channel degradation occurs over a long stream reach or even the entire drainage network and is generally associated with the overall lowering of the landscape. Degradation also may be associated with changes in upstream watershed or channel conditions that alter the water and sediment yield of the basin. Channel scour is a local phenomenon associated with passage of one or more flood events or site-specific hydraulic conditions that may be natural or human-caused in origin. Either process can expose buried pipelines to excessive forces associated with extreme flow events, and an analysis of each is required to ensure integrity of the crossing.

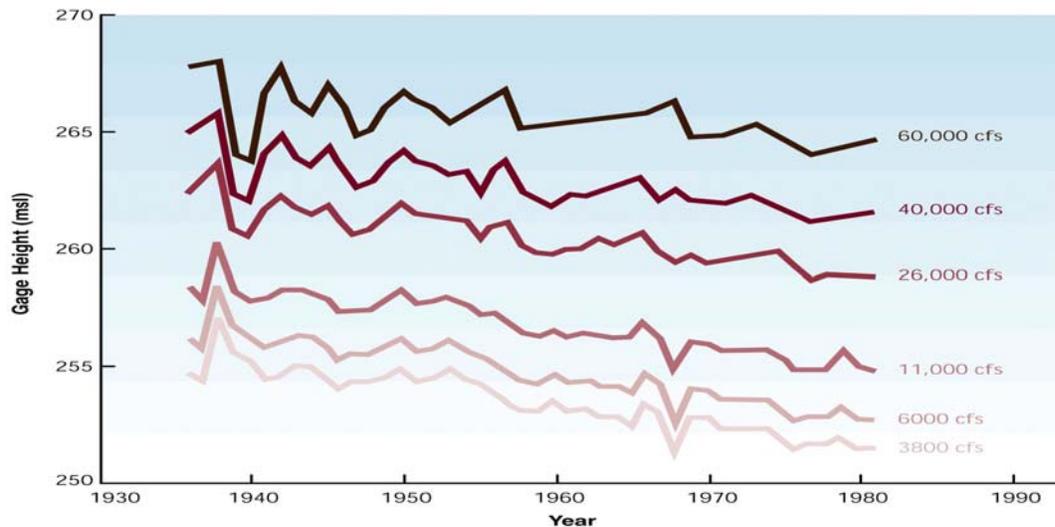
### ***CHANNEL DEGRADATION***

Detection of long-term channel degradation must be attempted, even if there is no indication of local scour. Conceptual models of channel evolution (e.g., Simon 1989) have been proposed to describe a more-or-less predictable sequence of channel changes that a stream undergoes in response to disturbance in the channel or the watershed. Many of these models are based on a "space for time" substitution, whereby downstream conditions are interpreted as preceding (in time) the immediate location of interest, and upstream conditions are interpreted as following (in time) the immediate location of interest. Thus, a reach in the middle of the watershed that

previously looked like the channel upstream will evolve to look like the channel downstream (Federal Interagency Stream Restoration Working Group 1998). Since channel evolution models can help predict current trends where a pipeline crosses a channel, they may indicate areas to be avoided when relocation of the crossing is an option. Most conceptual models of channel evolution have been developed for landscapes dominated by streams with cohesive banks; however, the same processes occur in streams with noncohesive banks, with somewhat less well-defined stages.

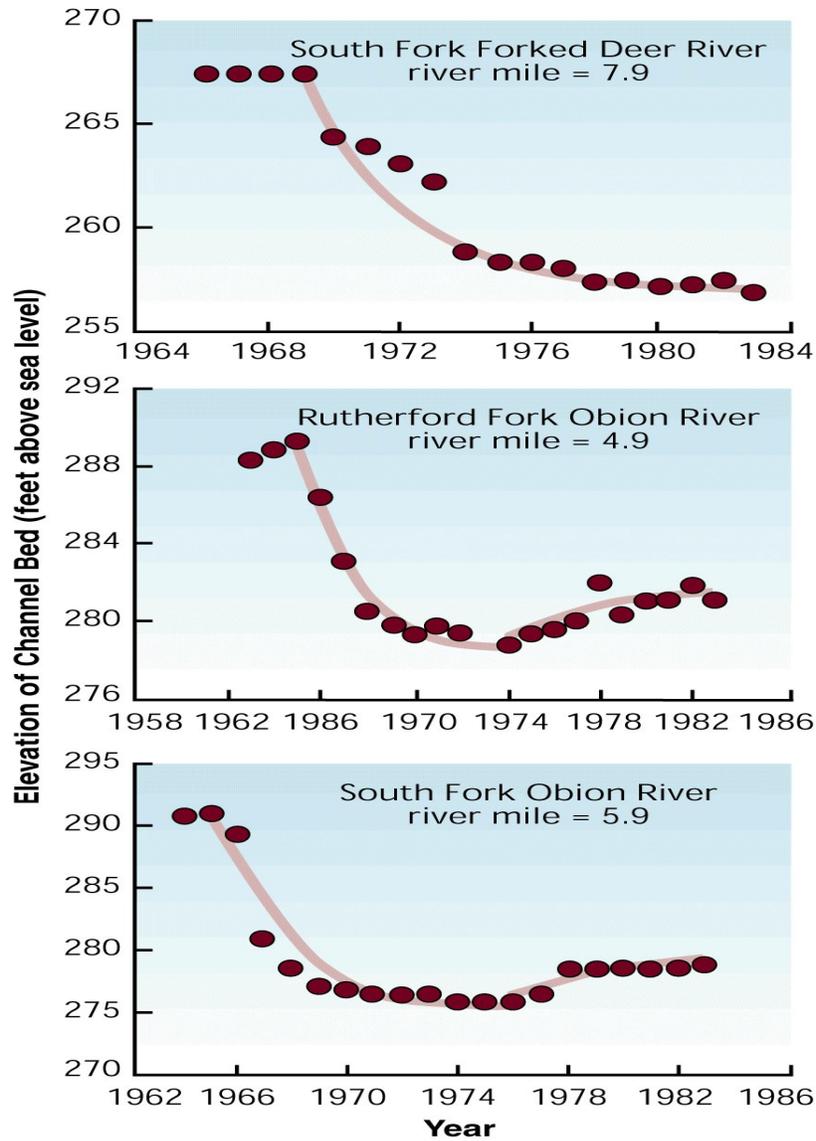
Geomorphic indicators of recent channel incision (e.g., obligate and facultative riparian species on present-day stream terraces elevated above the water table) also may be helpful for diagnosing channel conditions. However, long-term trends in channel evolution are often reversed during major flood events, especially for intermittent and ephemeral channels in arid and semiarid environments. Thus, a stream that is degrading during annual and intermediate flood events may be filled with sediment (i.e., it may aggrade) from tributary inputs during a major flood, and channels that are associated with sediment storage (i.e., aggrading) during the majority of runoff events may be "blown out" with major degradation during unusual and extreme large floods.

In some situations, a quantitative analysis of channel degradation may be warranted. Plots of streambed elevation against time permit evaluation of bed-level adjustment and indicate whether a major phase of channel incision has passed or is ongoing. However, comparative channel survey data are rarely available for the proposed location for a pipeline to cross a channel. In instances where a gaging station is operated at or near the crossing, it is usually possible to determine long-term aggradation or degradation by plotting the change in stage through time for one or more selected discharges. The procedure is called a specific-gage analysis (Figure 7) and is described in detail in *Stream Corridor Restoration: Principles, Processes, and Practices* (Federal Interagency Stream Restoration Working Group 1998). When there is no gaging station near the proposed channel crossing, nearby locations on the same stream or in the same river basin may provide a regional perspective on long-term channel adjustments. However, specific-gage records indicate only the conditions in the vicinity of the particular gaging station and do not necessarily reflect river response farther upstream or downstream of the gage. Therefore, it is advisable to investigate other data in order to make predictions about potential channel degradation at a site.

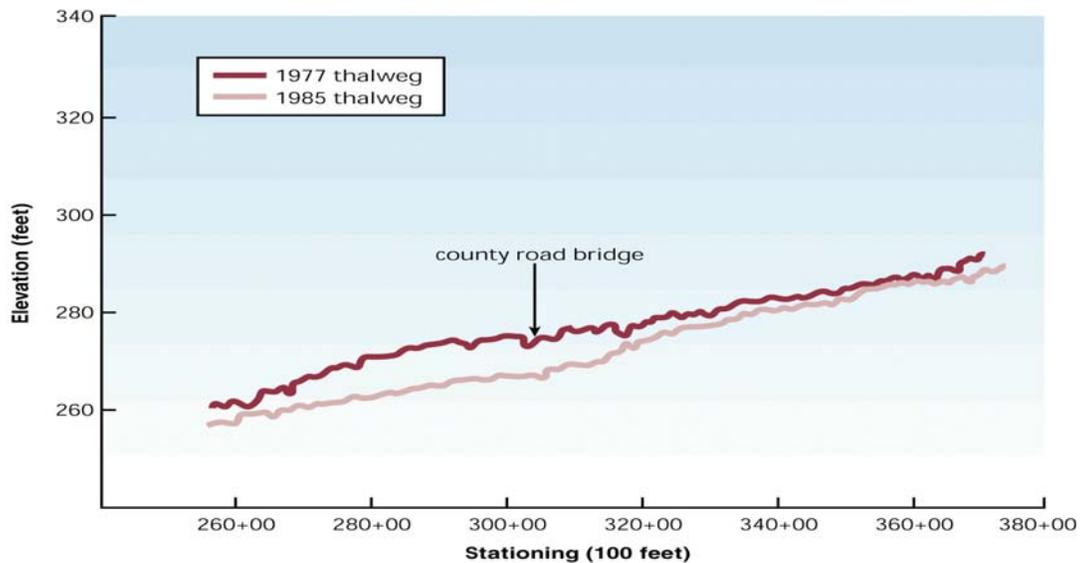


**Figure 7. Specific-gage plots of the gage heights associated with index flows through time may indicate general channel lowering in the drainage basin (Federal Interagency Stream Restoration Working Group 1998; Biedenharn et al. 1997).**

Other sources of information include the biannual bridge inspection reports required in all States for bridge maintenance. In most States, these reports include channel cross sections or bed elevations under the bridge, and a procedure similar to specific gage analysis may be attempted (Figure 8). Simon (1989, 1992) presents mathematical functions for describing bed-level adjustments through time, fitting elevation data at a site to either a power function or an exponential function of time. Successive cross sections from a series of bridges in a basin also may be used to construct a longitudinal profile of the channel network; sequential profiles so constructed may be used to document channel adjustments through time (Figure 9). Again, bridge inspection reports so used indicate only the conditions in the vicinity of those particular bridges (where local scour may be present) and must be interpreted judiciously for sites upstream, downstream, or between the bridges used in the analysis.



**Figure 8. Plots of bed elevation versus time may be developed from biannual bridge inspection reports to document systemwide degradation or aggradation (Federal Interagency Stream Restoration Working Group 1998).**



**Figure 9. Sequential longitudinal profiles also may be used to document channel lowering through time (Federal Interagency Stream Restoration Working Group 1988; Biedenharn et al. 1997).**

In the absence of channel surveys, gaging stations, and bridge inspection reports (or other records of structural repairs along a channel), it may be necessary to investigate channel aggradation and degradation using quantitative techniques described in Richardson et al. (2001) and Lagasse et al. (2001). Techniques for assessing vertical stability of the channel include incipient motion analysis, analysis of armoring potential, equilibrium slope analysis, and sediment continuity analysis. Incipient motion analysis and analysis of armoring potential are equally applicable to both long-term degradation and short-term scour and fill processes, while equilibrium-slope and sediment-continuity analyses are more closely tied to long-term channel processes (i.e., degradation and aggradation).

### **CHANNEL SCOUR**

In addition to long-term channel degradation at subsurface crossings, general channel scour must be addressed to ensure safety of the pipeline. General scour is different from long-term degradation in that general scour may be cyclic or related to the passing of a flood (Richardson and Davis 2001). Channel scour and fill processes occur naturally along a given channel, and both reflect the redistribution of sediment and short-term adjustments that enable the channel to maintain a quasi-equilibrium form. In other words, channels in dynamic equilibrium experience various depths of scour during the rising stages of a flood that frequently correspond to equal amounts of fill during the falling stages, resulting in minimal changes in channel-bed elevation. Where pipelines cross channels, it is important to determine the potential maximum depth of scour so that the pipeline is buried to a sufficient depth and does not become exposed when bed scour occurs during a flood.

General scour occurs when sediment transport through a stream reach is greater than the sediment load being supplied from upstream and is usually associated with changes in the channel cross section. General scour can occur in natural channels wherever a pipeline crosses a

constriction in the channel cross section (contraction scour). Equations for calculating contraction scour generally fall into two categories, depending on the inflow of bed-material sediment from upstream. In situations where there is little to no bed-material transport from upstream (generally coarse-bed streams with gravel and larger bed materials), contraction scour should be estimated using clear-water scour equations. In situations where there is considerable bed-material transport into the constricted section (i.e., for most sand-bed streams), contraction scour should be estimated using live-bed scour equations. Live-bed and clear-water scour equations can be found in many hydraulic references (e.g., Richardson and Davis 2001). In either case, estimates of general scour in the vicinity of the pipeline crossing must be added to the assessment of channel degradation for estimating the depth of burial for the crossing.

Other components of general scour can result from placement of subsurface crossings relative to the alignment of the stream channel. Pipelines crossing at bends in the channel are particularly troublesome, since bends are naturally unstable and tend to collect both ice and debris (which can cause additional constrictions in the flow). Channel-bottom elevations are usually lower on the outside of meander bends and may be more than twice as deep as the average depth in straighter portions of the channel. Crossings in the vicinity of stream confluences also create difficulties, since flood stages and hydraulic forces may be strongly influenced by backwater conditions at the downstream confluence. For example, sediment deposits from tributary inputs may induce contraction scour opposite or downstream of the deposit. Additional complications are introduced where pipelines are located near other obstructions in the channel. Channel-spanning obstructions (e.g., beaver dams or large wood) may induce plunge-pool scour downstream of the structure, and individual obstructions in the channel induce local scour akin to pier scour characteristic of bridge piers at highway crossings.

Even in the absence of contraction scour, general scour will still occur in most sand-bed channels during the passage of major floods. Since sand is easily eroded and transported, interaction between the flow of water and the sand bed results in different configurations of the stream bed with varying conditions of flow. The average height of dune bedforms is roughly one-third to one-half the mean flow depth, and the maximum height of dunes may nearly equal the mean flow depth. Thus, if the mean depth of flow in a channel was 5 feet, maximum dune height could also approach 5 feet, half of which would be below the mean elevation of the stream bed (Lagasse et al. 2001). Similarly, Simons, Li, and Associates (1982) present equations for antidune height as a function of mean velocity, but limit maximum antidune height to mean flow depth. Consequently, formation of antidunes during high flows not only increases mean water-surface elevation by one-half the wave height, it also reduces the mean bed elevation by one-half the wave height. Richardson and Davis (2001) reported maximum general scour of one to two times the average flow depth where two channels come together in a braided stream.

Pipeline crossings that are buried rather than suspended above all major flow events should address all of the components of degradation, scour, and channel-lowering due to bedforms described above. In addition, once a determination is made on how deep to bury the pipeline at the stream crossing, the elevation of the pipe should be held constant across the floodplain. If the line is placed at shallower depths beneath the floodplain, channel migration may expose the line where it is not designed to pass beneath the channel (Figure 10).



**Figure 10. Lateral migration of this stream channel during high water excavated a section of pipeline under the floodplain that was several feet shallower than at the original stream crossing.**

In complex situations or where consequences of pipeline failure are significant, consideration should be given to modeling the mobile-bed hydraulics with a numerical model such as HEC-6 (U.S. Army Corps of Engineers 1993) or BRI-STARS (Molinas 1990). The Federal Interagency Stream Restoration Working Group (1998) summarizes the capabilities of these and other models and provides references for model operation and user guides where available.

## **CONCLUSION**

Pipelines that cross perennial, intermittent, and ephemeral stream channels should be constructed to withstand floods of extreme magnitude to prevent rupture and accidental contamination of runoff during high flow events. Pipelines crossing at the surface must be constructed high enough to remain above the highest possible floodflows at each crossing, and pipelines crossing below the surface must be buried deep enough to remain undisturbed by scour and fill processes typically associated with passage of peak flows. A hydraulic analysis should be completed during the pipeline design phase to avoid repeated maintenance of such crossings and eliminate costly repairs and potential environmental degradation associated with pipeline breaks at stream crossings.

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# APPENDIX I.

## RELEVANCE AND IMPORTANCE EVALUATIONS OF AREA OF CRITICAL ENVIRONMENTAL CONCERN (ACEC) NOMINATIONS

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### I.1 INTRODUCTION

The Federal Land Policy and Management Act (FLPMA) states that the Bureau of Land Management (BLM) will give priority to the designation and protection of Areas of Critical Environmental Concern (ACECs) in the development and revision of land-use plans. Land-use plans in the BLM are known as Resource Management Plans (RMPs) and the Moab BLM is currently in the multi-year process of developing such a plan. This RMP will replace an RMP that was approved in 1985.

The 1985 Grand RMP did not consider any ACECs. As a part of this new planning cycle for the RMP, the BLM accepted ACEC nominations (including three that had been proposed in 1999 and one proposed in January of 2003) and evaluated all nominations that had been received by March 30, 2004.

This report summarizes the relevance and importance evaluations for 35 nominated ACECs located on lands administered by the BLM's Moab Field Office (MFO). Many of the nominations covered similar geographical areas, although each nomination proposed a unique boundary. These evaluations have been completed in accordance with guidance provided in BLM regulations at 43 CFR part 1610.7-2 and *BLM Manual 1613-Areas of Critical Environmental Concern*, which identify relevance and importance criteria that must be met for a nominated area to be considered as a potential ACEC. After reviewing the 37 nominations, BLM has determined that 14 areas meet the relevance and importance criteria. These 14 potential ACECs (which are oftentimes compilations of various ACEC nominations) will be studied further in the RMP to determine whether they warrant designation as an ACEC.

### I.2 WHAT IS AN ACEC?

FLPMA defines an ACEC as an area "within the public lands where special management attention is required to protect and prevent irreparable damage to important historic, cultural, or scenic values, fish and wildlife resources, or other natural systems or processes, or to protect life and safety from natural hazards." Therefore, private lands and lands administered by other agencies are not included in the boundaries of ACECs.

ACECs differ from some other special management designations in that designation by itself does not automatically prohibit or restrict other uses in the area. The special management attention is designed specifically for the relevant and important values, and therefore varies from area to area. The one exception is that a mining plan of operation is required for any proposed mining activity that would create surface disturbance greater than casual use within a designated ACEC (43 CFR 3809 Regulations). The ACEC designation is an administrative designation that is accomplished through the land-use planning process. It is unique to BLM in that no other

agency uses this form of designation. The intent of Congress in mandating the designation of ACECs through FLPMA was to give priority to the designation and protection of areas containing unique and significant resource values.

### **I.3 THE ACEC DESIGNATION PROCESS**

There are several steps in the identification and evaluation of ACECs. These steps include the nomination of areas that may meet the relevance and importance criteria, evaluation of the nominated areas to determine if they meet the criteria, and consideration of the potential ACECs in alternative management scenarios which are formulated and effects analyzed in the Draft RMP/EIS. When released, the preferred alternative of the Draft RMP/EIS indicates which potential ACECs are proposed by BLM for designation. Public comment is requested. Public comments are reviewed and considered and adjustments are made as necessary before the Proposed RMP/Final EIS is released. Designation of ACECs then occurs in the Record of Decision approving the RMP. Each of these steps is briefly described below.

#### ***I.3.1 IDENTIFICATION/NOMINATION***

ACECs can be nominated at anytime, but are only designated through the BLM's land-use planning process. Nominations from the public are generally solicited as part of the scoping process during development of a land-use plan for a particular area. BLM requested that ACEC nominations to be considered in the Moab planning process be submitted by December 30, 2003. However, ACEC nominations continued to be submitted after this deadline and those received early enough in the process were also reviewed.

#### ***I.3.2 EVALUATIONS OF NOMINATIONS FOR RELEVANCE AND IMPORTANCE***

Nominations are evaluated to determine whether they meet the relevance and importance criteria. The relevance and importance criteria are detailed in Appendix A. A nomination must meet one or more of the relevance and importance criteria to be considered a potential ACEC. Potential ACECs are then considered further in the planning process.

#### ***I.3.3 CONSIDERATION OF POTENTIAL ACECS***

Potential ACECs are considered as RMP alternatives are developed. Each potential ACEC is proposed for designation in at least one of the management alternatives. The need for special management and the resulting effects from applying such management are assessed in the associated environmental analysis. The Preferred Alternative identifies which potential ACECs are proposed by BLM for designation.

#### ***I.3.4 COMMENT ON PROPOSED ACECS***

A notice of any areas proposed for ACEC designation is published in the Federal Register along with a Notice of Availability of the Draft RMP/EIS requesting public comment. The public may comment on any aspect of the ACEC analysis at this point in the process. These comments are

then considered in preparation of the Proposed RMP/Final EIS. After a 30-day protest period, a Record of Decision is prepared and the plan is approved.

### **I.3.5 DESIGNATION**

In order to be designated as an ACEC, a potential ACEC requires special management attention in order to prevent irreparable damage to the relevant and important values. The need for special management attention may vary by alternative, depending upon what other types of management schemes or resource allocations are being considered for that alternative. Special management attention refers to management prescriptions designed expressly to protect or manage the relevant and important values of an area that would not be necessary and prescribed if the relevant and important values did not exist. These prescriptions are unique to the area involved, outside of standard or routine practices, usually more detailed than prescriptions contained within the plan for other areas, and establish priority for implementation. If analysis determines that special management attention is required, the area may be designated as an ACEC. Designation occurs when the Record of Decision is signed approving the RMP.

## **I.4 BACKGROUND – MOAB ACEC PROCESS**

The Moab Field Office received four ACEC nominations prior to the initiation of the current RMP revision. Three of these were received in 1999, and one was received early in 2003. In addition, ACEC nominations were solicited as part of scoping for the current RMP effort. Scoping for the Moab RMP was initiated with publication of the Notice of Intent in the Federal Register on June 4, 2003. In the Fall of 2003, mailings and public meetings were used to solicit ACEC nominations and comments from the public.

Nominators were asked to include a boundary of the nominated area, and information and rationale as to why they believe the area meets the relevance and importance criteria. Written comments were requested by December 30, 2003 for full consideration in the planning process. However, in an effort to be inclusive and to produce a comprehensive plan, nominations that were received early enough in the planning process were also reviewed. As part of the Analysis of the Management Situation, members of the BLM's planning team were also requested to submit internal information for consideration by February 28, 2004.

In all, 35 ACEC nominations were evaluated for relevance and importance. It is important to note that many of these nominations were for essentially similar areas, although various proposals from various groups had differing boundaries. Each proposal was reviewed by a BLM interdisciplinary team in conjunction with the cooperating agencies. Where appropriate, nominations were combined and boundaries drawn that best reflect the area where relevant and important values exist. The complete list of nominations is summarized in Appendix B.

## **I.5 THE ACEC TEAM**

Nominations were evaluated for relevance and importance by Moab BLM interdisciplinary staff, with assistance from cooperators, including representatives of Grand and San Juan Counties, as

well as of the State of Utah. The BLM review team was comprised of the following planning team members and management staff:

- Maggie Wyatt, Field Office Manager
- Brent Northrup, RMP Planning Coordinator
- Pam Riddle, Wildlife Biologist
- Rob Sweeten, VRM Coordinator
- Daryl Trotter, Botanist/Environmental Protection Specialist
- Donna Turnipseed, Archaeologist
- Katie Stevens, Outdoor Recreation Planner/ACEC Coordinator

The following BLM staff members also assisted in the effort:

- Stephanie Ellingham, Riparian Specialist
- Russ von Koch, Recreation Branch Chief
- Bill Stevens, Outdoor Recreation Planner
- Ann Marie Aubry, Hydrologist

Cooperating agencies were represented by the following individuals:

- Ed Scherick, San Juan County Planner
- Evan Lowry, San Juan County Planner
- Jerry McNeely, Grand County Councilman
- Al McLeod, Grand County Councilman
- Judy Bane, Grand County Administrator
- Dave Vaughn, Grand County Road Department
- Val Payne, State of Utah Department of Natural Resources
- Bill Stokes, State of Utah School and Institutional Trust Lands
- Lavonne Garrison, State of Utah School and Institutional Trust Lands

The ACEC review team met on February 9, 2004, March 1, 2004, March 4, 2004 and April 19, 2004. Discussion concerning the relevance and importance of resources within the various ACEC nominations occurred at these meetings.

## **I.6 RELEVANCE AND IMPORTANCE EVALUATIONS**

The information provided below is organized in alphabetical order by name of the nominated area. There were 35 nominations, although many of the areas overlap one another. The nominations are listed below in alphabetical order by name of the nominated area. ACECs are depicted on Map 2-14-B for the 14 areas moving forward as potential ACECs. It should be noted that boundaries of these potential ACECs are compilations of the various boundaries proposed by the nominators, and thus vary from what was nominated.

The entire list of nominations includes:

1. Behind the Rocks (The Nature Conservancy)
2. Behind the Rocks (Moab Field Office Internal Nomination)
3. Big Triangle (Southern Utah Wilderness Alliance)
4. Book Cliffs Wildlife Area (Moab Field Office Internal Nomination)
5. Book Cliffs Wildlife (Southern Utah Wilderness Alliance)
6. Canyon Rims (Moab Field Office Internal Nomination)
7. Castle Valley Critical Deer Winter Range (Grand Canyon Trust)
8. Cisco White-tailed Prairie Dog Complex (Center for Native Ecosystems et al.)
9. Colorado River Corridor-Richardson Amphitheater (The Nature Conservancy)
10. Colorado River Corridor-Negro Bill (Stolfa)
11. Colorado River Corridor-Richardson Amphitheater (Carlson)
12. Colorado River Corridor-Cache Valley (MFO Internal Nomination)
13. Colorado River Corridor-Negro Bill and Sand Flats (MFO Internal Nomination)
14. Colorado River Corridor-Fisher Towers (Southern Utah Wilderness Alliance)
15. Colorado River Corridor – Arches (Southern Utah Wilderness Alliance)
16. Cottonwood-Diamond Watershed (MFO Internal Nomination)
17. Dead Horse Point, including Shafer Basin (Southern Utah Wilderness Alliance)
18. Dolores Triangle (Southern Utah Wilderness Alliance)
19. Gemini Bridges/Poison Spider (Carlson)
20. Greater Moab: Behind the Rocks/Negro Bill/Mill Creek (Southern Utah Wilderness Alliance)
21. Hatch Wash (Southern Utah Wilderness Alliance)
22. Highway 279 Corridor/Shafter Basin/Long Canyon (MFO Internal Nomination)
23. Labyrinth/Horsethief (Southern Utah Wilderness Alliance)
24. Labyrinth Canyon (MFO Internal Nomination)
25. Mill Creek Canyon (Mill Creek Partnership)
26. Mill Creek Canyon (MFO Internal Nomination)
27. Ten Mile Wash (Carlson)
28. Ten Mile Wash (MFO Internal Nomination)
29. Upper Courthouse (The Nature Conservancy)
30. Upper Courthouse (MFO Internal Nomination)
31. Westwater (Southern Utah Wilderness Alliance)
32. Westwater Canyon (MFO Internal Nomination)
33. White Wash (MFO Internal Nomination)
34. White Wash (Southern Utah Wilderness Alliance)

35. Wilson Arch (MFO Internal Nomination)
36. Highway 313 (Southern Utah Wilderness Alliance)
37. Upper Labyrinth (Southern Utah Wilderness Alliance)

The 14 areas that were found to meet the relevance and importance criteria and will go forward as potential ACECs are:

1. Behind the Rocks
2. Book Cliffs Wildlife Area
3. Canyon Rims
4. Cisco White-tailed Prairie Dog Complex
5. Colorado River Corridor
6. Cottonwood Diamond Watershed
7. Highway 279 Corridor/ Shafer Basin/Long Canyon
8. Labyrinth Canyon
9. Mill Creek Canyon
10. Ten Mile Wash
11. Upper Courthouse
12. Westwater Canyon
13. White Wash
14. Wilson Arch

The 37 nominations have been organized into 21 nominated areas which are discussed in turn below. Note that multiple nominations were often received for a particular area. Size calculations were made only for those areas or portions of areas that were determined by BLM to meet the relevance and importance criteria, and are thus potential ACECs.

### ***1.6.1 BEHIND THE ROCKS***

(Nominated by Nature Conservancy and BLM staff; also included in SUWA's "Greater Moab")

Description of Area: Behind the Rocks is located west of the city of Moab and east of Kane Creek Canyon. It is an area of sandstone fins and deeply entrenched canyons, with arches and other features. Various boundaries were proposed by the several nominators. From these, BLM crafted the boundary of the potential ACEC to include all of the relevant and important cultural, wildlife, plant and scenic resources of the area.

Size: 17,836 acres (approximate)

Relevance Criteria: The area contains significant cultural resources, including rock art and habitation sites. The scenic values are outstanding in the area, with slickrock domes and fins present on a grander scale than in Arches National Park. There are also several large natural arches in the area. The area contains habitat for several special-status wildlife species, including

the peregrine falcon, southwest willow flycatcher, spotted bat and big free-tailed bat. Three special-status plant species occur in the area: the Canyonlands biscuitroot, alcove rock daisy and alcove bog orchid. The area is one of only three major population centers (and of these, the least imperiled) for the Canyonlands biscuitroot. Two narrowly distributed plants, the western hop-hornbeam and alcove death camas also occur. In addition, there are relict plant communities within the area which are valuable for scientific study.

Importance Criteria: Within the area, cultural sites are distinctive and of special worth. Scenic values are nationally significant; Behind the Rocks is the best example of Navajo sandstone fins in the world, and provides the scenic backdrop to the town of Moab. The rare and endemic plants are fragile, rare and irreplaceable. Behind the Rocks is one of only 12 known areas with occurrences of the alcove rock daisy, and one of three areas in which the Canyonlands biscuitroot is found. The area also contains plant communities and soils that have been little disturbed or altered, providing an uncommon remnant of the presettlement landscape.

Findings: This nomination meets both the relevance and importance criteria for threatened and endangered plants, scenery and cultural values. It will be carried forward as a potential ACEC.

### ***1.6.2 BIG TRIANGLE***

(Nominated by Southern Utah Wilderness Alliance)

Description of Area: The area is commonly called the Dolores Triangle, and includes Coates Creek, Renegade Creek, and Ryan Creek

Size: Not calculated

Relevance Criteria: Big Triangle does meet relevance criteria in that it is important wildlife habitat, and has riparian natural systems.

Importance Criteria: This nomination does not meet the importance criteria for wildlife or riparian resources. The area does contain wildlife and riparian habitats, but they are not more than locally significant when taken in the context of the entire region. While the area is crucial deer and/or elk winter range, there are other instances of winter range throughout the Field Office. The bat habitats in the Big Triangle are widespread throughout the Field Office. There are no inventoried populations of TES (Threatened, Endangered or Sensitive) species in the area; the TES habitat is merely potential habitat. While there were some historical sage-grouse populations, there are currently no permanent populations of sage-grouse.

Findings: This nomination meets the relevance criteria for wildlife and riparian resources. This nomination does not meet the importance criteria for either of these values. This nomination will not be carried forward as a potential ACEC.

### **I.6.3 BOOK CLIFFS WILDLIFE AREA**

(Nominated by Moab Field Office staff and Southern Utah Wilderness Alliance)

Description of Area: The Book Cliffs Wildlife Area ACEC is located on the southern flanks of the Book Cliffs from the Green River to Hay Canyon and from the Book Cliffs terraces north to the Moab Field Office boundary. (The boundary proposed by the Southern Utah Wilderness Alliance differed from that of BLM staff. BLM staff adjusted the boundary of the area with the assistance of data from the Utah Division of Wildlife Resources).

Size: 304,252 acres (approximate)

Relevance Criteria: The Book Cliffs Wildlife Area nomination meets the relevance criteria for wildlife and cultural values. The Book Cliffs area contains habitat essential for maintaining species diversity, including that of endangered, threatened and Utah sensitive animal species. In addition, the Book Cliffs provides important habitat for the following big game species: Rocky Mountain bighorn sheep, mule deer, Rocky Mountain elk, mountain lion and black bear. Crucial fawning and calving grounds and critical winter ranges for elk and deer are within the area. The Book Cliffs are essentially a natural system with riparian systems encompassing unfragmented, contiguous habitat for a great diversity of plant and animal communities. The area is also rich in cultural resources, and includes rock art, camp sites, cave excavations and brush structures.

Importance Criteria: The Book Cliffs wildlife habitat is of more than local significance. There are no areas in the Western United States (outside of Alaska) that offer such a large, contiguous, unfragmented, and undisturbed habitat for such a large variety of animal species. This extensive habitat promotes biological and genetic diversity that is unavailable in most wildlife habitat areas. The remote areas of the Book Cliffs are important scientific reference sites. Human disturbance and/or development would permanently alter the unfragmented, remote and undisturbed nature of this wildlife habitat. This makes the Book Cliffs proposed ACEC highly vulnerable to adverse change. The habitat is also irreplaceable, exemplary and unique due to the rareness of large, unfragmented and undisturbed habitat for both plants and animals.

In addition, cultural sites within the Book Cliffs have special worth because their remoteness has left them largely undisturbed, and thus of great importance to scientific study.

Findings: This nomination meets the relevance and importance criteria for wildlife, natural systems (riparian plant communities), and cultural values and will be carried forward as a potential ACEC.

### **I.6.4 CANYON RIMS**

(Nominated by Moab Field Office staff)

Description of Area: The Canyon Rims ACEC nomination consists of the western rims of the Canyon Rims Recreation Area. This encompasses Needles, Anticline, Canyonlands and Minor Overlooks, which are developed recreation sites within the recreation area.

Size: 23,400 acres (approximate)

Relevance Criteria: The scenic values of the western portions of the Canyon Rims Recreation Area are outstanding in quality and due to location, highly visible to the recreating public.

Importance Criteria: The scenic values of the western portions of Canyon Rims are important to regional, national, and international visitors who view this area from developed overlooks. The Canyon Rims views are some of the most spectacular in the Western United States. They have special worth and consequence to many visitors, many of whom comment that the views are "more spectacular than the Grand Canyon".

The threats to these scenic resources include oil and gas development and off highway vehicle use, making them subject to adverse change.

Findings: The rims of Canyon Rims Recreation Area meet the relevance and importance criteria for scenic values, and will be carried forward as a potential ACEC.

### ***1.6.5 CASTLE VALLEY CRITICAL DEER WINTER RANGE***

(Nominated by Grand Canyon Trust)

Description of Area: The area is located in the upper portion of Castle Valley, 20 miles east of Moab, Utah.

Size: Not calculated

Relevance Criteria: The area nominated is important deer winter range for the LaSal mountain herd, and thus meets the relevance criterion for wildlife values.

Importance Criteria: The nomination does not meet the importance criterion for the wildlife values, because the area is of no more than local significance for wintering deer. The nominated area is only a very small portion of the LaSal mule deer herd's winter range. Protecting this area would not improve overall winter range conditions for this one deer herd (which is only locally significant).

Findings: The nomination meets the relevance, but not the importance criteria for wildlife values. It will not go forward as a potential ACEC.

### ***1.6.6 CISCO WHITE-TAILED PRAIRIE DOG COMPLEX***

(Nominated by Center for Native Ecosystems et al.)

Description of Area: The ACEC boundary proposal from the Center for Native Ecosystems has been refined with the help of the Utah Division of Wildlife Resources data to include public lands on both sides of I-70 from the Colorado State Line to the Cisco area.

Size: 125,620 acres (approximate)

Relevance Criteria: The area meets the relevance criterion for wildlife values. White-tailed prairie dog is a Utah sensitive species, and has been nominated as threatened under the Endangered Species Act. UDWR has mapped historic and current prairie dog towns and their habitat. The habitat within this area is essential for maintaining this species.

Importance Criteria: White-tailed prairie dogs are a Utah sensitive species (a decision on whether to list this species will be made by the U.S. Fish and Wildlife Service by October, 2004.) The population of this candidate species is declining throughout the West, including the area managed by the Moab Field Office. Large tracts of land are needed to maintain populations of this animal and of the predator species which depend on it. White-tailed prairie dog habitat is fragile and very sensitive to OHV abuse, overgrazing, drought and oil and gas disturbance.

Findings: The nomination meets the relevance and importance criteria for wildlife values and will be carried forward as a potential ACEC.

### ***1.6.7 COLORADO RIVER CORRIDOR (INCLUDING RICHARDSON AMPHITHEATER, NEGRO BILL, CACHE VALLEY, GREATER MOAB, FISHER TOWERS AND ARCHES AREA)***

(Nominated in parts by The Nature Conservancy, Stolfa, Carlson, Southern Utah Wilderness Alliance and Moab Field Office staff)

Description of Area: The Colorado River Corridor area lies along Utah Highway 128 east of Moab, Utah. It includes the entire Richardson Amphitheater (including Fisher Towers, Onion Creek and Castle Rock), the canyon of Negro Bill and the Slickrock Bike Trail on the south side of the Colorado River. On the north side of the river, Dry Mesa, Cache Valley and other lands east of Arches National Park are included. (Boundary proposals by various nominators were adjusted by BLM staff and cooperators to determine the potential ACEC boundary.)

Size: 50,483 acres (approximate)

Relevance Criteria: This area meets the relevance criteria for scenic, fish and wildlife, and rare and endangered plants. The scenery in the area is of outstanding quality, and as it is traversed by Utah State Scenic Byway 128, the scenery is accessible to all types of visitors. The area contains such scenic western icons as Fisher Towers, the Colorado River and Castle Rock.

The potential ACEC includes critical habitat for mule deer and desert bighorn sheep. It includes critical bighorn lambing and rutting areas for desert bighorn sheep (particularly in the lands east of Arches National Park). The Colorado River is home to the razorback sucker, bonytail chub, humpback chub and the Colorado pikeminnow, all endangered species. Several birds on the state sensitive list, including yellow-breasted chats and Lewis woodpeckers, have known occurrences within the potential ACEC. State sensitive animals occurring in the area include river otter, spotted bat and big free-tailed bat.

Three rare plants occur within the Richardson Amphitheater section of the area: the Jones cycladenia (Threatened), the Shultz stickleaf (Sensitive), and the Dolores rushpink (Sensitive). Relict plant communities also occur in the proposed ACEC. Two state sensitive rare plants (cave primrose and alcove bog orchid) occur in Negro Bill Canyon. The Alcove rock daisy (listed) has also been found in this canyon. In addition, the endemic alcove columbine is also found. The hanging gardens of Negro Bill in which these plants are found range in size from a few meters square to huge classic alcoves. The Colorado River corridor is rich in rare and endangered plants.

Importance Criteria: This area meets the importance criteria for scenic, fish and wildlife and rare and threatened plants. The entire area possesses Class A scenery of widely recognized value. It is internationally renowned for scenery, and has been the location site for 88 film permits from 1998-2002. This area has some of the most significant, internationally recognized scenery in the Western United States. People throughout the world recognize the scenic resources contained within the area. The visual resources in this area are very rare, and do not exist anywhere else in the world. At the same time, the area is subject to intense visitation, making the area susceptible to inadvertent damage.

The wildlife habitat in the area is of more than local significance, and is rare and irreplaceable. The very presence of the Colorado River provides wildlife habitat that is unique in the arid West. The rare and endangered fish in the Colorado River (razorback sucker, bonytail chub, humpback chub and the Colorado pikeminnow) are unique and irreplaceable. Lands crucial to desert bighorn sheep lambing and rutting (in Cache Valley east of Arches National Park) are similarly unique and vulnerable to adverse change. Several birds on the state sensitive list, including yellow-breasted chats and Lewis woodpeckers, have known occurrences within the proposed ACEC. State sensitive animals occurring in the area include river otter, spotted bat and big free-tailed bat.

The potential ACEC contains the only known location in the world of the sensitive Schultz stickleaf. Although only on the BLM state sensitive plant list (and not on the endangered species list), the Schultz stickleaf grows nowhere else in the entire world but in the proposed ACEC because of the special combination of soils in the area. The potential ACEC also contains about one quarter of all threatened Jones cycladenia plants. This makes the area of special worth and consequence to these rare species. Although it is only listed as sensitive, the population of Schultz stickleaf plants is unique and irreplaceable as it is known to grow nowhere else in the world; the presence of other special species, both plant and animal, make the area unique and exemplary.

The rare plants found in the hanging gardens of Negro Bill Canyon area also rare, fragile and exemplary. The cave primrose, alcove bog orchid, alcove columbine and alcove rock daisy are of far more than local significance, given their rarity.

The heart of Negro Bill Canyon was designated an Outstanding Natural Area in the 1985 Grand RMP to protect both scenery and these sensitive plants. The scenery is of more than local significance, both in the canyon, and from the Slickrock and Porcupine Rim Trails above it.

Findings: This nomination meets the relevance and importance criteria for scenery, fish and wildlife and natural systems: rare plants resources. It will be carried forward as a potential ACEC.

### ***1.6.8 COTTONWOOD-DIAMOND WATERSHED***

(Nominated MFO Staff)

Description of Area: This area is located in the Cottonwood-Diamond drainage of the Book Cliffs area. The area to be considered in this ACEC proposal is the area that was severely burned in 2002.

Size: 35,830 acres

Relevance Criteria: The area meets the relevance criteria for natural processes and for natural hazards. Due to severe fire damage in 2002, the functioning of the natural system is at risk. Riparian areas and stable stream channels are the most at risk. The combination of hydrophobic soils and bare, steep uplands make for extreme levels of storm-water runoff. Restoring vegetation is crucial to a functioning natural process. Watershed health is not expected to return for 4 – 10 years, requiring special management in the interim. This area is extremely susceptible to (and has experienced) dangerous flooding and landslides as a result of the large fire of July, 2002. Because of major vegetation loss and damage to soils (hydrophobic), storm runoff is at extreme levels and is causing peak flood levels and massive erosion. This area was identified by the Burned Area Emergency Rehabilitation (BAER) team in 2002 as posing significant hazards to life and property.

Importance Criteria: The area meets the importance criteria for natural hazards and natural processes. The Burned Area Emergency Rehabilitation report (BAER, 2002) highlights significant hazards from floods, mudflows, and landslides which have already occurred, and are expected to reoccur. The severely burned area has qualities which warrant highlighting in order to satisfy concerns about human life and safety. BLM has spent significant amounts of money to date on emergency stabilization (reseeding hydro-mulching and monitoring) to help restabilize the area to reduce these threats to human life and safety.

Findings: This nomination meets the relevance and importance criteria for natural processes and natural hazards and will be carried forward as a potential ACEC.

### ***1.6.9 DOLORES DRAINAGE***

(Nominated by Southern Utah Wilderness Alliance)

Description of Area: The area is composed of two widely separated parcels: the Beaver Creek/Dolores River/Granite Creek area east of the LaSal Mountains, and the East Coyote Creek drainage east of Lisbon Valley.

Size: Not calculated

Relevance Criteria: The area meets the relevance criteria for scenery and wildlife habitat. Scenic values are found in the area, especially along the Dolores River. The area is valuable wildlife habitat, especially for wintering deer and/or elk.

Importance Criteria: The area does not meet the importance criteria for scenery nor for wildlife habitat. These areas are of no more than local significance for either wildlife or scenery. The scenery, while attractive, is duplicated in numerous places within the Colorado Plateau, and is not fragile or vulnerable. The wildlife habitat includes crucial elk and/or mule deer range, but these ranges are not unique, or rare, nor are they sensitive or fragile. Habitat found in the Dolores Drainage nomination is duplicated in many other areas of the state of Utah.

Findings: This nomination meets the relevance criteria, but does not meet the importance criteria. This nomination will not be carried forward as a potential ACEC.

### ***1.6.10 GEMINI BRIDGES/POISON SPIDER***

(Nominated by Carlson and by SUWA as part of "Greater Moab")

Description of Area: This area includes Gemini Bridges, Poison Spider, and the area to the north of Highway 279.

Size: Not calculated

Relevance Criteria: This area meets the relevance criterion for scenery, as there are many scenic views of redrock, the LaSal Mountains, arches and cliffs. This area is included in most of the guide books for the area. It also meets the relevance criterion for wildlife; desert bighorn sheep inhabit this area.

Importance Criteria: The scenery in the area is attractive, but is of no more than local significance. Similar scenery is found throughout the Colorado Plateau region. The wildlife values are of no more than local significance, as these species are found elsewhere.

Findings: This nomination will not be carried forward as a potential ACEC.

### ***1.6.11 HATCH WASH***

(Nominated by Southern Utah Wilderness Alliance)

Description of Area: The area includes Hatch Wash and its associated uplands. This area is located within the Canyon Rims Recreation Area in northern San Juan County.

Size: Not calculated

Relevance Criteria: The area meets the relevance criteria for scenery and for wildlife resources. Hatch Wash is a very scenic riparian canyon, surrounded by scenic cliffs. Many wildlife species utilize Hatch Wash for habitat.

Importance Criteria: The area does not meet the importance criteria for either scenery or wildlife resources. Neither value is of more than local significance, nor is the area fragile, sensitive or rare. The scenery in Hatch Wash is found in many of the riparian canyons on the Colorado Plateau. The wildlife habitat is neither rare, irreplaceable nor exemplary; such habitat is found throughout the region.

Findings: The nomination does not meet the importance criteria for ACEC nomination and will not be carried forward as a potential ACEC.

### ***1.6.12 HIGHWAY 279 CORRIDOR/SHAFFER BASIN/LONG CANYON***

(Nominated by MFO Staff, and by Southern Utah Wilderness Alliance as "Dead Horse Point")

Description of Area: The area is a corridor along Utah Highway 279, including the extension of that road into the Shafer Basin. The Shafer Basin provides the viewshed from Dead Horse Point State Park. In addition, Long Canyon to the Dead Horse Mesa is included in this proposal. BLM has modified the boundary of the SUWA nomination to better incorporate the resource values that were found relevant and important in this area.

Size: 13,500 acres

Relevance Criteria: The area meets the relevance criteria for scenic, cultural, plant and wildlife resources. Utah Highway 279 is a state scenic byway; its scenery and ancient rock art is enjoyed by thousands of visitors per year as they drive along the Colorado River. The Shafer Basin provides the spectacular foreground scenery as viewed from the road and from Dead Horse Point State Park. Long Canyon also provides a scenic backcountry drive just off Utah Highway 279. The scenery is classified as Class A.

A Utah BLM sensitive plant, Jane's globemallow, is found in the Shafer Basin. In addition, both the Shafer Basin and Long Canyon are important habitat to the desert bighorn sheep. As a result, the uplands north of Dead Horse Point State Park were found to have relevant values for wildlife and plants.

Importance Criteria: The nomination meets the importance criteria for scenery, cultural, plant and for wildlife values only within the modified boundary. The stunning scenery within Shafer Basin and Long Canyon as viewed from State Scenic Byway 279 and Dead Horse Point State Park is internationally renowned. Highway 279, Shafer Basin and Long Canyon are also venues for many film permits, due to their spectacular scenic backdrops. Thus, these portions of the nominated area were found to meet the importance criterion for scenery and cultural as they have more than local significance.

Jane's globemallow, a BLM sensitive plant species, is rare and unique and is susceptible to harm. The presence of this plant in the Shafer Basin area meets the importance criteria.

The wildlife values within the adjusted boundary also meet the importance criteria as the Shafer Basin is primary habitat for desert bighorn sheep, which also utilize Long Canyon. These

distinctive animals are unique and of more than local significance. Indeed, it is the Shafer Basin habitat which enabled the dwindling desert bighorn herd to survive. This bighorn herd is one of only two indigenous native desert bighorn herds in the state of Utah, and the Shafer Basin herd has provided stock for restoring desert bighorns to other environments. The wildlife values in the uplands portion (north of Dead Horse Point) were not found to be of more than local significance, and thus did not meet the importance criterion.

Findings: This nomination, with a modified boundary, meets the relevance and importance criteria for scenic, cultural, plant and wildlife resources and will be carried forward as a potential ACEC.

### **I.6.13 HIGHWAY 313**

(Nominated by Southern Utah Wilderness Alliance)

Description of Area: The area of the Highway 313 proposal is a corridor along Utah Highway 313. Utah Highway 313 is State of Utah Scenic Byway, and is renowned for its scenic values and cultural resources (Seven Mile Canyon). Highway 313 is the entrance road to Dead Horse Point State Park and Canyonlands National Park.

Size: 24,859 acres

Relevance Criteria: The area meets the relevance criteria for scenery. The scenic values viewed from this Highway corridor have regional significance. This road is the highly scenic gateway to two destination parks. Countless visitors experience this area as part of a larger southern Utah driving and windshield tour to enjoy the exceptional scenery of the landscape. In addition, the area meets the relevance criteria for cultural resources.

Importance Criteria: The nomination does not meet the importance criteria for scenery and cultural resources. Although a scenic drive, the views are largely of distant vistas, which would not be protected by ACEC designation. The cultural resources, while relevant, are not unique within the region, and thus do not meet the importance criterion. Highway 313 is of no more than local significance, and is neither fragile, sensitive, rare, irreplaceable, exemplary, unique nor vulnerable to adverse change.

Findings: This nomination meets the relevance, but not the importance criteria for scenery and cultural values. It will not go forward as a potential ACEC.

### **I.6.14 LABYRINTH CANYON**

(Nominated by Southern Utah Wilderness Alliance and by BLM staff)

Description of Area: Labyrinth Canyon is located along the Green River, and extends from Ruby Ranch to the border of Canyonlands National Park. This proposal is for the eastern side of that canyon. It complements that of the Price Field Office, which has an ACEC proposal for the western side of Labyrinth Canyon. BLM staff has modified the boundary to better incorporate those resource values identified as both relevant and important.

Size: 8,528 acres (approximate)

Relevance Criteria: This nomination meets the relevance criteria for scenic, historic, fish and natural processes. The scenery in Labyrinth Canyon is outstanding, and is enjoyed by many river runners. Historic sites are prevalent along the Green River, and these meet the historic criterion. The Green River is home to four endangered fish species: Colorado pikeminnow, razorback chub, bonytail chub and humpback chub. The upland regions east of the river corridor do not meet the relevance criteria for scenic, historic, fish or natural processes. The wildlife relevance criterion is met for these upland regions, as the area is habitat to many animals, including desert bighorn sheep.

Importance Criteria: The nomination meets the importance criteria for scenery values only in the Green River Canyon corridor. The scenery along the river is of far more than local significance, which give it special worth and meaning. The Green River is nationally and internationally famous for its high cliff walls and outstanding scenery. It is an internationally recognized destination for canoe touring. The importance criterion is also met for fish resources, as the endangered fish species live only in the Colorado River system, and are rare, irreplaceable and unique. The importance criteria for terrestrial wildlife values involving the upland regions east of the river corridor are not met, as these wildlife values are only of local significance. While the river corridor is a unique resource for endangered fish species, the upland regions are duplicated in many places across the Colorado Plateau.

Findings: The portion of the nominated area that meets the relevance and importance criteria for scenery, and for fish resources will be carried forward as a potential ACEC.

### ***1.6.15 MILL CREEK CANYON***

(Nominated by the Mill Creek Partnership, BLM staff and SUWA as part of "Greater Moab")

Description of Area: Mill Creek Canyon is located directly east of Moab. It consists of both the North Fork and South Fork drainages of Mill Creek from the National Forest boundary to Spanish Valley.

Size: 13,501 acres (approximate)

Relevance Criteria: This nomination meets the relevance criteria for scenery, cultural values, fish and wildlife resources and natural systems. Mill Creek Canyon has significant scenic values, with Class A scenery and high sensitivity. The outstanding visual resources of the canyon are stunning, and of rare scenic quality.

Cultural resources (including rock art, campsites, rock shelters, alcoves and special activity areas) are exceptional in the forks of Mill Creek, and have been the subject of several scientific studies. Mill Creek is one of five coldwater trout fisheries in the Colorado River system. Due to its perennial water, many wildlife species depend on Mill Creek. A rare and especially high quality riparian area, Mill Creek's ecological condition requires special management. The Mill

Creek watershed is the lifeblood of Moab and Grand County, providing water that sustains the human population.

Importance Criteria: Mill Creek Canyon meets the importance criteria for scenery, cultural resources, natural riparian systems and fish and wildlife values. The scenery in Mill Creek Canyon is of national quality, and is far more than locally significant. Cultural resources are extensive and span the entire prehistoric context, giving these resources special worth and consequence. Both the scenic and cultural values in Mill Creek Canyon are easily damaged and in need of protection. Cultural resources are especially sensitive, irreplaceable and exemplary; similar cultural resources exist no where else. Mill Creek Canyon's cultural resources have also been identified as being of exceptional importance to Native Americans. Protection of these rich archeological areas is a national priority concern. The proximity of Mill Creek to Moab makes the drainage particularly vulnerable to adverse change.

Fish and wildlife values meet the importance criteria, as the stream is one of the few cold water fisheries in the region. The wildlife importance criterion is met, as Mill Creek Canyon provides a migration corridor from the mountain range to the desert; the richness of the Mill Creek riparian habitat provides for a diversity of species not often found in a desert environment. The rarity of this type of habitat gives importance to this value.

The water resource is a significant factor in the municipal water supply; the watershed is crucial to the public welfare of Moab and Grand County.

Findings: This nomination meets the relevance and importance criteria for cultural, scenic, fish and wildlife and natural systems and will be carried forward as a potential ACEC.

### ***1.6.16 TEN MILE WASH***

(Nominated by Carlson, by BLM staff, and by SUWA as part of both White Wash and Labyrinth/Horsethief)

Description of Area: Ten Mile Wash is located northwest of Moab; it drains into the Green River just downstream of White Wash and upstream of Spring Canyon. The nominated area is composed of the Ten Mile drainage from the Green River to two miles upstream of Dripping Spring.

Size: 4,980 acres

Relevance Criteria: Ten Mile Wash meets the relevance criteria for scenic, cultural, wildlife, natural processes and natural hazards. Ten Mile Wash contains high quality scenery related to sandstone buttes, cliffs, side canyons and alcoves; the scenery is enhanced by the presence of a riparian greenbelt. Ten Mile Wash contains significant cultural resources, including important habitation sites and unusual artifacts.

Ten Mile Wash contains perennial and intermittent flows which maintain ecological diversity in upland and riparian/wetlands-dependent wildlife within extremely arid portions of the basin. Ten

Mile Wash contains a rich mixture of riparian, wetland and hydrologic resources. Perennial segments support well-developed wetlands which are rare and unusual in arid regions. Ten Mile Wash is subject to extreme flooding, increasing potential safety hazards to vehicle and camping activities. The potential for flooding is great because the Ten Mile Wash watershed basin drains 175,185 acres, making it the second largest tributary drainage in the Moab Field Office.

Importance Criteria: This nomination meets the importance criteria for cultural, wildlife values, natural systems and natural hazards. Cultural resources in Ten Mile Wash are of more than local significance, and are fragile, rare and exemplary. Ten Mile Wash is wildlife habitat of extremely important consequence in the driest portion of the Moab Field Office, because it provides water and habitat to wildlife from a large geographic area.

Riparian/wetland resources comprise less than 1% of the 22 million acres of public land within Utah. Within the Moab Field Office area, just over 1,000 acres have been identified with wetland potential, of which Ten Mile Wash contains textbook examples. Riparian/wetland ecosystems in Ten Mile Wash are rare, sensitive resources vulnerable to degradation from surface disturbances. These wetland ecosystems are exemplary and rare; they serve as attractors for wildlife and for human activities, making the wash extremely susceptible to adverse impact. Riparian/wetland ecosystems are a national priority concern, and are managed for health and diversity as required by the Clean Water Act, Floodplain and Wetland Executive Orders, Rangeland Standards and Guidelines, and the National Riparian Area Policy. Ten Mile Wash contains extreme seasonal flooding potentials which warrant special management regarding public access and camping within the drainage.

Findings: This nomination meets the relevance and importance criteria for cultural, wildlife, natural systems and natural hazards, and will be carried forward as a potential ACEC.

### ***1.6.17 UPPER COURTHOUSE***

(Nominated by The Nature Conservancy and by BLM staff)

Description of Area: The area of the Upper Courthouse proposal is immediately south of the Blue Hills Road, 16 miles north of Moab. It includes Courthouse, Mill, Tusher and Bartlett Canyons, as well as the tops of various isolated mesas, including Big Mesa.

Size: 11,529 acres (approximate)

Relevance Criteria: This nomination meets the relevance criteria for historic, cultural, paleontological, natural systems, riparian, and rare plants. Courthouse Springs is a known location on the Old Spanish Trail, a National Historic Trail. This location later became the Halfway Stage Station, a significant historic resource. The area contains significant paleontological resources, and includes deposits of surface dinosaur bone

Two rare plants occur within the area: the stage station milkvetch and Trotter oreoxis, both of which are on the state sensitive list. In addition, several of the mesa tops within the proposed ACEC have been little altered by direct human influences and thus support relict plant

communities and well-developed, mature cryptobiotic soil crusts. Big Mesa is the largest of these untouched areas. It has never been grazed, nor has it been driven upon.

Importance Criteria: This nomination meets the importance criteria for historic, rare plant and natural systems. The area has special worth due to the rare plant species and relict plant communities. The area contains almost all of the stage station milkvetch plants known in the entire world. This stage station milkvetch population is unique and irreplaceable, as is that of the Trotter oreoxis. Areas of relict vegetation on the mesa tops are representative of conditions on surrounding lands; these uncommon remnants of the presettlement landscape are extremely vulnerable and valuable for scientific study.

Historical resources in the area (including a known watering spot on the Old Spanish Trail) are distinctive and irreplaceable. Increasing recreation activity in the area makes these resources vulnerable to adverse change. The richness of its paleontological resources are of more than local significance, as the variety of dinosaur bone in the area rivals that found in Dinosaur National Park.

Findings: This nomination meets the relevance and importance criteria for historic, cultural, paleontological, and natural systems: rare plants. Upper Courthouse will be carried forward as a potential ACEC.

### ***1.6.18 UPPER LABYRINTH***

(Nominated by Southern Utah Wilderness Alliance)

Description of Area: The area of the Upper Labyrinth proposal is along the Green River from the town of Green River downstream to Ruby Ranch.

Size: 3,836 acres

Relevance Criteria: The area meets the relevance criteria for scenery, fish, and natural processes. The area is rated as VRM II, endangered fish inhabit its waters, and the river provides natural processes in riparian habitat. The area does not meet the relevance criterion for history; although the Powell expedition boated this stretch of the river, there were no historical events recorded for his trip along this stretch.

Importance: The area does not meet the importance criteria for scenery, fish and natural processes. The scenery does not compare to other drainages of the Colorado River system. This stretch of the river does not have the outstanding scenery associated with the deep canyons of Labyrinth, Stillwater or Desolation canyons of the Green River. Although the river has endangered fish, there is no special habitat for these fish along this portion of the river. This portion of the Green River is of no more than local significance regarding its natural processes.

The Price Field Office has proposed a potential ACEC on the west side of the river. The Lower Green River ACEC (proposed in Conservation alternative of the Price DRMP/EIS) encompasses the entire Lower Green River corridor from the town of Green River to Canyonlands National

Park. The Moab Field Office has proposed a potential ACEC (Labyrinth ACEC) only from Ruby Ranch downstream along the Green River in the Conservation alternative. The listed relevant values of the Price ACEC, which are found along the entire Green River, include rare plants, migratory birds, wildlife and riparian values. The discontinuity mentioned by the nominator between Price and Moab's proposals does not exist. The west side of the river contains rare plants not found on the east side of the river. The east side of the river has more past impacts, including roads and mining. The Price office mentions recreation as the important value. Recreation is not an importance criterion in the ACEC process.

Upper Labyrinth is of no more than local significance, and is neither fragile, sensitive, rare, irreplaceable, exemplary, unique nor vulnerable to adverse change.

Findings: This nomination meets the relevance, but not the importance criteria for scenery, fish and natural processes. It does not meet the relevance criterion for historical values. It will not go forward as a potential ACEC.

### **I.6.19 WESTWATER CANYON**

(Nominated by BLM staff and by Southern Utah Wilderness Alliance)

Description of Area: Westwater Canyon is along the Colorado River six miles downstream from the Colorado border.

Size: 5,000 acres (approximate)

Relevance Criteria: This nomination meets the relevance criteria for scenery and for endangered fish. The dramatic, scenic canyon is rated as Class A scenery, as well as VRM inventory Class I. Visiting the canyon and viewing the scenery is a highly sought experience. The most dramatic scenery within the canyon is the contrast of jet black Precambrian rock with the red sandstones above. These two rock layers are in rare juxtaposition in Westwater, making the scenic experience unique. In addition, four endangered fish inhabit the Colorado River, the Colorado pikeminnow, humpback chub, razorback sucker and bonytail chub. The upland regions surrounding Westwater Canyon do not meet the relevance criteria, as they do not have significant values.

Importance Criteria: This nomination meets the importance criteria for scenery and for endangered fish. The inner gorge of Westwater Canyon is visually unique, with the primordial black Precambrian schist layer overlain by the red rocks of the Wingate sandstone. This irreplaceable canyon is a one-of-a-kind visual experience, which visitors from all over the world vie to enjoy. Westwater Canyon is rare, exemplary and unique in terms of its scenic values. Westwater Canyon has been described as the most scenic one day river trip in the entire United States (*Currents* -- magazine of the National Outdoor River Sports organization). The endangered fish which inhabit its waters are also unique and found only in the Colorado River system.

Findings: This nomination meets the relevance and importance criteria for scenery and for endangered fish. Westwater Canyon will be carried forward as a potential ACEC.

### ***1.6.20 WHITE WASH***

(Nominated by BLM staff and by SUWA)

Description of area: White Wash is located 30 miles northwest of Moab. It consists of active sand dunes interspersed with cottonwood trees, surrounded by a intermittent wash that drains to the Green River.

Size: 2,988 acres (approximate)

Relevance criteria: White Wash meets the relevance criteria for scenery, wildlife and natural systems. The high quality scenery is related to the active sand dunes, Entrada sandstone buttes and a unique cottonwood riparian ecosystem. White Wash also contains significant sensitive cultural resources.

White Wash contains intermittent and ephemeral flows vitally important to support wildlife diversity within this extremely arid region. A small resident desert bighorn sheep population relies on upper White Wash for habitat and for water. White Wash contains a unique ecological/geological system related to cottonwood riparian woodlands located within the active dune field and supported by localized subsurface moisture. This population of cottonwoods represents a relict ecosystem and is a rare riparian feature.

Importance criteria: This nomination meets the importance criteria for natural systems. Riparian resources comprise less than 1% of the 22 million acres of BLM land within Utah. Riparian resources in similar combination are not known elsewhere within the region. The White Wash Sand Dunes is a unique ecosystem with sensitive soils which are highly mobile and active. This ecosystem is highly unusual, rare, sensitive and vulnerable to degradation from surface disturbances, especially OHV riders using the cottonwood trees as slalom poles, adversely impacting soil and moisture patterns which support the reproduction and sustainability of the riparian ecosystem.

Riparian/wetland ecosystems are national priority concerns and are managed for health and diversity as mandated by the Clean Water Act, Floodplain and Wetland Executive Orders, Rangeland Standards and Guidelines, and the National Riparian Area Policy.

The area does not meet the importance criterion for cultural, scenery or for wildlife. Cultural sites in the area are not unique; similar wildlife habitat is available across the Colorado Plateau.

Findings: This nomination does not meet the relevance criteria for scenery, cultural, wildlife and natural systems. It meets the importance criterion for natural systems. It will be carried forward as a potential ACEC.

**I.6.21 WILSON ARCH**

(Nominated by BLM staff)

Description of Area: Wilson Arch is located approximately 25 miles south of Moab on the east side of U.S. Highway 191. The nominated area includes the red rock basin that contains Wilson Arch.

Size: 3,700 acres (approximate)

Relevance criteria: Wilson Arch has significant scenic value.

Importance criteria: Located immediately adjacent to U.S. Highway 191, Wilson Arch is viewed and photographed by many visitors to the Colorado Plateau. This makes the scenic value of the arch more than locally significant, due to its extreme visibility.

Findings: The nomination meets the relevance and importance criteria for scenery and will be carried forward as a potential ACEC.

**I.7 SUMMARY AND CONCLUSIONS**

A total of 37 nominated areas (many of which were overlapping with each other in area) were evaluated for relevance and importance as part of the Moab land-use planning process. The boundaries of what were to become potential ACECs were crafted by the BLM interdisciplinary team and its cooperators to best incorporate the relevant and important values of each nomination. The proposals included areas previously nominated, nominations received from the public as part of scoping, and areas nominated, refined, or expanded by BLM staff specialists. As a result of work completed by the BLM ACEC interdisciplinary team and its cooperating agencies, 14 potential ACECs that meet both the relevance and importance criteria have been identified, and will move forward for additional consideration as alternatives for the RMP are developed and analyzed. These 14 potential ACECs are listed in Table 1. Potential ACECs may be designated in the Record of Decision for the RMP if special management is required to protect the relevant and important values.

**Table 1. Potential Areas of Critical Environmental Concern**

Area Name	Values of Concern	Acres
Behind the Rocks (e.g.)	Scenic values, Natural systems: Threatened and Endangered Plants, cultural	17,836
Book Cliffs Wildlife Area	Wildlife values, cultural and natural systems	304,252
Canyon Rims	Scenic values	23,400
Cisco White-tailed Prairie Dog Complex	Wildlife values	125,620

**Table 1. Potential Areas of Critical Environmental Concern**

<b>Area Name</b>	<b>Values of Concern</b>	<b>Acres</b>
Colorado River Corridor	Scenic, cultural, wildlife, fish, natural systems: rare plants	50,483
Cottonwood-Diamond Watershed	Natural hazards and natural systems	35,830
Highway 279 Corridor/ Shafer Basin/ Long Canyon	Scenery, wildlife, cultural and rare plants	13,500
Labyrinth Canyon	Scenery and fish	8,528
Mill Creek Canyon	Scenery, cultural, wildlife, natural systems, fish	13,501
Ten Mile Wash	Cultural, wildlife, natural systems, natural hazards	4,980
Upper Courthouse	Historic, cultural and paleontological, natural systems, rare plants	11,529
Westwater Canyon	Scenery and fish	5,069
White Wash	Natural systems	2,988
Wilson Arch	Scenery	3,700

## **ADDENDUM A: RELEVANCE AND IMPORTANCE CRITERIA**

### ***RELEVANCE***

An area meets the "relevance" criterion if it contains one or more of the following:

1. A significant historic, cultural, or scenic value (including but not limited to rare or sensitive archeological resources and religious or cultural resources important to Native Americans)
2. A fish and wildlife resource (including but not limited to habitat for endangered, sensitive or threatened species, or habitat essential for maintaining species diversity)
3. A natural process or system (including but not limited to endangered, sensitive or threatened plant species; rare, endemic, or relic plants or plant communities which are terrestrial, aquatic, or riparian; or rare geological features)
4. Natural hazards (including but not limited to areas of avalanche, dangerous flooding, landslides, unstable soils, seismic activity, or other dangers that have been determined through the resource management planning process to have become part of a natural process.

### ***IMPORTANCE***

The value, resource, system, process or hazard described above must have substantial significance and values in order to satisfy the "importance" criteria. This generally means that the value, resource, system, process or hazard is characterized by one or more of the following:

1. Has more than locally significant qualities which give it special worth, consequence, meaning, distinctiveness, or cause for concern, especially compared to any similar resource.
2. Has qualities or circumstances that make it fragile, sensitive, rare, irreplaceable, exemplary, unique, endangered, threatened, or vulnerable to adverse change.
3. Has been recognized as warranting protection in order to satisfy national priority concerns or to carry out the mandates of FLPMA.
4. Has qualities which warrant highlighting in order to satisfy public or management concerns about safety and public welfare.
5. Poses a significant threat to human life and safety or to property.

**ADDENDUM B****Table 2. List of ACEC Nominations in Alphabetical Order– Moab RMP**

<b>Nomination</b>	<b>Nominator(s)</b>	<b>Acres of Public Land in Proposed Boundary</b>	<b>Potential ACEC (Yes/No)</b>	<b>Comments</b>
Behind the Rocks	The Nature Conservancy, BLM staff, SUWA	17,836	Yes	Compilation of boundary proposals
Big Triangle	SUWA	Not calculated	No	
Book Cliffs Wildlife Area	BLM Staff, SUWA	304,252	Yes	Compilation of boundary proposals
Canyon Rims	BLM Staff	23,400	Yes	
Castle Valley Critical Deer Winter Range	Grand Canyon Trust	Not calculated	No	
Cisco White-tailed Prairie Dog Complex	Center for Native Ecosystems et al.	125,620	Yes	
Colorado River Corridor, including Richardson Amphitheater, Negro Bill, Cache Valley and Arches East, Sand Flats, Fisher Towers	The Nature Conservancy, BLM Staff, SUWA, Stolfa, Carlson	50,483	Yes	Compilation of boundary proposals
Cottonwood Diamond Watershed	BLM Staff	35,830	Yes	
Dolores Triangle	SUWA	Not calculated	No	
Gemini Bridges/Poison Spider	Carlson, SUWA	Not calculated	No	
Hatch Wash	SUWA	Not calculated	No	
Highway 279 Corridor/Shafer Basin/Long Canyon	BLM Staff, SUWA	13,500	Yes	Compilation of boundary proposals
Highway 313	SUWA	24,859	No	
Labyrinth Canyon	BLM Staff, SUWA	8,528	Yes	Compilation of boundary proposals
Mill Creek Canyon	Mill Creek Partnership, SUWA, BLM Staff	13,501	Yes	Compilation of boundary proposals

**Table 2. List of ACEC Nominations in Alphabetical Order– Moab RMP**

Nomination	Nominator(s)	Acres of Public Land in Proposed Boundary	Potential ACEC (Yes/No)	Comments
Ten Mile Wash	Carlson, SUWA, BLM Staff	4,980	Yes	Compilation of boundary proposals
Upper Courthouse	The Nature Conservancy, BLM Staff	11,529	Yes	Compilation of boundary proposals
Upper Labyrinth	SUWA	3,836	No	
Westwater Canyon	BLM Staff, SUWA	5,069	Yes	Compilation of boundary proposals
White Wash	BLM Staff, SUWA	2,988	Yes	Compilation of boundary proposals
Wilson Arch	BLM Staff	3,700	Yes	
Nominations Combined by Geographical Areas and vary in acreage.				

**Table 3. List of Threats, by Potential ACEC**

Name of Potential ACEC	Threats
Behind the Rocks	Increased motorized recreation use Utility corridors Infrastructure needs, such as cell towers Mineral development Oil and gas development
Bookcliffs Wildlife Area	Oil and gas development Utility corridors and Rights of Way Increased motorized recreation use
Canyon Rims	Oil and gas development Increased motorized recreation use
Cisco White-tailed Prairie Dog Complex	Oil and gas development Increased motorized recreation use Shooting/poisoning of prairie dogs Spread of noxious weeds through surface-disturbing activity Overgrazing of prairie dog habitat

**Table 3. List of Threats, by Potential ACEC**

Name of Potential ACEC	Threats
Colorado River Corridor	Increased motorized recreation use Increased recreation use Oil and gas exploration and production Utility corridors Mineral development
Cottonwood-Diamond Watershed	OHV activity Surface disturbance from utility corridors, or from mineral activity Lack of restriction on commercial recreation users
Highway 279 Corridor/Shafer Basin/Long Canyon	Oil and gas development Increased motorized recreation use Utility corridor development Mineral development
Labyrinth Canyon	Increased motorized recreation use Oil and gas exploration and production Surface mineral activity
Mill Creek Canyon	Increased motorized recreation use Utility corridors/cell towers Oil and gas development Mineral development
Ten Mile Wash	Increased motorized recreation use Oil and gas development
Upper Courthouse	Increased motorized recreation use Utility corridors Oil and gas development Mineral development
Westwater Canyon	Surface mineral exploration Increased motorized recreation use
White Wash	Increased motorized recreation use Oil and gas development
Wilson Arch	Increased motorized recreation use Oil and gas development Utility corridors

**Table 4. Rationale for Designating or Not Designating in the Preferred Alternative, by Potential ACEC**

Name of Potential ACEC	Rationale for Designating (or not) as an ACEC in the Preferred Alternative
Behind the Rocks	Designated in the Preferred Alternative
Bookcliffs Wildlife Area	<p>The Bookcliffs Wildlife Area was not proposed in the preferred alternative. Routine management prescriptions are sufficient to protect the resource or value from risks or threats of damage/degradation. The following standard management prescriptions will be utilized to protect the wildlife, cultural and natural system values from threats of damage or degradation:</p> <ol style="list-style-type: none"> <li>1) A Herd Management Plan will be prepared to protect the unfragmented wildlife habitat in the Bookcliffs</li> <li>2) Stipulations will be placed on oil and gas development to protect wildlife values.</li> <li>3) Motorized activity will be allowed on designated routes only</li> <li>4) The Bookcliffs will be managed as a Special Recreation Management Area to protect primitive recreation values.</li> </ol>
Canyon Rims	<p>The Canyon Rims was not proposed in the preferred alternative. Routine management prescriptions are sufficient to protect the resource or value from risks or threats of damage/degradation The following standard management prescriptions will be utilized to protect the scenic values from threats of damage or degradation:</p> <ol style="list-style-type: none"> <li>1) Canyon Rims will be managed as a Special Recreation Management Area with special emphasis given to its scenic values.</li> <li>2) Stipulations will be placed on oil and gas development to protect scenic values.</li> <li>3) Motorized activity will be allowed on designated routes only.</li> </ol>
Cisco White-tailed Prairie Dog Complex	<p>The Cisco White-tailed Prairie Dog Complex was not proposed in the preferred alternative. Routine management prescriptions are sufficient to protect the resource or value from risks or threats of damage/degradation The following standard management prescriptions will be utilized to protect the wildlife values from threats of damage or degradation:</p> <p>Motorized activity will be allowed on designated routes only.</p> <p>Stipulations will be placed on Oil and gas development to protect prairie dog habitat. Five hundred meter buffer zones of no surface development will be placed around prairie dog colonies.</p> <p>BLM will work with UDWR to prohibit shooting/poisoning of prairie dogs</p> <p>Recognize current prairie dog habitat as the Cisco Desert Wildlife Area</p> <p>Manage grazing to allow for adequate recovery of seed dispersal and plant growth</p>

**Table 4. Rationale for Designating or Not Designating in the Preferred Alternative, by Potential ACEC**

Name of Potential ACEC	Rationale for Designating (or not) as an ACEC in the Preferred Alternative
Colorado River Corridor	<p>The Colorado River Corridor was not proposed in the preferred alternative. Routine management prescriptions are sufficient to protect the resources or values from risks or threats of damage/degradation. The Colorado River Corridor will be managed as the Colorado Riverway SRMA, and the following management prescriptions will be utilized to protect the scenic, fish and wildlife and natural systems: rare plants resources: Stipulations will be placed on oil, gas and mineral development to protect the above values. These stipulations may include no surface occupancy</p> <p>Motorized activity will be allowed only on designated routes.</p> <p>The Endangered Species Act will be employed to protect the endangered fish.</p> <p>Visual Resource Management will include Class I and II VRM within the area to protect the unique scenic values of the area.</p> <p>Recreation activities such as camping will be limited to campgrounds in order to avoid unacceptable impacts to the resources.</p>
Cottonwood-Diamond Watershed	Designated in the Preferred Alternative.
Highway 279 Corridor/Shafer Basin/Long Canyon	Designated in the Preferred Alternative.
Labyrinth Canyon	<p>Labyrinth Canyon was not proposed in the preferred alternative. Routine management prescriptions are sufficient to protect the resource or value from risks or threats of damage/degradation. Labyrinth Canyon will be managed as the Labyrinth Canyon Focus Area within the Labyrinth/Gemini SRMA, and the following management prescriptions will be utilized to protect the scenic and fish values from the threats of damage or degradation:</p> <p>Stipulations will be placed on oil, gas and mineral development to protect scenic values.</p> <p>Motorized activity will be allowed only on designated routes.</p> <p>The Endangered Species Act will be employed to protect the endangered fish.</p>
Mill Creek Canyon	Designated in the Preferred Alternative.
Ten Mile Wash	Designated in the Preferred Alternative.
Upper Courthouse	<p>Upper Courthouse was not proposed in the preferred alternative. Routine management prescriptions are sufficient to protect the resource or value from risks or threats of damage/degradation. Upper Courthouse will be managed within the Labyrinth/Gemini SRMA, and as the Mill Canyon/Upper Courthouse Mountain Biking Focus Area. Special attention will be given to protecting the rare plants found in the area. The following management prescriptions will be utilized to protect the cultural, natural systems and rare plant values from the threats of damage or degradation:</p> <p>Stipulations will be placed on oil and gas development</p> <p>Motorized activity will be allowed on designated routes only.</p>

**Table 4. Rationale for Designating or Not Designating in the Preferred Alternative, by Potential ACEC**

<b>Name of Potential ACEC</b>	<b>Rationale for Designating (or not) as an ACEC in the Preferred Alternative</b>
Westwater Canyon	<p>Westwater Canyon was not proposed in the preferred alternative. Routine management prescriptions are sufficient to protect the resource or value from risks or threats of damage/degradation. Westwater Canyon will be managed as part of the Two Rivers SRMA, and the following management prescriptions will be utilized to protect the scenic and fish values from threats of damage or degradation:</p> <p>Stipulations will be placed on oil, gas and mineral development to protect scenic values.</p> <p>Motorized activity will be allowed only on designated routes.</p> <p>The Endangered Species Act will be employed to protect the endangered fish.</p>
White Wash	<p>White Wash Sand Dunes was not proposed in the preferred alternative. Routine management prescriptions are sufficient to protect the resource or value from risks or threats of damage/degradation. The following standard management prescriptions will be utilized to protect the natural systems values from threats of damage or degradation:</p> <p>Vehicles will be limited to designated roads outside the dune area.</p>
Wilson Arch	<p>Wilson Arch was not proposed in the preferred alternative. Routine management prescriptions are sufficient to protect the resource or value from risks or threats of damage/degradation. The following standard management prescriptions will be utilized to protect the scenic values from threats of damage or degradation:</p> <p>Stipulations will be placed on oil and gas development to protect scenic values.</p> <p>Motorized activity will be allowed on designated routes only.</p>

# **APPENDIX J.**

## **WILD AND SCENIC RIVERS STUDY PROCESS**

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## J.1 INTRODUCTION

The Wild and Scenic Rivers Act, P.L. 90-542, became law on October 2, 1968. It preserves "certain selected rivers" that "possess outstandingly remarkable scenic, recreational, geologic, fish, wildlife, historic, cultural, or other similar values... in their free-flowing condition... for the benefit and enjoyment of present and future generations." Eight rivers or river segments were included as initial components in the National Wild and Scenic Rivers System (National System). Congress and /or the Secretary of the Interior have added 155 rivers or river segments to the National System since then.

Section 5(d)(1) of the Wild and Scenic Rivers Act directs federal agencies to consider the potential for national wild, scenic, and recreational river areas in all planning for the use and development of water and related resources. This review is being conducted as part of the Resource Management Plan (RMP) preparation in the Moab Field Office.

The following documents were utilized in guiding the WSR planning process through the Eligibility/Tentative Classification phase:

- **Interagency Wild and Scenic Rivers Coordination Council.** 1982. Contains various technical papers relating to evaluation of Wild and Scenic Rivers. (See website at: [www.nps.gov/rivers/publications.html](http://www.nps.gov/rivers/publications.html))
- **Interagency Agreement.** On December 13, 1994, the Bureau of Land Management (Utah State Office), the USDA Forest Service (Intermountain Region), and the National Park Service (Rocky Mountain Region) signed an Interagency Agreement. The agreement calls for the three agencies to work cooperatively to define common criteria and processes for use in determining the eligibility and suitability of Utah Rivers for potential inclusion by Congress in the National Wild and Scenic Rivers System. As a result of this agreement, guidance was developed to provide a uniform methodology to be used by the three agencies to obtain consistent results in the wild and scenic eligibility assessments made during planning efforts in the state of Utah. The guidance is titled *Wild and Scenic River Review in the State of Utah, Process and Criteria for Interagency Use* (This document is known as the "Blue Book", due to its blue cover).
- **Wild and Scenic River Review in the State of Utah, Process and Criteria for Interagency Use.** July 1996.
- **Wild and Scenic Rivers Act, P.L. 90-542, as amended.** Congressional legislative direction for Wild and Scenic River planning.
- **Wild and Scenic Rivers – Policy and Program Direction for Identification, Evaluation, and Management, Bureau of Land Management Manual – 8351.** 1992 and changes as of 1993. Establishes BLM policy, program direction, and procedural standards for fulfilling requirements of the Wild and Scenic Rivers Act.

## **J.2 HISTORY OF WILD AND SCENIC RIVER PROCESS – MOAB FIELD OFFICE AREA**

P.L. 90-542 also authorized 27 rivers for study as potential components of the National System. Amendments to the law have brought the total number of studies authorized to 138. One of the studies included the Colorado River segment, from its confluence with the Dolores River, Utah, upstream to a point 19.5 miles from the Utah-Colorado border in Colorado. The Utah portion of the "Study River" falls within the Moab Field Office Area. On December 17, 1976, the Dolores River from its confluence with the Colorado River upstream to Gateway, Colorado was added to the study. This was at the request of Governor Rampton of Utah and Governor Lamm of Colorado, and agreed to by the Secretary of the Interior. The Utah portion of the Dolores River also falls within the Moab Field Office area. The study concluded that the river areas contained outstandingly remarkable scenic, geologic, recreational, and wildlife values. Various segments of the rivers were classified as qualifying for wild, scenic, and recreational designation.

In 1979, the State of Utah conducted an inventory and analysis of the portions of the "Study Rivers" within its boundaries, and deferred making its recommendations regarding designation to the study team. The State of Colorado supported designation of the rivers within its borders. The Bureau of Outdoor Recreation/NPS submitted the 1979 study findings to the Department of Interior. Secretary Watt sent a negative recommendation to President Reagan based upon the cost of scenic easement acquisition and lack of public support for designation, and in 1985, President Reagan sent a negative recommendation for all river segments considered by the study to Congress.

Congressman Howard Nielson of Utah hosted a fact-finding trip in 1987 through Westwater Canyon on the Colorado River. Letters supporting the designation of Westwater Canyon into the National System were submitted to Congressman Nielson by the Western River Guides Association, the Utah Guides and Outfitters, the BLM Multiple-use Advisory Council, the Grand County Travel Council, the Utah Travel Council, the Grand County Commission, the City of Moab, and the Moab Chamber of Commerce. In 1988, The Department of Interior withdrew 4,707.44 acres within Westwater Canyon from surface entry and mining for a period of 5 years to protect recreational, scenic and cultural values. This withdrawal covered the main portion of Westwater Canyon.

That same year, Congress authorized funding under the Land and Water Conservation Act for acquisition of additional land adjacent to the Westwater Ranger Station and for acquisition of land at the Cisco Take-out to provide for public access. However, the Grand County Commission withdrew its support for designation of Westwater Canyon and Governor Bangerter (in a letter to the Grand County Travel Council) deferred taking a position on the designation of Westwater Canyon into the National System until there was local agreement on the issue.

In 1989, The Grand County Commission requested members of the Utah Congressional delegation to designate the 12 miles of the Colorado River within Westwater Canyon into the National System as a Wild River. The Commission letter of support stated that: "There is no doubt that this section of the river more than satisfies the necessary characteristics of this designation and we all feel that you should proceed with all haste."

Congressman Nielson and Senator Garn introduced legislation in 1990 to designate 12 miles of the Colorado River within Westwater Canyon as a Wild River. The bills passed both houses near the end of the 101<sup>st</sup> Congress with the Senate bill including an additional unrelated provision about minerals on public lands. However, as the Senate bill passed only 4 days before the end of the Congress, it was not possible to schedule a conference committee meeting and the legislation died. Congressman Nielson retired at the end of the 101<sup>st</sup> Congress.

In 1995, The Department of Interior withdrew the above-mentioned 4,707.44 acres within Westwater Canyon from surface entry and mining for 50 years, and in 1998, withdrew an additional 3,385.9 acres covering side drainages in Westwater Canyon from surface entry and mining for 20 years.

### J.3 ELIGIBILITY AND TENTATIVE CLASSIFICATIONS

#### J.3.1 SUMMARY OF THE REVIEW PROCESS

A team of specialists from the Moab Field Office, listed below in Table 1, began the Wild and Scenic review process in August of 2002. Team members agreed to use the *Ecological Subregions* (USFS ECOMAP, 1993; as adapted from *Ecoregions of the United States*, R.G. Bailey, 1994). The data was organized according to 4<sup>th</sup> level of Hydrologic Unit Codes (HUC). In order to assure that all potentially eligible rivers were considered, all streams found on 1:100,000 scale maps were reviewed. The rivers from the 1979 study (Colorado and Lower Dolores Rivers) were looked at again in the planning process. Team members used the *Wild and Scenic River Review in the State of Utah, Process and Criteria for Interagency Use*, (July 1996), to guide them through the eligibility process.

**Table 1. Moab Field Office Interdisciplinary Team Members**

Name	Title	Team Responsibility
Marilyn Peterson	Outdoor Recreation Planner	Team Coordinator
Katie Stevens	Outdoor Recreation Planner	Scenery, Recreation, Fish, Wildlife
Bill Stevens	Outdoor Recreation Planner	Scenery, Recreation
Rob Sweeten	Landscape Architect	Scenery
Denice Swanke	Physical Scientist	Geology
Stephanie Ellingham	Natural Resource Specialist	Ecology, riparian
Ann Marie Aubry	Hydrologist	Hydrology, riparian
Donna Turnipseed	Archaeologist	Historic, Cultural
Daryl Trotter	Environmental Protection Spec.	Native Plants, and Ecology
Brent Northrup	Resource Advisor, Lands/Minerals	Planning Coordinator
Russ von Koch	Branch Chief, Recreation	Recreation
Pam Riddle	Biologist	Fish , Wildlife
Raymon Carling	Natural Resource Specialist	Knowledge of Resource Area

Streams were grouped by drainage within each HUC, and evaluated to see if they were free-flowing or not. The next step was to analyze free-flowing drainages for significant river-related resource values or features. These values were compared with values present in similar streams within the Ecological Subregion/sections. Streams or portions of streams with the most significant values, and those with multiple significant values rated the highest for "outstandingly remarkable values" (ORVs). Free-flowing streams with ORVs were given a tentative classification based on the criteria from the *Wild and Scenic River Review in the State of Utah, Process and Criteria for Interagency Use*. These criteria are included in Section J.3.2.4 of this document.

### **J.3.2 STEPS IN THE ELIGIBILITY REVIEW PROCESS**

#### **J.3.2.1 IDENTIFICATION OF POTENTIALLY ELIGIBLE RIVERS**

Rivers to consider were identified from the following sources:

- Nationwide Rivers Inventory (NRI) list, NPS 1995, (Utah modified Oct. 5, 2001)
- American Rivers Outstanding List, May 1991
- American Whitewater Affiliation Nationwide Whitewater Inventory
- 1970 USDA/USDI list, and 1972 list
- A Citizen's Proposal to Protect the Wild Rivers of Utah, 1997
- Those identified in public scoping during RMP process
- Those identified by Federal Agencies, State of Utah, Indian Tribes, local governments, and professional specialists within the BLM Moab Field Office.

The Moab ID Team reviewed all streams found on 1:100,000 maps. A list of the major drainages reviewed is shown in Attachment 1 of this document.

#### **J.3.2.2 CONSIDERATION OF FREE-FLOWING CHARACTER**

All rivers in the Moab Field Office area are free-flowing. Free-flowing is defined [in the Wild and Scenic Rivers Act Section 16(b)] "as applied to any river or section of a river, means existing or flowing in natural condition without impoundment, diversion, straightening, rip-rapping, or other modification of the waterway. The existence, however, of low dams, diversion works, and other minor structures at the time any river is proposed for inclusion in the national wild and scenic rivers system shall not automatically bar its consideration for such inclusion: *Provided*, That this shall not be construed to authorize, intend, or encourage future construction of such structures within the components of the national wild and scenic rivers system."

#### **J.3.2.3 IDENTIFICATION OF OUTSTANDINGLY REMARKABLE VALUES (ORVs)**

For a river to be eligible for inclusion in the National System it must possess one or more Outstandingly Remarkable Values (ORVs). To be determined outstandingly remarkable, resources should be river-related and at least regional in significance. Rare, unique, or exemplary river-related resources are considered. Criteria to use are discussed in the *Wild and Scenic River*

*Review in the State of Utah, Process and Criteria for Interagency Use*, and can be summarized as follows:

- **Scenery:** Diversity of view, Special Features, Seasonal Variations, Cultural Modifications
- **Fish:** Habitat Quality, Diversity of Species, Value of Species, Abundance of fish, Natural Reproduction, Size and Vigor of Fish, Cultural/Historic Importance, Recreational Importance, Access
- **Recreation-Water Oriented:** Length of Season, Diversity of Use, Flow, Character of Run, Scenery/Naturalness, Access, Level of Use, Associated Opportunities, and Attraction.
- **Recreation-General:** Length of Season, Diversity of Use, Experience Quality, Scenery/Naturalness, Access, Level of Use, Associated Opportunities, Attraction, Sites and Facilities
- **Wildlife:** Habitat Quality, Diversity of Species, Abundance of Species, Natural Reproduction, Size and Vigor of Species, Cultural/Historic Importance, Recreational Importance, Access
- **Geologic:** Feature Abundance, Diversity of Features, Educational/Scientific
- **Historic:** Significance, Site Integrity, Educational/Interpretation, Listing/Eligibility
- **Cultural:** Significance, Current Uses, Number of Cultures, Site Integrity, Education/Interpretation, Listing/Eligibility
- **Ecological:** Species Diversity, Ecological Function, Rare Communities, Education/Scientific

Each resource was compared by the interdisciplinary team to other such resources within the region of comparison, using the criteria identified in the *Wild and Scenic River Review in the State of Utah, Process and Criteria for Interagency Use*, and considering the exemplary, rare or unique qualities of each resource, in order to determine regional (or national) significance. Those river segments deemed to have insufficient value were dropped from further consideration.

Ecological Subregions (USFS ECOMAP 1993; as adapted from *Ecoregions of the United States*, R.G. Bailey 1994) are subregions of the physiographic provinces, and were identified as generally well-suited for use as Region(s) of Comparison in Utah (Utah BLM and Forest Service concurrence, May 2002), and were used as the framework for the Moab eligibility review.

According to this classification, *Ecological Sections* define broad areas of similar ecological systems based on regional climate, geomorphology, geology, and drainage networks. These *Ecological Sections* were selected as the reference unit for wild and scenic river evaluations because they provide visible breaks on the landscape and a context for relative consistency in regional comparison of scenic and other resource values. The overall region of comparison used by the Moab Field Office is comprised of the fifteen *Ecological Sections* listed below.

Ecological Section: (Subregion 36:Colorado Semi-Desert)

- Grand Canyon (313A)
- Navajo Canyonlands (313B)
- Painted Desert (313D)

Ecological Section: (Subregion 38: Arizona-New Mexico Mountains Semi-Desert-Open Woodland-Coniferous Forest-Alpine Meadow)

- White Mountain – San Francisco Peaks-Mogollon Rim (M313A)

Ecological Section: (Subregion 43: Southern Rocky Mtn Steppe-Open Woodland Coniferous Forest Alpine Meadow)

- Overthrust Mountains (M331D)
- Uinta Mountains (M332E)
- South Central Highlands (M331G)
- Northern Central Highland and Rock Mtns (M331H)

Ecological Section: (Subregion 47: Intermountain Semi-Desert and Desert)

- Bonneville Basin (341A)
- Northern Canyon Lands (341B)
- Uinta Basin (341C)

Ecological Section: (Subregion 48: Intermountain Semi-Desert)

- Bear Lake (342E)
- Green River Basin (342G)

Ecological Section: (Subregion 49: Nevada-Utah Mountains Semi-Desert- Coniferous Forest–Alpine Meadow)

- Tavaputs Plateau (M341B)
- Utah High Plateaus Mountains (M341C)

The Interdisciplinary (ID) Team subject matter specialists evaluated the ORVs for each of the 248 river segments. Attachment 2 of this document provides the specific ORV descriptions prepared by the ID team specialists for the 29 eligible segments (including 6 segments of the Green River, found eligible by the Price Field Office during its RMP review.)

The ID Team found the remaining 225 river segments to not have outstandingly remarkable river-related values when values were compared regionally or nationally.

### **J.3.2.4 TENTATIVE CLASSIFICATION**

A "Tentative Classification" of Wild, Scenic, or Recreational was determined for all eligible rivers/segments. Tentative classifications are based on the type and degree of human development associated with the river and adjacent land, as they exist at the time of the evaluation. The four key elements are:

1. Water Resources Development
2. Shoreline Development
3. Accessibility
4. Water Quality

Eligible rivers are classified Wild, Scenic, or Recreational based on man's activities. The following sections provide additional information about the character of wild, scenic and recreational river areas.

#### **J.3.2.4.1 WILD RIVER AREAS**

Wild River Areas are defined by the WSRA to include: "Those rivers or sections of rivers that are free of impoundments and generally inaccessible except by trail, with watershed or shorelines essentially primitive and waters unpolluted. These represent vestiges of primitive America."

Management of wild river areas give primary emphasis to protecting the values that make it outstandingly remarkable while providing river-related outdoor recreation opportunities in a primitive setting.

#### **J.3.2.4.2 SCENIC RIVER AREAS**

Scenic river areas are defined by the WSRA to include: "Those rivers or sections of rivers that are free of impoundments, with shorelines or watersheds still largely primitive and shorelines largely undeveloped, but accessible in places by roads."

Management of scenic river areas should maintain and provide outdoor recreation opportunities in a near-natural setting. The basic distinctions between a "wild" and a "scenic" river area are the degree of development, types of land use, and road accessibility. In general, a wide range of agricultural, water management, silvicultural, and other practices or structures could be compatible with scenic river values, providing such practices or structures are carried on in such a way that there is not substantial adverse effect the river and its immediate environment. .

#### **J.3.2.4.3 RECREATIONAL RIVER AREAS**

Recreational river areas are defined by the WSRA to include: "Those rivers or sections of rivers that are readily accessible by road or railroad, that may have some development along their shorelines, and that may have undergone some impoundment or diversion in the past."

Management of recreational river areas gives primary emphasis to protecting the values that make it outstandingly remarkable while providing river-related outdoor recreation opportunities in a recreational setting.

Recreational classification is a determination of the level of development and does not prescribe or assume recreation development or enhancement. Management of recreational river areas can and should maintain and provide outdoor recreation opportunities. The basic distinctions between a "scenic" and a "recreational" river area are the degree of access, extent of shoreline development, historical impoundment or diversion, and types of land use. In general a variety of agricultural, water management, silvicultural, recreational, and other practices or structures are compatible with recreational river values, providing such practices or structure are carried on in such a way that there is not substantial adverse effect on the river and its immediate environment.

Criteria for the classification of river areas as wild, scenic and recreational are summarized in Table 2.

**Table 2. Classification Criteria for Wild, Scenic, and Recreational River Areas**

<b>Attribute</b>	<b>Wild</b>	<b>Scenic</b>	<b>Recreational</b>
Water Resources Development	Free of impoundment.	Free of impoundment.	Some existing impoundment or diversion. The existence of low dams, diversions, or other modifications of the waterway is acceptable, provided the waterway remains generally natural and riverine in appearance.
Shoreline Development	Essentially primitive. Little or no evidence of human activity. The presence of a few inconspicuous structures, particularly those of historic or cultural value, is acceptable. A limited amount of domestic livestock grazing or hay production is acceptable. Little or no evidence of past timber harvest. No ongoing timber harvest.	Largely primitive and undeveloped. No substantial evidence of human activity. The presence of small communities or dispersed dwellings or farm structures is acceptable. The presence of grazing, hay production, or row crops is acceptable. Evidence of past or ongoing timber harvest is acceptable, provided the forest appears natural from the riverbank.	Some development. Substantial evidence of human activity. The presence of extensive residential development and a few commercial structures is acceptable. Lands may have been developed for the full range of agricultural and forestry uses. May show evidence of past and ongoing timber harvest.
Accessibility	Generally inaccessible except by trail. No roads, railroads or other provision for vehicular travel within the river area. A few existing roads leading to the boundary of the river area is acceptable.	Accessible in places by road. Roads may occasionally reach or bridge the river. The existence of short stretches of conspicuous or longer stretches of inconspicuous roads or railroads is acceptable.	Readily accessible by road or railroad. The existence of parallel roads or railroads on one or both banks as well as bridge crossings and other river access points is acceptable.
Water Quality	Meets or exceeds federal criteria for federally approved state standards for aesthetics, for propagation of fish and wildlife normally adapted to the habitat of the river, and for primary contact recreation (swimming), except where exceeded by natural conditions.	No criteria prescribed by the Act. The Federal Water Pollution Control Act Amendments of 1972 have made it a national goal that all waters of the United States be made fishable and swimmable. Therefore, rivers will not be precluded from scenic or recreational classification because of poor water quality at the time of their study, provided a water quality improvement plan exists or is being developed in compliance with applicable federal and state laws.	

### **J.3.2.5 COORDINATION WITH LOCAL GOVERNMENTS, AGENCIES, TRIBES, ORGANIZATIONS, AND THE PUBLIC**

In keeping with the coordinating MOU, a wild and scenic river presentation was made by the governor's representative to the Grand County Council and the San Juan County Commission on September 27, 2002 in conjunction with the Manti-La Sal National Forest WSR eligibility process. The San Juan County Public Lands Council held a meeting at the San Juan County Courthouse on August 20, 2003. At that meeting, BLM Moab presented preliminary eligibility findings on segments in the Moab Field Office within San Juan County. The Grand County Council held a meeting on September 10, 2003. At that meeting, the BLM Moab presented preliminary eligibility findings on segments within Grand County to the Council.

Preliminary eligibility findings for the Moab Field Office were made available for public review and comment in September 2003. State and local governments, Native American Tribes, organizations, cooperating federal agencies, and members of the public were asked to review the preliminary findings, provide comments related to the findings, and to identify any potentially eligible rivers or information that had been overlooked.

All comments received were carefully reviewed. Documentation of the BLM response to comments is on file at the BLM Moab Field Office.

On February 23, 2004 a team meeting was held to make final determination on eligibility in light of the review comments that were received. Representatives from the State of Utah, Grand and San Juan Counties participated in the meeting.

### **J.3.2.6 ELIGIBILITY OF RIVER(S)/SEGMENTS EVALUATED**

Attachment 3 of this document identifies the 13 rivers (29 segments) within the Moab Field Office area determined to be eligible, i.e., free-flowing with at least one river-related ORV.

## **J.4 SUITABILITY STUDY**

The 29 eligible segments will be further reviewed as to their suitability for congressional designation into the National System. This will be done within the framework of the ongoing planning process for the Moab Resource Management Plan (RMP), including the development of an Environmental Impact Statement.

The purpose of the suitability step of the study process is to determine whether eligible rivers would be appropriate additions to the national system by considering tradeoffs between corridor development and river protection. Suitability considerations include the environment and economic consequences of designation and the manageability of a river if it were designated by Congress.

The Wild and Scenic River Suitability evaluation is designed to answer the following questions:

- Should the river's free-flowing character, water quality, and outstandingly remarkable values (ORVs) be protected? OR, are one or more other uses important enough to warrant doing otherwise?
- Will the river's free-flowing character, water quality, and ORVs be protected through designation? And, is wild and scenic river designation the best method for protecting the river corridor and its values?

In answering these questions, the benefits and impacts of WSR designation must be evaluated, and alternative protection methods considered.

The environmental impact statement for the resource management plan evaluates impacts that would result if the eligible rivers were determined suitable and managed to protect their free-flowing nature, tentative classification, and outstandingly remarkable values. It also addresses impacts that would result if the eligible rivers are not determined suitable and their values are not provided protective management. The range of alternatives include the No Action alternative A, which does not address suitability and leaves rivers eligible, and Alternative B, which finds all eligible rivers suitable. Alternatives C, and D may find some of eligible rivers as suitable.

Alternative tentative classifications are also evaluated. "Whenever an eligible river segment has been tentatively classified, e.g., as wild, other appropriate alternatives may provide for designation at another classification level (scenic or recreational). There is not another classification alternative for rivers tentatively classified as recreational. As long as a river segment is under study, it must be afforded protection at the tentative classification level it was given when determined eligible, even if another classification is considered as an alternative in the RMP" (BLM Manual 8351.33). For river segments determined nonsuitable in the RMP, the river shall be managed in accordance with the management objectives as outlined in the RMP.

In addition to the impact analysis addressed by alternative, the following suitability considerations are applied to each eligible river listed in Attachment 3.

- Characteristics which do or do not make the area a worthy addition to the national system
- Status of land ownership and use in the area
- Uses, including reasonably foreseeable potential uses, of the area and related waters, which would be enhanced, foreclosed, or curtailed if the area were included in the national system of rivers; and the values which could be foreclosed or diminished if the area is not protected as part of the national system.
- Interest by federal, tribal, state, local, and other public entities in designation or non-designation of a river, including the extent to which the administration of the river, including the costs thereof, can be shared by the above mentioned entities.
- Ability of the agency to manage and protect the values of a river if it were designated, and other mechanisms to protect identified values other than Wild and Scenic Rivers designation.
- The estimated cost, if necessary, of acquiring lands, interests in lands, and administering the area if it were included in the national system.
- The extent to which administration costs will be shared by local and state governments.

The following table lists the interdisciplinary meetings held during the suitability step of this study process.

**Table 3. Suitability Study Interdisciplinary Meetings**

Date	Attending	
August 30, 2004	Evan Lowry, San Juan County	Marilyn Peterson, Recreation
	Will Stokes, School Trust Lands	Katie Stevens, Recreation
	Val Payne, State of Utah	Stephanie Ellingham, Riparian
	Bill Stevens, Recreation	Dave Vaughn, Grand County
	Maggie Wyatt, Moab Field Office	
	Mgr.	

Public comment received on the Draft EIS/RMP will be used to improve the documentation of the suitability considerations presented in Attachment 4 of this document, as well as the documentation of impacts that would result from the various alternatives. The actual determination of whether or not each eligible river segment is suitable is a decision that will be made in the Record of Decision for the Moab RMP.

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**WILD AND SCENIC RIVER STUDY PROCESS  
ATTACHMENTS**

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**Attachment 1. Major Drainages Reviewed, Moab Field Office**

Drainage Name	HUC Number and Name
<b>GREEN RIVER DRAINAGES</b>	
<b>14060005</b>	
<b>Lower Green - Desolation Canyon. Utah</b>	
Green River (Coal Creek to Canyonlands National Park Boundary) reviewed by the Price Field Office	
Coal Creek	
Poverty Canyon	
Rattlesnake Canyon	
Flat Nose George Canyon	
Horse Canyon	
Black Canyon	
Trail Canyon	
<b>14060008</b>	
<b>Lower Green. Utah</b>	
Butler Canyon	
Three unnamed drainages (east side of river below Butler)	
Tusher Canyon	
Lefthand Tusher	
Winter Camp Canyon	
Bobby Canyon	
Naylon Canyon	
Left and Right Fork	
Wild Cow Canyon	
Righthand Tusher	
Ute Canyon	
Shower Bath Canyon	
Browns Wash	
Coal Canyon	
Horse Canyon	
Right Hand Horse Canyon	
Middle Horse Canyon	
Little Grand Wash	
Solitude Wash	
Floy Wash (Floy Canyon)	
Dry	
Left-hand Three-forks	
Right-hand Three-forks	
Corral Wash	
Crooked Wash	
Salt Wash	
White Wash	

**Attachment 1. Major Drainages Reviewed, Moab Field Office**

<b>Drainage Name</b>	<b>HUC Number and Name</b>
Red Wash	
Ten-Mile Canyon	
Trail Canyon	
Crescent Wash	
Crescent Canyon	
Right-hand Crescent Canyon	
Thompson Wash	
Blaze Canyon	
Sego Canyon	
Right-hand Thompson	
Spring Canyon	
Hell Roaring Canyon	
Dubinky Wash	
Mineral Canyon	
North Fork	
South Fork	
Taylor Canyon (NPS)	
Unnamed tributary (North of Park)	
The Big Draw (NPS & BLM in upper end)	
Rough Canyon	
<b>COLORADO RIVER DRAINAGES</b>	
	<b>14010005</b>
	<b>Colorado Headwaters-Plateau. Utah</b>
Salt Creek (in Colorado)	
Prairie Canyon (in Colorado)	
Hells Hole Canyon (mostly on State Land)	
Cottonwood Canyon	
Jim Canyon	
	<b>14030001</b>
	<b>Westwater Canyon. Colorado, Utah</b>
Colorado River (state line to Dolores River)	
Bitter Creek	
Bryson Wash - Bryson Canyon	
San Arroyo Wash	
Winter Camp Draw	
San Arroyo Canyon	
Trap Canyon	
Bar X Wash - Bar X Canyon	
Wild Cow Wash	
Middle Fork	

**Attachment 1. Major Drainages Reviewed, Moab Field Office**

Drainage Name	HUC Number and Name
East Fork	
Jones Canyon (Utah, Colorado)	
Westwater Creek (Top end of Westwater is at WW point The top of this drainage has Ten Mile Creek which flows north to Willow Creek and into the Green River downstream of where the White River enters the Green. Most of this area is State lands or another Resource area.)	
Coal Draw	
Sulphur Creek - Sulphur Canyon	
Antone Wash	
Dry Canyon	
East Canyon	
Hideout Canyon	
Brusher Canyon	
Middle Canyon	
Bull Canyon	
Dark Canyon	
Maverick Canyon	
Rough Canyon	
Hay Canyon	
Horse Canyon	
Preacher Canyon	
Hunt Canyon	
Pipeline Canyon	
Little Hole	
Little Dolores River	
Marble Canyon	
Star Canyon	
Cottonwood Wash	
Buck Canyon Wash - Buck Canyon	
Long Canyon Wash - Long Canyon	
Spring Canyon	
Coal Canyon	
Diamond Canyon	
Flume Canyon	
Bull Canyon	
Horse Canyon	
Lower Twin Canyon	
Spruce Canyon	
Upper Twin Canyon	
Tepee Canyon	
Cherry Canyon	
Bear Canyon	

**Attachment 1. Major Drainages Reviewed, Moab Field Office**

<b>Drainage Name</b>	<b>HUC Number and Name</b>
	<b>14030001</b>
	<b>Westwater Canyon. Colorado, Utah</b>
Agate Wash (100% private land)	
Danish Wash	
Dry Gulch	
Coates Creek	
Spring Canyon	
Renegade Creek - Triangle Canyon	
Ryan Creek	
Cisco Wash	
Corral Canyon Wash	
Big Hole Wash	
Strychnine Wash	
Dry Canyon	
Sagers Wash	
Owl Draw	
San Arroyo	
Nash Wash	
Calf Canyon	
Bull Canyon	
Right-hand	
Left-hand	
Left-hand Nash	
Pinto Wash	
Saleratus Wash	
Dugout Wash	
Monument Wash	
Bootlegger Wash	
	<b>14030005</b>
	<b>Upper Colorado - Kane Springs. Colorado, Utah</b>
Colorado River (Dolores River to Canyonlands NP)	
Yellow Jacket Canyon (Bull Canyon)	
Trail Canyon	
Tub Canyon	
Onion Creek	
Professor Creek - Mary Jane Canyon (FS & BLM)	
Bunchground Canyon (FS)	
Stearns Gulch	
Ida Gulch	
Castle Creek (FS & BLM)	

**Attachment 1. Major Drainages Reviewed, Moab Field Office**

<b>Drainage Name</b>	<b>HUC Number and Name</b>
Placer Creek (FS & BLM)	
Porcupine Draw (Private Land & FS, no BLM)	
Pinhook Creek (Private Land & FS)	
Spring Branch (Private Land & FS)	
Salt Wash (Arches NP & BLM)	
Salt Valley Wash (NPS)	
Cache Valley Wash (NPS & BLM)	
Winter Camp Wash (NPS & BLM)	
Lost Spring Canyon (NPS - BLM)	
Fish Seep Draw	
Clover Canyon (NPS)	
Yellow Cat Wash (BLM)	
Fin Canyon (NPS & BLM)	
Cottonwood Wash (BLM)	
Mine Draw (BLM)	
Jackass Canyon	
Unnamed Canyon near Big Bend Campground	
Negro Bill Canyon	
Courthouse Wash (NPS & BLM)	
Seven Mile Canyon (BLM)	
South Fork of Seven Mile	
Klondike Wash	
Bartlett Wash	
Tusher Canyon	
Mill Canyon	
Mill Creek (becomes South Fork of Mill Creek)	
South Fork Mill Creek (Private, State, BLM, FS) (also Mill Creek Gorge on Forest)	
Horse Creek (FS)	
Wet Fork (FS) (05)	
Dry Fork (FS)	
Pack Creek (Private, State, BLM, FS)	
Brumley Creek (BLM & FS)	
Dorry Canyon (FS) (no BLM)	
Hell Canyon (FS) (no BLM)	
North Fork Mill Creek (BLM, State, Private, FS)	
Rill Creek (BLM)	
Burkholder Draw (BLM & FS)	
Pritchett Canyon	
Kane Springs (West Pole Canyon) (BLM & FS)	
Hunters Canyon (BLM)	

**Attachment 1. Major Drainages Reviewed, Moab Field Office**

Drainage Name	HUC Number and Name
Trough Springs Canyon (BLM)	
Hatch Wash (BLM)	
Trout Water Canyon (BLM)	
West Coyote Creek (to Pole Canyon & Coyote Springs on Forest)	
West Coyote Wash (BLM)	
Lucky Basin (FS)	
Three Mile Creek	
Little Water Creek	
Hatch Ranch Canyon (BLM & Private)	
Windwhistle Draw	
Joe Wilson Canyon	
Hook and Ladder Gulch	
Mail Station Wash (Monticello FO)	
Lopez Gulch	
Sandstone Draw	
Big Indian Dry Wash (Monticello FO)	
Big Indian Wash	
Mule Shoe Canyon (BLM)	
Black Canyon (BLM & FS)	
Cottonwood Canyon (BLM & FS)	
Buck Hollow (BLM & FS)	
Gold Bar Canyon	
Little Canyon	
Day Canyon	
Bull Canyon	
Dry Fork Bull Canyon	
Long Canyon	
Shafer Canyon (NPS & BLM)	
East-fork Shafer Canyon	
<b>DOLORES RIVER DRAINAGES</b>	
	<b>14030004</b>
	<b>Lower Dolores. Colorado, Utah</b>
Dolores River (state line to Colorado River)	
Waring Canyon	
Cowskin Canyon	
Buckhorn Draw	
Cottonwood Canyon	
Line Canyon	
Bridge Canyon	

**Attachment 1. Major Drainages Reviewed, Moab Field Office**

<b>Drainage Name</b>	<b>HUC Number and Name</b>
	<b>14030004</b>
	<b>Lower Dolores. Colorado, Utah</b>
Granite Creek	
Fisher Creek (and Cottonwood Canyon of Fisher Creek)	
Burro Canyon (BLM)	
Thompson Canyon (BLM)	
Hideout Canyon (BLM, State, & headwaters on FS)	
Unnamed fork opposite Hideout Cyn (BLM & FS)	
Bull Canyon (FS & BLM)	
Beaver Creek (BLM & FS)	
Sids Draw (FS)	
Bear Creek (FS)	
Lumsden Canyon (2 mile of headwaters in Utah, majority in Colorado where it flows into the Dolores River)	
<b>DOLORES RIVER DRAINAGES (SOUTH OF LA SAL MTNS. - FLOW INTO THE DOLORES RIVER IN COLORADO)</b>	
	<b>14030002</b>
	<b>Upper Dolores. Colorado, Utah</b>
La Sal Creek (FS, BLM, State)	
Three unnamed tributaries (originate on Ray Mesa)	
Pole Springs Canyon (FS)	
Hangdog Creek (FS)	
Two Mile Creek (FS)	
Trough Draw & Hop Creek (FS)	
Note: The drainages listed above are near Vanadium Queen Mine, very little on BLM in Utah.	
Lion Canyon (BLM [Colorado & Utah], FS) less than ¼ miles in Utah BLM. FS no ORVs.	
East Coyote Wash (Utah and Colorado) [Greasewood Canyon]	
Island Canyon (BLM)	
Snyder Water Canyon (BLM)	
Horsethief Canyon (BLM)	
Spring Canyon (BLM)	
Lisbon Canyon (BLM)	
Unnamed tributaries of Coyote Wash (BLM) (headwaters FS, Pine Ridge)	
McIntyre Canyon (Utah & Colorado) [flows to Dolores River through Colorado]	
Little Indian Canyon	

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**Attachment 2: Outstandingly Remarkable Values Of Eligible Rivers**

River/Segment Name and Other Information	Description Of Values Present
<p><b>COLORADO RIVER SEGMENT (1)</b></p> <p><b>CO/UT state-line to Westwater Canyon (river mile 125)</b></p> <p><b>Tentative Classification:</b> Scenic</p> <p><b>Reason for Tentative Classification:</b> Occasional road, farm and ranch development present.</p> <p><b>BLM Free-flowing River Miles:</b> 1</p> <p><b>Reason for Free-flowing Determination:</b> Natural Flow</p>	<p><b>Scenery</b></p> <p>Scenery is regionally significant. At the state line, the Chinle, Wingate, Kayenta, Entrada and the Summerville formations begin to dip below the Colorado River. By the time the Colorado River reaches the Westwater Ranger Station, it flows through a valley formed by the Morrison formation. The views along the river are some of the longest available in all of Utah. Beyond the stark rolling brown hills developed on the Morrison Formation are distant vistas east towards the Uncompahgre Plateau, whose dark-green forest of pinyon and juniper are interrupted by pink bands of rock. To the west, the barren hills interrupt the view in only a few miles. Downstream, through the green of the cottonwoods, is the imposing up fault cliff front that marks the beginning of Westwater Canyon. This adds an element of distance to the visual experience. There are a variety of shapes and patterns that are interesting, and compared to other sections of the river, the open nature is a dominant feature. The water adds motion and a variety of lines and surface textures. The color is focused on the riparian vegetation in contrast with the soils of the riverbank and the formations in the middle ground and background. The adjacent scenery greatly enhances the experience along this stretch of river. The area is distinctive. All of these elements combined add up to make this segment of the river visually outstanding and remarkable within the Colorado Plateau.</p> <p><b>Recreation</b></p> <p>Recreation is regionally significant. Westwater Ranger station is the conclusion of a two or three day flat- water boating trip on the Colorado River. The absence of rapids makes this trip a popular choice for boaters of all experience levels. Camping and hiking opportunities add to the variety offered for this trip. Restrictions on river use commence at the Westwater Ranger station, but the peaceful flat-water continues from the ranger station to the gates of Westwater Canyon proper. This stretch is boatable by most types of craft year round. Large numbers of recreationists enjoy this highly accessible floating opportunity. The flat-water stretches of the Colorado River are an outstanding and remarkable recreation opportunity, rare in this region, and very popular with the visitors.</p> <p><b>Wildlife</b></p> <p>Wildlife is regionally significant and nationally significant. Only a major drainage corridor such as the Colorado River can provide a rich variety of habitat for many types of wildlife species including, avian, terrestrial and aquatic. It is important habitat for ungulates such as mule deer and elk. This reach of the Colorado River Corridor provides habitat for the Mexican spotted owl and Southwestern willow flycatcher, both federally listed on the Endangered Species List. The Southwestern willow flycatcher is directly reliant on habitat that offers free standing water, riparian plant species, vegetative cover, and water related insects to nest and raise their young. In addition, many other types of raptors, including peregrine falcon, wintering bald eagles, and golden eagle, utilize the riverine corridor. Shorebirds and songbirds depend on the</p>

**Attachment 2: Outstandingly Remarkable Values Of Eligible Rivers**

River/Segment Name and Other Information	Description Of Values Present
	<p>river, and it is vitally important to neotropical migrants. The importance of the Colorado River to animals of many species cannot be overestimated. Within the arid southwest all riparian habitat is vital to all forms of wildlife, due to the lack of available free water. Water availability and the vegetative cover within this riparian area offer needed drinking water, microclimates, food, and cover to wildlife and the various life stages of many species. The Colorado River, the lifeblood of the region, offers the finest riparian habitat in the entire area.</p> <p>This reach of the Colorado River contains 1 of only 4 known nesting sites for the Bald Eagle (<i>Haliaeetus leucocephalus</i>) within the entire State of Utah. (Two of these four nests are along the Westwater corridor of the Colorado River.) Nesting bald eagles are a rare occurrence in the State of Utah and are afforded federal protection under the Bald Eagle Act. Nesting bald eagles are reliant on riparian corridors to nest and raise their young, making these nesting sites river related. This bald eagle nest site is monitored by both state and federal agencies annually and has been active for over 15 years. This reach of the river is regionally and nationally significant, as a rare and unique occurrence of this federally protected bird can be found.</p> <p><b>Fish</b></p> <p>Fish are regionally and nationally significant. The Colorado River is the home of four endangered fish species, the Colorado Pikeminnow, the Razorback Sucker, the Humpback Chub, and the Bonytail Chub. It is considered Critical Habitat by U.S. Fish and Wildlife Service for these endangered species. This reach of the Colorado also offers habitat and spawning grounds for the Colorado Pikeminnow and Humpback Chub, making this reach of the river nationally important, as these fish are endemic to the Colorado River System. Due to the limited development through this reach of the river, these rare fish species are able to spawn and reproduce, allowing for recovery of these endemic, unique species. The habitat condition and lack of development is important to species recovery of this river related resource.</p> <p>Utah Sensitive Species identified in this segment include the Flannelmouth Sucker and the Roundtail Chub, making this reach of the river regionally important, as it provides sensitive habitat to these declining species.</p> <p><b>Cultural</b></p> <p>Historical events are significant on a regional and national level. The Colorado River has evidence of significant occupation and use by both prehistoric and historic peoples. Native Americans consider the Colorado River and its major flowing tributaries as sacred places making it nationally significant to native peoples. Archaeological sites have the potential to provide information concerning the use of the river corridor by prehistoric groups as well as homestead and railroad construction activities. The variety and number of archaeological and historical sites include alcoves, rock shelters, lithic scatters, rock art, and open campsites, as well as European homesteads and railroad camps and grades. The Denver and Rio Grande Western Railroad segment from</p>

**Attachment 2: Outstandingly Remarkable Values Of Eligible Rivers**

River/Segment Name and Other Information	Description Of Values Present
	<p>the Utah state-line to the settlement of the community of Westwater (contained in this segment) and beyond was completed in 1883. The opening of the railroad line caused a flurry of growth in Utah. Placer mining also left its mark on the Westwater segment of the Colorado River in the late twentieth century.</p> <p><b>Ecological</b></p> <p>Ecologically, the Colorado River is the fifth longest river system in the nation (approximately 1,400 miles long) and drains approximately 242,000 square miles of watershed. The Colorado River Basin includes portions of seven states and Mexico and provides water to millions of people. The Colorado River is adjacent to the Pacific Flyway and provides important habitat for many migrating neo-tropical, shorebird, and waterfowl species. The aquatic, wetland and riparian habitats that are found in the Colorado River corridor provide for the existence of many wildlife species. The river corridor contains vegetative islands that serve as important refuge and nesting habitats for many migrant waterfowl species including the Canada goose, plovers, etc. The river corridor contains some of the last remnant populations of river otters, as well as nesting and forage habitat for endangered bald eagle, endangered Mexican spotted owl, endangered Southwestern willow flycatcher, sensitive bats, as well as 4 species of endangered native fish endemic only to the Colorado River system. While ecologically important, the Colorado River is not in high quality condition due to channel morphology, exotic/invasive species (tamarisk, Russian olive, Russian knapweed). Even with reduced health and diversity of the system, the ecological resources of the Colorado River are outstandingly remarkable on an international, national and regional basis.</p>
<p><b>COLORADO RIVER SEGMENT (2)</b></p> <p><b>River mile 125 (Westwater Canyon) to river mile 112</b></p> <p><b>Tentative Classification:</b> Wild</p> <p><b>Reason for Tentative Classification:</b> No roads or development present.</p> <p><b>BLM Free-flowing River</b></p>	<p><b>Scenery</b></p> <p>Westwater Canyon is the most scenic, dramatic, and untouched portion of the Colorado River within the entire Colorado Plateau, making scenery an outstanding remarkable value of regional and national significance. The extremely hard rock through which the river flows has a number of effects. It narrows the upper stretch of the river, which is only about 35 feet wide in places. The resulting rapids contribute to Westwater Canyon's international reputation. This constriction has led to a variety of different polished and fluted rock formations up to the high water line. Above that, the rock is angular and interpenetrated by light colored dikes. It has been cut to a depth of about 200 feet in the vicinity of Marble and Star Canyons, creating an extremely narrow, claustrophobic gorge that lies within an outer gorge of flaring red sandstone walls stained with long black streamers of desert varnish. In places these upper walls have been covered by mudflows from the infrequent rains, leaving a braided pattern.</p> <p>Near Skull Rapid the characteristic impression of Westwater Canyon is strongest. Such is the roar of the river in the time of high water that conversation must be carried on by shouting. The red rocks, hundreds of feet above the river contrast dramatically with the black rocks of its inner gorge. There is almost no shore but for occasional spills of</p>

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River/Segment Name and Other Information	Description Of Values Present
<p><b>Miles:</b> 11.8</p> <p><b>Reason for Free-flowing Determination:</b> Natural Flow</p>	<p>massive talus boulders. In contrast to the rapids on other large western rivers, those of Westwater have curious fountains, boils, and whirlpools caused by the narrowness, depth, and wall projection. At its lower end, the river is again lined by Wingate Sandstone, Entrada, and then by the slopes and scattered spall of the Morrison Formation.</p> <p>The landform of this segment is exceptional and full of detail and variety. The reduction of vegetation is a stark contrast to other segments of the river. The water is the most dominant feature in the landscape. The color is dominated by the black rock in the canyon and its intensity and polished nature are distinctive. This is definitely a unique and memorable view.</p> <p><b>Recreation</b></p> <p>Recreation is regionally significant. A trip through Westwater Canyon of the Colorado River is a premier one or two-day whitewater boating experience in a Wilderness Study Area. Other recreational opportunities provided on this stretch of river include viewing unique and beautiful scenery, hiking side canyons (especially the Little Dolores hike to the waterfall), and wilderness camping. Self-outfitted users must obtain a permit, and a limited number of boaters are allowed to launch each day. Eighteen commercial outfitters market trips both nationally and internationally. This stretch is boatable by most types of whitewater craft year round. Limited access adds to the primitive character of this stretch of river, enhancing its recreational and economic values. Westwater Canyon is one of the premier recreation experiences available within the Colorado Plateau and is marketed as such.</p> <p><b>Wildlife</b></p> <p>Only along the Colorado River is there such a rich variety of habitat for many types of wildlife species including, avian, terrestrial and aquatic. It is important habitat for ungulates such as mule deer and elk. This reach of the Colorado River Corridor offers habitat for the Mexican spotted owl and Southwestern willow flycatcher, both federally listed on the Endangered Species List. The Southwestern willow flycatcher is directly reliant on habitat that offers free standing water, riparian plant species, vegetative cover, and water related insects to nest and raise their young. Many types of raptors, including peregrine falcons, ferruginous hawks, wintering bald eagles, and golden eagles, utilize the riverine corridor. Shorebirds and songbirds depend on the river, and it is important to neotropical migrants. Northern river otter also depend on the river. The importance of the Colorado River habitat to animals of many species cannot be overestimated. In addition to the above mentioned fowl, snowy egrets are a common sight in the fall and turkey vultures in the spring. Within the arid southwest all riparian habitat is vital to all forms of wildlife, due to the lack of available free water. Water availability and the vegetative cover available within riparian areas offer needed drinking water, microclimates, food, and cover to wildlife and the various life stages of many species. The Colorado River is a regionally significant resource to many wildlife species.</p> <p>This reach of the Colorado River is adjacent to 2 of only 4 known</p>

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River/Segment Name and Other Information	Description Of Values Present
	<p>nesting sites for the Bald Eagle (<i>Haliaeetus leucocephalus</i>) within the entire State of Utah. (Two of these four nests are in segments one and three of the Colorado River Corridor.) The proximity of this river segment to both of these nests makes this reach an important hunting territory for the eagles. Nesting bald eagles are a rare occurrence in the State of Utah and are afforded federal protection under the Bald Eagle Act. Nesting bald eagles are reliant on riparian corridors to nest and raise their young, making these nesting sites river related. This reach of the river is regionally and nationally significant, as a rare and unique occurrence of this federally protected bird can be found.</p> <p><b>Fish</b></p> <p>The Colorado River is the home of four endangered fish species, the Colorado Pikeminnow, the Razorback Sucker, the Humpback Chub, and the Bonytail Chub. It is spawning ground for both the Colorado Pikeminnow and the Humpback Chub. It is considered Critical Habitat by U.S. Fish and Wildlife Service for these endangered species and makes this river nationally important, as these fish are endemic to the Colorado River System. Lack of development throughout this reach of the river offers these rare fish species prime habitat for spawning, reproduction, and larval development, allowing for recovery of these endemic, unique species. The habitat condition and lack of development is important to species recovery of this river related resource. Utah Sensitive species identified here include the Flannelmouth Sucker, the Bluehead Sucker and the Roundtail Chub. This reach of the river is regionally and nationally important, as it provides excellent quality habitat for these declining species.</p> <p><b>Cultural</b></p> <p>This segment of the Colorado River is culturally significant at both regional and national levels. There is evidence of significant occupation and use by both prehistoric and historic peoples.</p> <p>Native Americans consider the Colorado River and its major flowing tributaries as sacred spaces, making it nationally significant to native peoples. During prehistoric times Archaic peoples occupied the Colorado River Corridor, utilizing the available resources for food, clothing, shelter, and art. A wide variety of sites attest to this long-term occupation including alcoves, rock shelters, lithic scatters, rock art, and open campsites. Prehistoric sites have the potential to provide information concerning the use of the river corridor by Archaic and Fremont Culture.</p> <p>European homesteads and mining operations have also left a legacy in this section of the canyon. Because of the multitude of human activities that have taken place in the canyon, this section is historically significant on a regional basis.</p> <p><b>Geology/Hydrology</b></p> <p>The geology/hydrology component is of regional significance. A small section of the Uncompahgre Plateau extends westward as the downward-plunging nose of the ancient Uncompahgre Uplift, one of the</p>

**Attachment 2: Outstandingly Remarkable Values Of Eligible Rivers**

River/Segment Name and Other Information	Description Of Values Present
	<p>most significant contributors to current Colorado Plateau topography. Here the Colorado River has down cut several hundred feet to create magnificent Westwater Canyon, where the geologic processes are interesting, highly visible, and outstandingly remarkable. The rock sequence runs from Precambrian (1.7 billion years old) to Cretaceous (150 million years old), with a 1.5 billion year nonconformity. Westwater and the inner gorge of the Grand Canyon are the only places on the Colorado Plateau where Precambrian rocks are exposed. From the Little Dolores River, the view upriver to the northwest is, in ascending order: Precambrian granites, Triassic Chinle Formation and Wingate Sandstone, Jurassic Kayenta Formation, Entrada Sandstone and Morrison Formation. From the same position looking upriver to the southeast, the strata are more steeply dipped and the deposits above the Kayenta have been eroded away.</p> <p>At the head of Westwater Canyon, the Little Dolores fault is a textbook example of a reverse fault where Jurassic Entrada Sandstone overlies Precambrian crystalline rocks, with a 500 foot displacement. In the narrow, polished inner gorge where the river encounters the resistant black rock of the Uncompahgre Complex, the Precambrian rock weathers extremely slowly and the growth of vegetation is restricted to benches and to small cracks and depressions where sandy soil has been deposited by wind or water. In the heart of Westwater Canyon where hard bedrock is not scoured during run-off events, the river may rise 10-15 feet with huge increases in velocity. Individual rapids lengthen and sometimes merge, with waves often reaching 8 feet high. The high water period of May-June produces the greatest range in monthly flows.</p> <p>Geologic sights of interest include the 200 foot gneiss cliffs above Skull Rapid and an abandoned meander at Big Hole where the river shortened its course by 2 miles, and down cut an additional 300 feet. Between Big Hole and Cottonwood Wash the Precambrian rocks pass under the river which then makes a gradual return to a meandering stream with large floodplains dominated by stands of tamarisk, cottonwood and willow. Chinle, then Wingate, Kayenta and eventually the Morrison are exposed at river level.</p> <p><b>Ecological</b></p> <p>The ecological values within this segment of the Colorado River are the same as described for Segment 1, and are of international, national and regional importance.</p>
<p><b>COLORADO RIVER SEGMENT (3)</b></p> <p><b>River mile 112 to confluence with the Dolores River</b></p> <p><b>Tentative Classification:</b></p>	<p><b>Recreation</b></p> <p>Recreation opportunities are regionally and nationally significant on this river segment. The terrain through which the Colorado River flows opens up into a broader valley at Rose Ranch. The slow moving water in this short stretch of river allows boaters to reflect on their trip through Westwater before taking out at Cisco. This stretch is boatable by most types of whitewater craft year round. The majority of use on this stretch is from those boaters finishing a Westwater trip. Some choose to extend their trip on the flat-water. This flat-water section is popular with commercial trips catering to national and international visitors, due to the</p>

**Attachment 2: Outstandingly Remarkable Values Of Eligible Rivers**

River/Segment Name and Other Information	Description Of Values Present
<p style="text-align: center;">Scenic</p> <p><b>Reason for Tentative Classification:</b> Occasional roads, farm and ranch development present.</p> <p><b>BLM Free-flowing River Miles:</b> 11.2</p> <p><b>Reason for Free-flowing Determination:</b> Natural Flow</p>	<p>pleasant scenery, lack of crowds, and wildlife viewing opportunities.</p> <p>Below Cisco this peaceful stretch of river is characterized by broad open expanses and long views, with the dark blue and snow-capped La Sals providing a scenic contrast to the arid bluffs and dense riparian vegetation along the stream. It is popular with boaters using small capacity vessels, beginning paddlers, and with those looking for solitude. Camping, hunting, hiking, wildlife viewing and fishing are other outstanding recreational opportunities available on this stretch of river. The Colorado River, the signature feature of the Colorado Plateau, provides outstanding and remarkable recreation in this stretch of the river. This section is boatable by most types of craft year round. It is particularly popular with youth groups, due to its non-technical nature. In addition, Utah State Highway 128 (a Utah Scenic Byway and part of the Prehistoric Highway National Scenic Byway) parallels the last three miles of this segment, providing a high quality scenic driving recreation opportunity.</p> <p><b>Wildlife</b></p> <p>Only the Colorado River provides such a rich variety of habitat for many types of wildlife species, both avian and terrestrial. It is important habitat on a regional basis for ungulates such as mule deer and elk. This reach of the Colorado River Corridor provides habitat for the Southwestern willow flycatcher, a federally listed species on the Endangered Species List. The Southwestern willow flycatcher is directly reliant on habitat that offers free standing water, riparian plant species, vegetative cover, and water related insects to nest and raise their young. Many types of raptors, including peregrine falcons, ferruginous hawks, Swainson's hawks, wintering bald eagles, and golden eagles, utilize the riverine corridor. Shorebirds and songbirds depend on the river, and it is important to neotropical migrants. All migrant birds that utilize this reach of the river are afforded federal protection under the Migratory Bird Treaty Act. The importance of the Colorado River to animals of many species cannot be overestimated. Within the arid southwest all riparian habitat is vital to all forms of wildlife, due to the lack of available free water. Water and the vegetative cover available within riparian areas offers needed drinking water, microclimates, food, and cover to wildlife and the various life stages of many species. The Colorado River is the ultimate example of a riparian area providing the lifeblood to a diversity of species.</p> <p>This reach of the Colorado River contains 1 of only 4 known nesting sites for the Bald Eagle (<i>Haliaeetus leucocephalus</i>) within the entire State of Utah. (Two of these four nests are within segments one and three of the Colorado River Corridor.) Nesting bald eagles are a rare occurrence in the State of Utah and are afforded federal protection under the Bald Eagle Act. Nesting bald eagles are reliant on riparian corridors to nest and raise their young, making these nesting sites river related. These two bald eagle nest sites are monitored by both state and federal agencies annually and have been active for over 15 years. This reach of the river is regionally and nationally significant, as a rare and unique occurrence of this federally protected bird can be found.</p>

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River/Segment Name and Other Information	Description Of Values Present
	<p><b>Fish</b></p> <p>The Colorado River is the home of four endangered fish species, the Colorado Pikeminnow, the Razorback Sucker, the Humpback Chub, and the Bonytail Chub. It is spawning grounds for the Colorado Pikeminnow and the Humpback Chub making this river nationally important, as these fish are endemic to the Colorado River System. It is considered Critical Habitat by U.S. Fish and Wildlife Service for these endangered species. Due to the limited development through this reach of the river, these rare fish species are able to spawn and reproduce, allowing for recovery of these endemic, unique species. The habitat condition and lack of development is important to species recovery of this river related resource. Utah Sensitive species identified here include the Flannelmouth Sucker, the Bluehead Sucker and the Roundtail Chub, making this reach of the river regionally important, as it provides sensitive habitat to these declining species.</p> <p><b>Cultural</b></p> <p>Human occupation of this section of the Colorado River extends from the early Archaic to Numic speaking populations. Native Americans consider the Colorado River and its major flowing tributaries as sacred places. The variety and number of archaeological and historical sites adjacent to the river embrace the occupation of prehistoric and historic peoples. Sites include alcoves, rock shelters, lithic scatters, rock art, and open campsites. Prehistoric sites have the potential to provide information concerning the use of the river corridor by Archaic and Formative Cultures. Likewise, historic people capitalized on the river's water resources by constructing ditches to feed agricultural fields and budding homesteads. A major water pumping station was built in this stretch of river in order to transport water from the river to the station at Cisco for the Denver and Rio Grande Railroad. The Colorado River has been the focus of human habitation from prehistoric to historic times, making it the cultural hub of this region.</p> <p><b>Ecological</b></p> <p>The ecological values within this segment of the Colorado River are the same as described for Segment 1, and are of international, national and regional importance.</p>
<p><b>COLORADO RIVER SEGMENT (4)</b></p> <p><b>Confluence with the Dolores River to river mile 49 near Potash Plant</b></p> <p><b>Tentative Classification:</b> Recreational</p>	<p><b>Scenery</b></p> <p>This segment of the river is a very popular scenic float, as well as a beautiful scenic drive. Visitors from all over the nation, as well as from all over the world, consider it one of the most scenic resources in the entire United States. It contains some of the most outstanding scenery in the region. There are several signs of human habitation including State Highway 128 (a Utah Scenic Byway and part of the Prehistoric Highway National Scenic Byway), several ranches and agricultural treatments, and the historic Dewey Bridge, constructed in 1916. Sheer cliffs dominate, and gradually rise on each side. The Entrada formation appears, and is topped with Morrison formation deposits. The rock at river level is Navajo Sandstone. The rock formations become</p>

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River/Segment Name and Other Information	Description Of Values Present
<p><b>Reason for Tentative Classification:</b> Substantial evidence of human activity, roads, farm and ranch development present.</p> <p><b>BLM Free-flowing River Miles:</b> 32.6</p> <p><b>Reason for Free-flowing Determination:</b> Natural Flow</p>	<p>increasingly detailed and striking. The river enters the Richardson Amphitheater and internationally recognized formations such as Fisher Towers, The Titan, The Rectory, The Priest and the Nuns, Castle Rock, and many unnamed spires and formations come into view. The river enters a tight canyon where the Moenkopi Formation is exposed. The river winds through large boulders and steep cliffs and the immense meander of Big Bend is very prominent. The geologic strata once again descend, with the Moenkopi going underground and the Wingate Sandstone cliffs dropping to a lower level, and dominating the view. The river is now bordered by Arches National Park on the north and the Sand Flats Recreation Area on the south. The steep sheer cliffs on the south with prominent displays of desert varnish, and the outstanding petrified dunes and spires of Arches National Park on the north dominate the formations from Negro Bill Canyon to U. S. Highway 191.</p> <p>The landform of this segment is the most diverse display of outstanding geology along the river, as well as one of the most remarkable displays in the entire world. The open valleys and tight canyons and rock formations make this area outstanding and remarkable based on the geology and landform alone. The vegetation is richly riparian and the water is a dominant feature. The color of this segment is rich with pleasing contrasts between the varied colors of red and brown in the landform, and the green and gold of the vegetation, which change colors with the seasons. This segment of the Colorado River is truly outstanding and remarkable on a national level; its scenery is internationally recognized.</p> <p>At "The Portal" the river cuts through the Wingate Sandstone. At this point the river canyon narrows and the banks become heavily vegetated. The cliffs along this section are massive and imposing. The Navajo Sandstone at river level on both sides of the river has eroded into near vertical cliffs. On the south side of the river are the fins and domes of Navajo Sandstone. The Kayenta Sandstone appears at river level with the Wingate Sandstone disappearing. The outstanding geology of this segment adds greatly to the visual quality and several arches and prominent features are visible from the river.</p> <p><b>Recreation</b></p> <p>This stretch of the Colorado River is popular for flat water boating as well as mild whitewater boating. It is floatable year round, but most boaters make use from May to mid-September. Outfitters market this trip both nationally and internationally. Youth and family groups enjoy this stretch of river due to the mild character and great views. Most of this stretch is flat with a ten-mile stretch of class II-III rapids. Views vary from the wide valley near Castle Valley to the tight red Wingate canyon. State Highway 128 parallels the river but does not detract from the float trip. Camping, fishing, hiking, climbing, and horseback riding are popular activities in the river corridor. The BLM has developed campgrounds along the river, and private landowners have built resorts along the river. The recreation opportunities are enjoyed by one half million people per year.</p> <p>Downstream from Moab the Colorado River is popular for flat-water</p>

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	<p>boaters, motorized and non-motorized. Jet boats shuttle canoe trips from the confluence of the Green and Colorado River in Canyonlands National Park back to Moab using this stretch. Some boaters canoe to the confluence, and are motored back to Moab. It is floatable year round, but most boaters make use from May to mid-September. Outfitters market this trip both nationally and internationally. This spectacular Wingate canyon is the gateway to Canyonlands National Park. Roads parallel both sides of this stretch of river but do not detract from the float trip. Camping, fishing, climbing, and hiking are popular activities in the river corridor. The recreation opportunities are outstanding and remarkable within the region, as well as nationally. The BLM has developed campgrounds along the river.</p> <p><b>Wildlife</b></p> <p>Only the Colorado River has important wildlife habitat for a variety and diversity of species, both avian and terrestrial. The Colorado provides crucial habitat for raptors, including the bald eagle and the peregrine falcon. Wintering geese and ducks depend on the Colorado, as do all types of shorebirds and songbirds. Great Blue Herons are commonly seen. All migrant birds that utilize this reach of the river are afforded federal protection under the Migratory Bird Protection Act. This reach of the Colorado River Corridor offers habitat for Mexican spotted owl and Southwestern willow flycatcher, both federally listed on the Endangered Species List. The Southwestern willow flycatcher is directly reliant on habitat that offers free standing water, riparian plant species, vegetative cover, and water related insects to nest and raise their young.</p> <p>Only along the Colorado River, can as great a diversity of terrestrial species survive. The river corridor supports diverse species such as deer, coyote, beaver, river otter, and desert bighorn sheep. This segment of the Colorado is particularly important habitat for the survival of the desert bighorn sheep. The importance of the Colorado River corridor as wildlife habitat within this region cannot be underestimated. Within the arid southwest all riparian habitat is vital to all forms of wildlife, due to the lack of available free water. Water and the vegetative cover available within riparian areas offer needed drinking water, microclimates, food, and cover to wildlife and the various life stages of many species. There is no more important riparian habitat within the region than the Colorado River corridor.</p> <p>The proximity of this stretch to the Nature Conservancy's Matheson Wetlands adds to its habitat value by offering protected wildlife corridors and reducing habitat fragmentation. Within the arid southwest all riparian habitat is vital to all forms of wildlife, due to the lack of available free water. Only the Colorado River can offer this quality of habitat.</p> <p><b>Fish</b></p> <p>The Colorado River is the home of four endangered fish species, the Colorado Pikeminnow, the Razorback Sucker, the Humpback Chub, and the Bonytail Chub. This reach of the Colorado is spawning grounds for the Colorado Pikeminnow, and the Razorback Sucker, and possibly the Bonytail. It is considered Critical Habitat by U.S. Fish and Wildlife</p>

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	<p>Service for these endangered species, making this river nationally important, as these fish are endemic to the Colorado River System. Lack of development throughout this reach of the river offers these rare fish species prime habitat for spawning, reproduction, and larval development, allowing for recovery of these endemic, unique species. The habitat condition and lack of development is important to species recovery of this river related resource. Utah sensitive species identified here include the Flannelmouth Sucker, the Bluehead Sucker and the Roundtail Chub, making this reach of the river regionally important, as it provides sensitive habitat to these declining species.</p> <p><b>Cultural</b></p> <p>The Colorado River has evidence of significant occupation and use by both prehistoric and historic peoples. Native Americans consider the Colorado River and its major flowing tributaries as sacred places making it nationally significant to native peoples. The variety and number of archaeological and historical sites adjacent to the river embrace the occupation of prehistoric and historic peoples. Sites include alcoves, rock shelters, lithic scatters, rock art, and open campsites, as well as European homesteads. Prehistoric sites have the potential to provide information concerning the use of the river corridor by Archaic, Fremont and Anasazi Cultures as well as Numic speaking peoples.</p> <p>As travel between the southwest and the Pacific coast increased, early travelers and traders utilized fords and crossings along the Colorado River. The Dewey Bridge, completed in 1916, opened up both sides of the Colorado River to private and commercial traffic. The road up the Colorado River, including the Dewey Bridge, later became the basis for State Highway 128. The Dewey Bridge is unique in that it is the longest suspension bridge in Utah and was listed on the National Register of Historic Places on July 12, 1984.</p> <p><b>Geology</b></p> <p>Geology is on display along the Colorado River corridor, because nowhere are rocks better exposed than along its sheer, bare walls. It is here that geologists come to see evidence of the principle of uniformitarianism; that the processes of erosion and deposition that are active on the surface of the earth today have also been active in the geologic past. Unique to the Colorado Plateau is the lack of a marked unconformity at the systemic boundary between rocks of the Paleozoic and Mesozoic Eras; the uppermost of the former, of Permian age, and the lowermost of the latter, of Triassic Age, are structurally conformable. Also unique to this part of the Colorado Plateau are structural features known as collapsed salt anticlines. When under differential pressure, evaporite minerals flow toward the crests of anticlines, which are parts of folds first susceptible to ground water. The minerals are dissolved and the overlying rocks collapse along gravity faults. Such faults occur and can be seen at Salt Wash, Cache Valley, Castle Valley and Fisher Valley all located along this segment. In the area of Salt Wash a conglomerate anomaly occurs which some have correlated to the Shinarump Conglomerate of the Chinle Formation. The origin of this conglomerate is not well understood. Unusual sedimentary structures</p>

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	<p>may be observed in the Dewey Bridge Member of the Entrada Sandstone whose type locality is where Dewey Bridge crosses the Colorado River. The intricate crenulations in this unit are neither the result of movements in the earth's crust nor do they correspond with folds in the underlying and overlying formations, but rather they were formed because they were saturated with water and were not lithified when the overlying sands were deposited. Throughout this corridor several seeps, alcoves and arches of varying sizes can be seen and excellent examples of entrenched meanders abound. This geologic process is uniquely exposed along the Colorado River.</p> <p>As the Colorado River flows downstream from US Highway 191 it crosses the collapsed Moab Valley salt anticline and the Moab fault zone. The crossing is a paradox in that the river cuts across the valley rather than flowing through it - this indicates that the pattern of the Colorado River and its meanders were established before the valley existed. The core of the anticline is represented by an exposure of the Paradox Formation as a punky residue of gypsum and anhydrite from which soluble salts have been leached near the Portal, where the river enters another canyon. The extensive low area beside the river, the Matheson Wetlands, occurs because of the subterranean solution of salt. Vertical displacement along the Moab fault zone is several thousand feet. Traveling downstream is at first like traveling forward in time, as younger and younger rocks reach river level, abruptly at first and then more gradually after the Navajo Sandstone appears. About 3 river miles downstream from the Portal, the river crosses the axis of the Kings Bottom Syncline and the rock sequence is reversed as if traveling backward in time through the Kayenta Formation, Wingate Sandstone, Chinle, Mossback and Moenkopi Formations, which rise gently on the side of the Kane Creek Anticline to Jackson Bottom. Many cliffs in this river corridor are covered with desert varnish, a complex patina of clay, iron hydroxide and manganese oxide deposited by bacterial action.</p> <p>Jackson Hole is a classic textbook example of an abandoned meander. The river course was shortened by about 3 miles when the Jackson Hole meander was abandoned. The Permian Lower Cutler Beds (once reported as the type locality for the no-longer recognized Elephant Canyon Formation) are exposed at river level. Petrified wood, fossil corals, bryozoans, brachiopods and fusilinids occur with great frequency in this formation. Chinle and Wingate sandstones overlie the Cutler.</p> <p>Due to the diversity and abundance of features, the educational and scientific values described above, the values found along segment 4 of the Colorado River were found to be outstanding regionally and nationally.</p> <p><b>Ecological</b></p> <p>The ecological values within this segment of the Colorado River are the same as described for Segment 1, and are of international, national and regional importance.</p>

**Attachment 2: Outstandingly Remarkable Values Of Eligible Rivers**

River/Segment Name and Other Information	Description Of Values Present
<p><b>COLORADO RIVER SEGMENT (5)</b></p> <p><b>River mile 44.5 to mile 38.5 at State land boundary</b></p> <p><b>Tentative Classification:</b> Scenic</p> <p><b>Reason for Tentative Classification:</b> Primitive roads and some evidence of mining activity present within ¼ mile river corridor. (This development is not visible from the river).</p> <p><b>BLM Free-flowing River Miles:</b> 6.1</p> <p><b>Reason for Free-flowing Determination:</b> Natural Flow</p>	<p><b>Scenery</b></p> <p>The Colorado River cuts through the Kane Creek Anticline, and the colors and layering of the sedimentary rocks are outstanding. The landform in this section is outstanding within the Colorado Plateau, with vertical cliffs and prominent features such as arches and spires adding to the already rich rock strata. The water is a dominant feature and adds motion and a variety of surfaces. The color of the area is rich in contrast and the adjacent scenery greatly enhances the visual quality. This segment is distinctive and the addition of arches and other outstanding features adds to the scarcity of this section. The river flows through the outstanding geology at the base of Dead Horse Point State Park. The large meander of the river at this point has been the focus of many a post card and scenic photo as the river carves through multiple layers of geology that has cut into the Wingate, Kayenta, and Navajo Sandstone. The river continues in this outstanding vein all the way to Canyonlands National Park boundary. The vegetation is a variety of riparian species that create interesting forms and patterns. The water is a dominant feature, and adds motion and a variety of surfaces. The color contrasts are strong, and the effects of the adjacent scenery are high. All of these elements when combined make the values in this section outstanding and remarkable within the physiographic region. The scenery in this segment is internationally recognized as unique and outstanding. The Colorado River is the signature feature of the region known as the Colorado Plateau, and is nationally significant.</p> <p><b>Recreation</b></p> <p>Downstream from Moab the Colorado River is popular for flat-water boaters, motorized and non-motorized. Jet boats shuttle canoe trips from the confluence of the Green and Colorado River in Canyonlands National Park back to Moab using this stretch. Some boaters canoe to the confluence, and are motored back to Moab. It is floatable year round, but most boaters make use from May to mid-September. Outfitters market this section as part of a Cataract Canyon trip both nationally and internationally. This spectacular Wingate canyon is the gateway to Canyonlands National Park. Camping, fishing, and hiking are popular activities in the river corridor. Below the Potash Plant, the Wingate cliffs give way to a broad view of the Shafer Basin. A few primitive roads are present within the river corridor but are not very noticeable from the river. .</p> <p><b>Wildlife</b></p> <p>Only the Colorado River has such important wildlife habitat for a variety and diversity of species, both avian and terrestrial. The Colorado provides crucial habitat for raptors, including the bald eagle and the peregrine falcon. Wintering geese and ducks depend on the Colorado, as do all types of shorebirds and songbirds. Great Blue Herons are commonly seen. All migrant birds that utilize this reach of the river are afforded federal protection under the Migratory Bird Treaty Act. This reach of the Colorado River Corridor offers habitat for Mexican spotted owl and Southwestern willow flycatcher, both federally listed on the</p>

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River/Segment Name and Other Information	Description Of Values Present
	<p>Endangered Species List. The Southwestern willow flycatcher is directly reliant on habitat that offers free standing water, riparian plant species, vegetative cover, and water related insects to nest and raise their young.</p> <p>Only along the Colorado River, can as great a diversity of terrestrial species survive. The river corridor supports diverse species such as deer, coyote, beaver, river otter, and desert bighorn sheep. This segment of the Colorado is particularly important habitat for the survival of the desert bighorn sheep. The importance of the Colorado River corridor as wildlife habitat within this region cannot be underestimated. Within the arid southwest all riparian habitat is vital to all forms of wildlife, due to the lack of available free water. Water and the vegetative cover available within riparian areas offer needed drinking water, microclimates, food, and cover to wildlife and the various life stages of many species. There is no more important riparian habitat within the region than the Colorado River corridor.</p> <p><b>Fish</b></p> <p>The Colorado River is the home of four endangered fish species, the Colorado Pikeminnow, the Razorback Sucker, the Humpback Chub, and the Bonytail Chub. This reach of the Colorado includes spawning grounds for the Colorado Pikeminnow, and the Razorback Sucker, and possibly the Bonytail. It is considered Critical Habitat by U.S. Fish and Wildlife Service for these endangered species, making this river nationally important, as these fish are endemic to the Colorado River System. Lack of development throughout this reach of the river offers these rare fish species prime habitat for spawning, reproduction, and larval development, allowing for recovery of these endemic, unique species. The habitat condition and lack of development is important to species recovery of this river related resource. Utah sensitive species identified here include the Flannelmouth Sucker, the Bluehead Sucker and the Roundtail Chub, making this reach of the river regionally important, as it provides sensitive habitat to these declining species.</p> <p><b>Cultural</b></p> <p>The Colorado River has evidence of significant occupation and use by both prehistoric and historic peoples. Native Americans consider the Colorado River and its major flowing tributaries as sacred places, making it nationally significant to native peoples. The variety and number of archaeological and historical sites adjacent to the river embrace the occupation of prehistoric and historic peoples. Sites include alcoves, rock shelters, lithic scatters, rock art, and open campsites, as well as European homesteads. Prehistoric sites have the potential to provide information concerning the use of the river corridor by Archaic, Fremont and Anasazi Cultures as well as Numic speaking peoples.</p> <p><b>Ecological</b></p> <p>The ecological values within this segment of the Colorado River are the same as described for Segment 1, and are of international, national and regional importance.</p>

**Attachment 2: Outstandingly Remarkable Values Of Eligible Rivers**

River/Segment Name and Other Information	Description Of Values Present
<p><b>COLORADO RIVER SEGMENT (6)</b></p> <p><b>From State land at river mile 37.5 to mile 34 at Canyonlands National Park boundary</b></p> <p><b>Tentative Classification:</b> Wild</p> <p><b>Reason for Tentative Classification:</b> No development present within the river corridor.</p> <p><b>BLM Free-flowing River Miles:</b> 3.8</p> <p><b>Reason for Free-flowing Determination:</b> Natural Flow</p>	<p><b>Scenery</b></p> <p>The Colorado River cuts through the Kane Creek Anticline, and the colors and layering of the sedimentary rocks are outstanding. The landform in this section is outstanding within the Colorado Plateau, with vertical cliffs and prominent features such as arches and spires adding to the already rich rock strata. The water is a dominant feature and adds motion and a variety of surfaces. The color of the area is rich in contrast and the adjacent scenery greatly enhances the visual quality. This segment is distinctive and the addition of arches and other outstanding features adds to the scarcity of this section. The river flows through the outstanding geology at the base of Dead Horse Point State Park. The large meander of the river at this point has been the focus of many a post card and scenic photo as the river carves through multiple layers of geology that has cut into the Wingate, Kayenta, and Navajo Sandstone. The river continues in this outstanding vein all the way to Canyonlands National Park boundary. The vegetation is a variety of riparian species that create interesting forms and patterns. The water is a dominant feature, and adds motion and a variety of surfaces. The color contrasts are strong, and the effects of the adjacent scenery are high. All of these elements when combined make the values in this section outstanding and remarkable within the physiographic region. The scenery in this segment is internationally recognized as unique and outstanding. The Colorado River is the signature feature of the region known as the Colorado Plateau, and is nationally significant.</p> <p><b>Recreation</b></p> <p>Downstream from mile 37.5, the Colorado River is popular for flat-water boaters, motorized and non-motorized. Jet boats shuttle canoe trips from the confluence of the Green and Colorado River in Canyonlands National Park back to Moab using this stretch. Some boaters canoe to the confluence, and are motored back to Moab. It is floatable year round, but most boaters make use from May to mid-September. Outfitters market this trip both nationally and internationally. This spectacular Wingate canyon is the gateway to Canyonlands National Park. Camping, fishing, and hiking are popular activities in the river corridor. Below the Potash Plant, the Wingate cliffs give way to a broad view of the Shafer Basin. No roads dissect this peaceful stretch of the Colorado. Outfitters market this section as part of a Cataract Canyon trip both nationally and internationally.</p> <p><b>Wildlife</b></p> <p>Only the Colorado River has such important wildlife habitat for a variety and diversity of species, both avian and terrestrial. The Colorado provides crucial habitat for raptors, including the bald eagle and the peregrine falcon. Wintering geese and ducks depend on the Colorado, as do all types of shorebirds and songbirds. Great Blue Herons are commonly seen. All migrant birds that utilize this reach of the river are afforded federal protection under the Migratory Bird Treaty Act. This reach of the Colorado River Corridor offers habitat for Mexican spotted owl and Southwestern willow flycatcher, both federally listed on the</p>

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River/Segment Name and Other Information	Description Of Values Present
	<p>Endangered Species List. The Southwestern willow flycatcher is directly reliant on habitat that offers free standing water, riparian plant species, vegetative cover, and water related insects to nest and raise their young.</p> <p>Only along the Colorado River, can as great a diversity of terrestrial species survive. The river corridor supports diverse species such as deer, coyote, beaver, river otter, and desert bighorn sheep. This segment of the Colorado is particularly important habitat for the survival of the desert bighorn sheep. The importance of the Colorado River corridor as wildlife habitat within this region cannot be underestimated. Within the arid southwest all riparian habitat is vital to all forms of wildlife, due to the lack of available free water. Water and the vegetative cover available within riparian areas offer needed drinking water, microclimates, food, and cover to wildlife and the various life stages of many species. There is no more important riparian habitat within the region than the Colorado River corridor.</p> <p><b>Fish</b></p> <p>The Colorado River is the home of four endangered fish species, the Colorado Pikeminnow, the Razorback Sucker, the Humpback Chub, and the Bonytail Chub. This reach of the Colorado includes spawning grounds for the Colorado Pikeminnow, and the Razorback Sucker, and possibly the Bonytail. It is considered Critical Habitat by U.S. Fish and Wildlife Service for these endangered species, making this river nationally important, as these fish are endemic to the Colorado River System. Lack of development throughout this reach of the river offers these rare fish species prime habitat for spawning, reproduction, and larval development, allowing for recovery of these endemic, unique species. The habitat condition and lack of development is important to species recovery of this river related resource. Utah sensitive species identified here include the Flannelmouth Sucker, the Bluehead Sucker and the Roundtail Chub, making this reach of the river regionally important, as it provides sensitive habitat to these declining species.</p> <p><b>Cultural</b></p> <p>The Colorado River has evidence of significant occupation and use by both prehistoric and historic peoples. Native Americans consider the Colorado River and its major flowing tributaries as sacred places making it nationally significant to native peoples. The variety and number of archaeological and historical sites adjacent to the river embrace the occupation of prehistoric and historic peoples. Sites include alcoves, rock shelters, lithic scatters, rock art, and open campsites, as well as European homesteads. Prehistoric sites have the potential to provide information concerning the use of the river corridor by Archaic, Fremont and Anasazi Cultures as well as Numic speaking peoples.</p> <p><b>Ecological</b></p> <p>The ecological values within this segment of the Colorado River are the same as described for Segment 1, and are of international, national and regional importance.</p>

**Attachment 2: Outstandingly Remarkable Values Of Eligible Rivers**

River/Segment Name and Other Information	Description Of Values Present
<p><b>UPPER COTTONWOOD CANYON</b></p> <p><b>Source near Cottonwood Point to private land boundary, including the first half mile of Horse Canyon.</b></p> <p><b>Tentative Classification:</b> Scenic</p> <p><b>Reason for Tentative Classification:</b> Occasional road present.</p> <p><b>BLM Free-flowing River Miles:</b> 10.4</p> <p><b>Reason for Free-flowing Determination:</b> Natural Flow</p>	<p><b>Scenery</b></p> <p>Cottonwood Canyon and its tributaries support richly scenic riparian vegetation. Although the canyon suffered a large fire in 2002, the stands of vegetation in the canyon bottom were largely unburned. Beaver ponds abound in the canyon; the resulting bodies of water become focal viewing points. The canyon walls provide high relief and rich color combinations, especially when combined with the riparian ribbon in the canyon bottom. Cottonwood Canyon and tributaries support diversity of vegetation types, resulting in interesting patterns, textures, color and contrast. Cottonwood Canyon has remarkable and outstanding scenery within the Tavaputs Plateau region. It is the most scenic of all the Book Cliffs Canyons, and is regionally significant.</p> <p><b>Wildlife</b></p> <p>Cottonwood Wash and its tributaries provide rich wildlife habitat, diversity and abundance for a variety of species. Located within the Book Cliffs, the primitive and remote nature of these canyons provides for rare enjoyment of natural wildlife ecosystems. Richly riparian, this perennial system supported (pre-fire) an extensive network of beaver ponds, which create habitat for many other types of wildlife, including neo-tropical migrants such as special status Southwestern willow flycatcher, blue grosbeak, common yellow-throat, and numerous bats. The system is home to large numbers of predators including mountain lion and bear, as well as game species such as elk and deer, all of which are strong attractors for hunting and commercial guiding activities. Grazing permits in the canyons were purchased by the Rocky Mountain Elk Foundation to protect elk and mule deer winter range, offering winter and birthing grounds that provide excellent vegetation for high quality forage and escape cover. These canyons are also proximal to breeding habitat for Gunnison sage-grouse, a Utah Species of Concern, now extirpated in the area. Lack of grazing is an important criterion for repairing damaged and abandoned breeding grounds for this species. The extent, diversity, abundance, and recreational importance of wildlife species and habitats existing within Cottonwood Wash and its tributaries provides for Outstandingly Remarkable wildlife values within the region. Cottonwood Wash is an outstanding wildlife resource within the lower 48 states within the most important contiguous wildlife habitat, the Book Cliffs.</p> <p><b>Ecological</b></p> <p>Cottonwood Wash is a major tributary to the Colorado River, which contains a watershed of approximately 131,000 acres. The headwaters include a network of tributary drainages that originate in the upper plateaus of the Book Cliffs at elevations near 11,000 feet above sea level. Prior to the summer of 2002, the stream system was characterized by a series of beaver ponds that created lush high-quality wetlands, unique within the Colorado Plateau region due to their excellent condition and extent. Over 10 miles and 600 acres of wetland marshes developed within Cottonwood Wash and its major tributary, Diamond Creek, serve to create and recharge perennial flows within the system.</p>

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	<p>Mature overstory cottonwood, willow and box elder communities formed a riparian corridor along extensive cattail and sedge marshes. While the condition of the aquatic habitat improved during late-seral development of wetland marsh sites, fish diversity remained low due to fragmentation from other stream sources. The stream system was identified as a potential refuge site for re-establishment as a native fishery. The ecological diversity of Cottonwood Wash provides for diversity of wildlife, including common occurrence of bear, mountain lion, deer, elk, wild turkey and beaver, as well as non-game birds and bats. During 2002, a catastrophic wildfire scorched most of the upper canyon system; however remnant riparian resources and capabilities remain to re-establish a high quality ecological ecosystem. Cottonwood Wash contains Outstandingly Remarkable wetlands and ecological diversity within the region.</p>
<p><b>ONION CREEK SEGMENT (1)</b></p> <p><b>Source to Onion Creek Road</b></p> <p><b>Tentative Classification:</b> Wild</p> <p><b>Reason for Tentative Classification:</b> No roads or development present.</p> <p><b>BLM Free-flowing River Miles:</b> 3.5</p> <p><b>Reason for Free-flowing Determination:</b> Natural Flow</p>	<p><b>Scenery</b></p> <p>This drainage flows through some of the most spectacular and fascinating rock formations found anywhere in the United States. Onion Creek originates in a hilly maze of springs that create a stunning wetland filled with an outstanding diversity of vegetation that contrasts with the multi colored landscape. It flows through Paradox salts at the upper end of the Fisher Valley, and the relatively flat meadowlands of upper Fisher Valley. As the water cuts through the red hued Cutler sediment it contrasts with the gray of the Paradox salts. The lofty rim land of Fisher Mesa dominates the southwestern skyline, and the high plateau above Fisher Valley is one arm of the immense North Beaver Mesa. Onion Creek exits from the cut in the Paradox salt extrusion and continues in the dark red Cutler formation. Narrow grottoes and side canyons invite exploration. The landform of this segment is outstanding. The presence of water is a dominant element. The color contrasts are vivid and change at all times of the day, and during each season of use. The adjacent scenery greatly enhances the visual quality, and this is a one of a kind, and memorable area. Onion Creek is remarkable and outstanding among the tributaries of the Colorado River.</p> <p><b>Geology</b></p> <p>Onion Creek is uniquely entrenched in a canyon surrounded by steep canyon walls eroded back from the drainage. The dissected and rugged landscape between Onion Creek and the canyon walls is comprised of the Permian Cutler Formation. The Triassic Moenkopi and Chinle Formations form the slopes at the base of the cliffs. Jurassic Wingate and Kayenta form the canyon walls. Above the canyon walls the terrain consists of broad benches which slope to the northeast and are incised by the Waring Canyon and Cottonwood Canyon drainages. The northeast rim of Onion Creek, at an elevation of about 6800', is the highest canyon wall in the vicinity. There is about 1800' of relief between the bottom of Onion Creek and the canyon rim. Onion Creek flows along the axis of a collapsed salt anticline, and the sedimentary rocks dip to the northeast along the flank of the anticline. The Onion Creek anticline is part of a large diapiric salt structure in which the Salt Valley, Cache Valley, Fisher Valley and Sinbad Valley anticlines are also uplifted by</p>

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River/Segment Name and Other Information	Description Of Values Present
	<p>salt doming. This is significant in that it is the longest anticline in the Paradox Basin, with a greater number of structural variations than other regional anticlines. This makes Onion Creek a regionally significant example of geological processes.</p> <p><b>Ecological</b></p> <p>The headwaters of Onion Creek emerge from a large wetland meadow along the base of Fisher Valley. Dense and diverse wetland meadow vegetation and large scattered cottonwoods line the headwater drainages and provide recharge for perennial flow through the lower canyon. The meadow remains largely undisturbed and provides a diverse natural high elevation meadow site rare in the region. The meadow ecology provides for uncommon native wildlife habitat. The rarity of this site provides for Outstandingly Remarkable ecological values within the region.</p>
<p><b>ONION CREEK: SEGMENT (2)</b></p> <p><b>Beginning of Onion Creek Road to Colorado River</b></p> <p><b>Tentative Classification:</b> Recreational</p> <p><b>Reason for Tentative Classification:</b> Road parallels and crosses segment many times.</p> <p><b>BLM Free-flowing River Miles:</b> 9</p> <p><b>Reason for Free-flowing Determination:</b> Natural Flow</p>	<p><b>Scenery</b></p> <p>This segment of Onion Creek is dominated by massive faulting activity and a large anticline that creates a wonderful combination of light red and brick red outcrops of the Chinle Formation topped with yellowish sandstone rubble. The massive rock formations and the outstanding examples of erosion and landmark features, make this section exceptionally scenic. In fact the distinctive nature of this segment gives the visitor the impression that they have left this world and entered a different planet. As the creek continues to flow to the Colorado River, it enters a region of Cutler Sandstone bluffs, and low cliffs forming interesting spires, balanced rocks, and small arches that are highly eroded and ornate. As the creek continues, the formations of Castle Valley become prominent, and Castle Rock, the Priest and the Nuns, and Fisher Towers, add to the visual quality of the drainage. The Creek then enters the Colorado River cutting through the large alluvial deposits of decomposed Cutler Sandstone. The landform of this segment is outstanding. The water is a dominant feature, and the influence of the adjacent scenery greatly enhances the visual quality. This is definitely a one of a kind experience, and the quality of the visual experience is very rare to this region. All of these elements add up to make this segment of Onion Creek one of the most scenic drainages in the region and outstanding and remarkable even within the wonderland of the Colorado Plateau.</p> <p><b>Geology</b></p> <p>This segment of Onion Creek is dominated by massive faulting activity and a large anticline that creates a wonderful combination of light red and brick red outcrops of the Chinle Formation topped with yellowish sandstone rubble. The sulfur content of the creek from this point has limited the growth of riparian vegetation and has created an unusual circumstance where the creek is completely visible to the viewer. The road parallels the creek and crosses many times, but the massive rock formations and the outstanding examples of erosion and landmark features, make the road a minimal feature. As the creek continues to flow to the Colorado it enters a region of Cutler Sandstone bluffs, and</p>

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River/Segment Name and Other Information	Description Of Values Present
	<p>low cliffs forming interesting spires, balanced rocks, and small arches that are highly eroded and ornate. The dominant feature of the Titan and many unusual landforms with local names such as The Poodle, The Camel, Donald Duck, Mr. Magoo, The Chess Men, and Grandma and Little Red Riding Hood, attract the attention of the visitor. As the creek continues, the nationally renowned landforms of Castle Valley become prominent, and Castle Tower, the Priest and the Nuns, and Fisher Towers, add to the geologic uniqueness of the drainage. The Creek then enters the Colorado River cutting through the large alluvial deposits of decomposed Cutler Sandstone. The landform of this segment is outstanding. All of these elements add up to make this segment of Onion Creek one of the most unique drainages in the region and its values outstanding and remarkable.</p>
<p><b>PROFESSOR CREEK (MARY JANE CANYON):</b></p> <p><b>FS &amp; State land boundary to diversion near private land</b></p> <p><b>Tentative Classification:</b> Wild</p> <p><b>Reason for Tentative Classification:</b> No roads or development present.</p> <p><b>BLM Free-flowing River Miles:</b> 7.4</p> <p><b>Reason for Free-flowing Determination:</b> Natural Flow</p>	<p><b>Scenery</b></p> <p>Professor Creek drops 3000 feet in four miles as it cuts through a variety of sandstone layers. Most visually striking is its canyon through the Moenkopi sandstone, which results in narrow, twisting passages of dark colored rock. The perennial stream adds movement and sparkle to the scene, enhancing the visual quality of the canyon. Professor Creek combines sculpted topography, riparian vegetation, high relief and vivid colors. The occasional views of Castle Rock enhance the scenery, providing a visually striking focal point for the lower part of the canyon. Professor Creek is one of the most visually stunning canyons within the Colorado Plateau.</p> <p><b>Recreation</b></p> <p>This drainage provides outstanding hiking opportunities, especially for the first four miles above the diversion near private land. The canyon is one of the few which provides outstanding "narrows" hiking with a perennial stream. The canyon hike is described in several publications, and is a common field trip for Canyonlands Field Institute, which maintains a semi-primitive facility just south of this segment. The canyon possesses outstanding opportunities for primitive and unconfined recreation within easy reach of Moab. It is an outstanding and remarkable recreation opportunity within the ecological region.</p>
<p><b>SALT WASH</b></p> <p><b>Arches NP boundary to Colorado River</b></p>	<p>Outstandingly remarkable values are the same as those found within the boundary of Arches National Park. BLM finds this segment eligible only if connected to the segment within the park. Outstandingly Remarkable Values identified by NPS include: scenery, recreation, geology, wildlife and fish.</p> <p><b>Scenery</b></p> <p>Kayenta Sandstone cliffs are prominent at the mouth of Salt Wash. The</p>

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River/Segment Name and Other Information	Description Of Values Present
<p><b>Tentative Classification:</b> Wild</p> <p><b>Reason for Tentative Classification:</b> Road present across Colorado River.</p> <p><b>BLM Free-flowing River Miles:</b> 0.3 NPS Miles: 6</p> <p><b>Reason for Free-flowing Determination:</b> Natural Flow</p>	<p>desert varnish and outstanding alcoves add a great degree of contrast and form to this segment. The vegetation is lush and gives a variety of colors and textures, along with a strong riparian line. The colors are outstanding, and change drastically from morning to night. The adjacent scenery adds to the visual quality, and the drainage is distinctive. All of these elements make the values in this segment outstanding and remarkable within the region.</p> <p><b>Recreation</b> Salt Wash is a popular hike for boaters on Colorado River trips. Boaters have the opportunity, just a short distance from the river, to access proposed wilderness areas inside Arches National Park. This segment does not receive heavy visitation. This provides the recreationist with an opportunity to enjoy the scenery without crowds. Access is limited to boaters from the river or via a trailhead six miles upstream inside Arches National Park. The elements listed above make the values in this segment outstanding and remarkable within the region.</p> <p><b>Wildlife</b> Salt Wash provides lush riparian habitat serving as home range for mountain lion, mule deer, and a multitude of other wildlife. This is regionally significant habitat due to the lack of roads, development, and protection provided by being connected to Arches National Park.</p> <p><b>Fish</b> This segment is possible spawning habitat for endangered Colorado Pikeminnow, as well as for the species mentioned for the Colorado River corridor. This reach of the river is regionally important, as it provides sensitive habitat to these declining species.</p> <p><b>Geology</b> Kayenta Sandstone cliffs are prominent here. The Salt Wash syncline is present. In Arches and at the mouth of Salt Wash, and is an excellent example of the variety of geologic forces shaping the land by underlying salt formations prevalent to this region.</p>
<p><b>Negro Bill Canyon: Segment (1)</b></p> <p>Source below rim to ¼ mile from Colorado River</p> <p><b>Tentative Classification:</b> Segment (1): Wild</p> <p><b>Reason for Tentative Classification:</b> No roads or development</p>	<p><b>Scenery</b> This drainage starts in the foothills of the La Sal Mountains and flows through the Kayenta and Navajo Sandstone cliffs that line it. The upper portion of the creek is rugged and the landforms are outstanding. Access to the creek is by a primitive foot trail that crosses the creek and allows for outstanding views of the La Sals and the wonderful riparian vegetation. As the creek flows to the Colorado several spring fed side canyons feed into it. One of these canyons contains Morning Glory Natural Bridge, which is the sixth largest natural bridge in the world, and is a popular destination for hikers. The colors of red and green make for a pleasing contrast and the addition of the water adds motion, noise and a variety of surfaces to the view. This canyon is quite distinctive. These elements add up to the values in this drainage being outstanding and remarkable, one of the jewels of the Colorado Plateau.</p>

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River/Segment Name and Other Information	Description Of Values Present
<p>present.</p> <p><b>BLM Free-flowing River Miles:</b></p> <p>Segment (1): 7.2</p> <p><b>Reason for Free-flowing Determination:</b></p> <p>Natural Flow</p>	<p>One-half mile before reaching the Colorado River, the canyon gets deeper and the Kayenta Sandstone cliffs become more prominent. The desert varnish and outstanding alcoves add a great degree of contrast and form to this segment. The vegetation is lush and gives a variety of colors and textures, along with a strong riparian line. The colors are outstanding, and change drastically from morning to night. The adjacent scenery adds to the visual quality, and the drainage is distinctive. All of these elements make the values in this segment outstanding and remarkable. Negro Bill Canyon has some of the most regionally outstanding scenery within the Colorado Plateau.</p> <p><b>Recreation</b></p> <p>Negro Bill Canyon is a world-class hiking destination, and one of the most popular trails in the Moab area. It offers a wonderful combination of a clear perennial stream within spectacular narrow sandstone walls. Although popular with all types of hikers, the canyon is particularly popular with families. The trail provides relatively easy hiking, with numerous opportunities for wading and water play. A special feature of the Negro Bill Canyon Trail is the access it provides to Morning Glory Natural Bridge, the sixth largest natural span in the United States. The visitor register indicates a diverse national and international visitor base, with numerous comments comparing Negro Bill Canyon favorably with hikes in the nearby National Parks. Hikes in the Canyon are described in numerous recreation-oriented publications. The drainage is at the heart of the Negro Bill Canyon Wilderness Study Area (WSA), an area set aside for, among other things, its outstanding opportunities for primitive and unconfined recreation.</p> <p><b>Ecological</b></p> <p>Negro Bill Canyon, named after an early settler of Moab, is a small perennial stream that directly enters the Colorado River. Set in a narrow canyon between towering sandstone cliffs, this lush stream reflects a remnant riparian ecosystem within the basin. Native riparian vegetation such as Gooding willows, hackberry, and cottonwoods dominate the corridor. The ecological values in Negro Bill Canyon represent a near natural perennial stream system, where other similar tributary streams have been heavily encroached by exotic species such as Russian Olive or tamarisk. Sensitive hanging garden ecosystems (maidenhair ferns, columbines) can be found associated with seeps along canyon walls and slickrock alcoves. Due to its proximity to the Colorado River flyway, Negro Bill Canyon provides diverse habitat for wildlife including neotropical birds, bats, beavers and other water dependent species. The stream is accessible by foot or horseback only, though proximal to State Hwy 128. Negro Bill contains a popular recreation trail within the canyon that crosses and parallels the stream numerous times. The ecological condition and diversity of Negro Bill Canyon provide for outstandingly remarkable values within the region.</p>

**Attachment 2: Outstandingly Remarkable Values Of Eligible Rivers**

River/Segment Name and Other Information	Description Of Values Present
<p><b>NEGRO BILL CANYON: SEGMENT (2)</b></p> <p>Last ¼ mile to Colorado River</p> <p><b>Tentative Classification:</b> Segment (1): Recreational</p> <p><b>Reason for Tentative Classification:</b> Hwy 128 is present near the Colorado River.</p> <p><b>BLM Free-flowing River Miles:</b> .25</p> <p><b>Reason for Free-flowing Determination:</b> Natural Flow</p>	<p><b>Scenery</b> Kayenta Sandstone cliffs are prominent in this segment of Negro Bill Canyon. The desert varnish and outstanding alcoves add a great degree of contrast and form to this segment. The vegetation is lush and gives a variety of colors and textures, along with a strong riparian line. The colors are outstanding, and change drastically from morning to night. The adjacent scenery adds to the visual quality, and the drainage is distinctive. All of these elements make the values in this segment outstanding and remarkable. Negro Bill Canyon has some of the most regionally outstanding scenery within the Colorado Plateau.</p> <p><b>Recreation</b> Negro Bill Canyon is a world-class hiking destination, and one of the most popular trails in the Moab area. It offers a wonderful combination of a clear perennial stream within spectacular narrow sandstone walls. Although popular with all types of hikers, the canyon is particularly popular with families. The trail provides relatively easy hiking, with numerous opportunities for wading and water play. Due to its easy access, wading and water play is prevalent in this portion of Negro Bill Canyon. Hikes in the Canyon are described in numerous recreation-oriented publications.</p> <p><b>Ecological</b> Negro Bill Canyon, named after an early settler of Moab, is a small perennial stream that directly enters the Colorado River. Set in a narrow canyon between towering sandstone cliffs, this lush stream reflects a remnant riparian ecosystem within the basin. Native riparian vegetation such as Gooding willows, hackberry, and cottonwoods dominate the corridor. The ecological values in Negro Bill Canyon represent a near natural perennial stream system, where other similar tributary streams have been heavily encroached by exotic species such as Russian Olive or tamarisk. Sensitive hanging garden ecosystems (maidenhair ferns, columbines) can be found associated with seeps along canyon walls and slickrock alcoves. Due to its proximity to the Colorado River flyway, Negro Bill Canyon provides diverse habitat for wildlife including neotropical birds, bats, beavers and other water dependent species. The stream is accessible by foot or horseback only, though proximal to State Hwy 128. Negro Bill contains a popular recreation trail within the canyon that crosses and parallels the stream numerous times. The ecological condition and diversity of Negro Bill Canyon provide for outstandingly remarkable values within the region.</p>
<p><b>MILL CREEK (UPPER): SEGMENT (1)</b></p> <p><b>BLM lands from FS boundary to private property below the Sheley diversion at Flat</b></p>	<p><b>Scenery</b> The upper portion of Mill Creek starts in the benches of the La Sal Mountains and quickly cuts into a narrow deep canyon that is outstanding in its visual quality. As the creek flows toward the drainage diversion it cuts through Kayenta and Navajo Sandstone and exposes impressive fins and ridges that are outstanding in their form and color. The riparian vegetation adds to the view, and the water, is a dominant feature. The deep red colors, in contrast with the green vegetation, add</p>

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River/Segment Name and Other Information	Description Of Values Present
<p><b>Pass.</b></p> <p><b>Tentative Classification:</b> Recreational</p> <p><b>Reason for Tentative Classification:</b> Road parallels and crosses stream, and water diversion present.</p> <p><b>BLM Free-flowing River Miles:</b> 1.4</p> <p><b>Reason for Free-flowing Determination:</b> Natural Flow and riparian character retained despite diversion.</p>	<p>a pleasant contrast, and the peaks of the La Sal Mountains add greatly to the visual quality. This area is distinctive to the region and is regionally significant for scenic values. These elements add up to make the values in this segment outstanding and remarkable within the Colorado Plateau.</p> <p><b>Recreation</b> Upper Mill Creek is a perennial stream flowing through a wonderland of sandstone fins, with the panoramic backdrop of the La Sal Mountains. The creek is used by recreationists for hiking, horseback riding, backpacking, fishing, photography and picnicking. Easily accessed by a graveled road, the area attracts both local and out-of-town visitors. Mill Creek is a unique recreational experience, outstanding and remarkable even within the Colorado Plateau.</p> <p><b>Fish</b> Mill Creek Canyon provides one of only five available coldwater trout fisheries along upper portions of the Colorado River main stem. While the stream largely supports non-native recreational trout populations, Mill Creek Canyon provides easily accessible sports fisheries opportunities. Upper reaches of the stream contain nearly natural cold-water fisheries habitat and spawning areas. Trout species spawn in fast flowing gravel substrates during spring and early summer. Small trout rely upon insects for food sources, where larger trout primarily eat smaller fish, including native species common to the stream. Mill Creek Canyon provides Outstandingly Remarkable Values with respect to regional recreational cold-water sport fisheries opportunities, access and quality of a highly scenic stream experience.</p> <p><b>Cultural</b> Mill Creek Canyon is significant in the fact that it contains a myriad of cultural resources that range from rock art, open campsites, rock shelters, alcoves, and special activity areas. The presence of such a wide variety of site types indicates that Mill Creek Canyon has the potential to yield significant amounts of information concerning subsistence, settlement patterns, technological and artistic developments. The prehistoric use represents more than one cultural period ranging from Archaic, Fremont to Numic. The sites are somewhat isolated and retain integrity and significance. They are important for interpreting regional prehistory and many are eligible for the National Register of Historic Places. Additionally, historic populations capitalized upon the year-round water in Mill Creek by establishing several homesteads in the confines of the canyon. The scientific study of these historic sites may provide additional information concerning the broad patterns, of our more recent history in the region. Mill Creek is of national cultural significance.</p> <p><b>Ecological</b> Mill Creek Canyon is a tributary of the Colorado River that contains a watershed of approximately 93,000 acres. Despite the existence of water diversions along portions of Mill Creek Canyon, perennial springs</p>

**Attachment 2: Outstandingly Remarkable Values Of Eligible Rivers**

River/Segment Name and Other Information	Description Of Values Present
	<p>and tributary flows provide a series of cascading pools, slickrock slides, riffles and waterfalls unique to the region. The watershed provides important recharge functions to the municipal water sources of Moab, Utah and to the Scott Matheson Wetlands which exist downstream near its confluence with the Colorado River. The stream supports one of the largest mature cottonwood-willow galleries along upper portions of the Colorado River basin providing for ecological diversity among arid cold-desert environments. The dramatic setting of a lush stream corridor at the base of sheer sandstone canyon walls is important for scenic and recreational enjoyment, as well as supporting diverse habitat for riparian dependent species such as high occurrences of song-birds, bats, beavers, deer, bear, and other wildlife. The riparian corridor within Mill Creek Canyon provides potential habitat for special status species such as Southwestern willow flycatcher (<i>Empidonax traillii extimus</i>, endangered 1995), Mexican spotted owl (<i>Strix occidentalis lucida</i>, threatened 1993), Yellow-billed cuckoo (<i>Coccyzus americanus, occidentalis</i>) threatened), Smith's black-headed snake (<i>Tantilla hobartsmithi</i>, Utah Species of Concern), and the rare spotted bat (<i>Euderma maculatum</i>, Utah Species of Concern), many of which are riparian obligates which rely on the presence of water. High concentrations of cultural sites and rock art panels exist along the stream corridor and canyon walls making the area important with respect to scientific, educational and recreational resources. While stream health, diversity, and condition are reduced with the diversion of flows and the encroachment of exotic vegetative species, the ecological communities, functions, and resources, which support scenery, recreation, and wildlife and fishery values in Mill Creek drainage, are Outstandingly Remarkable in the region.</p> <p>Upper reaches of Mill Creek remain undiverted near the headwaters of the stream. Sandstone walls rise dramatically above pinyon-juniper and sage canyon bottoms. The stream is lined with cottonwood, willow, water birch, hackberry, juncus and other native riparian species including encroaching exotic vegetation (Russian Olive and tamarisk). Upper portions of Mill Creek provide the best habitat for cold-water trout fisheries. Portions of a county maintained road run parallel to the stream, crossing the stream or perennial tributaries approximately 2-3 times. The Sheley diversion structure exists within the segment, where irrigation water is diverted from the stream. A minimum stream flow of 3 cfs has been established below the diversion as a condition to the diversion right-of-way.</p>
<p><b>MILL CREEK (MIDDLE): SEGMENT (2)</b></p> <p><b>State land upstream from Hidden Valley (T.26 S., R. 23 E., section 19) to Power Dam</b></p>	<p><b>Scenery</b></p> <p>The stream corridor below Flat Pass is similar to the upper section. Downstream the creek contains outstanding natural features and the colors and landforms contrast with the lush riparian vegetation. The formations continue to add to the view as deep alcoves, fins, spires, and rock formations add to the visual variety. The water adds motion and a variety of surfaces. This area is distinctive to the region. The viewing of the La Sal Mountains adds to the visual quality of the canyon. Mill Creek has some of the most stunning scenery in the Colorado Plateau. The combination of these elements makes the values in this segment</p>

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River/Segment Name and Other Information	Description Of Values Present
<p><b>Tentative Classification:</b> Scenic</p> <p><b>Reason for Tentative Classification:</b> Minor development and occasional road present.</p> <p><b>BLM Free-flowing River Miles:</b> 4.6</p> <p><b>Reason for Free-flowing Determination:</b> Natural Flow and riparian character</p>	<p>outstanding and remarkable within the Colorado Plateau.</p> <p><b>Recreation</b> Mill Creek downstream from Flat Pass provides a unique hiking and horseback riding opportunity. Recreationists are able to enjoy non-motorized travel along a perennial stream in a desert environment. Sandstone fins tower above the canyon, and rock art sites abound in this section of Mill Creek. Popular with both local and out of town visitors, Middle Mill Creek is a unique recreational experience, outstanding and remarkable even within the Colorado Plateau.</p> <p><b>Fish</b> Mill Creek Canyon provides one of only five available coldwater trout fisheries along upper portions of the Colorado River main stem. While the stream largely supports non-native recreational trout populations, Mill Creek Canyon provides easily accessible sports fisheries opportunities. Upper reaches of the stream contain nearly natural cold-water fisheries habitat and spawning areas. Trout species spawn in fast flowing gravel substrates during spring and early summer. Small trout rely upon insects for food sources, where larger trout primarily eat smaller fish, including native species common to the stream. Mill Creek Canyon provides Outstandingly Remarkable Values with respect to regional recreational cold-water sport fisheries opportunities, access and quality of a highly scenic stream experience.</p> <p><b>Cultural</b> Mill Creek Canyon is significant in the fact that it contains a myriad of cultural resources that range from rock art, open campsites, rock shelters, alcoves, and special activity areas. The presence of such a wide variety of site types indicates that Mill Creek Canyon has the potential to yield significant amounts of information concerning subsistence, settlement patterns, technological and artistic developments. The prehistoric use represents more than one cultural period ranging from Archaic, Fremont to Numic. The sites are somewhat isolated and retain integrity and significance. They are important for interpreting regional prehistory and many are eligible for the National Register of Historic Places. Additionally, historic populations capitalized upon the year-round water in Mill Creek by establishing several homesteads in the confines of the canyon. The scientific study of these historic sites may provide additional information concerning the broad patterns, of our more recent history in the region. Mill Creek is of national cultural significance.</p> <p><b>Ecological</b> Mill Creek Canyon is a tributary of the Colorado River that contains a watershed of approximately 93,000 acres. Despite the existence of water diversions along portions of Mill Creek Canyon, perennial springs and tributary flows provide a series of cascading pools, slickrock slides, riffles and waterfalls unique to the region. The watershed provides important recharge functions to the municipal water sources of Moab, Utah and to the Scott Matheson Wetlands which exist downstream near</p>

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River/Segment Name and Other Information	Description Of Values Present
	<p>its confluence with the Colorado River. The stream supports one of the largest mature cottonwood-willow galleries along upper portions of the Colorado River basin providing for ecological diversity among arid cold-desert environments. The dramatic setting of a lush stream corridor at the base of sheer sandstone canyon walls is important for scenic and recreational enjoyment, as well as supporting diverse habitat for riparian dependent species such as high occurrences of song-birds, bats, beavers, deer, bear, and other wildlife. The riparian corridor within Mill Creek Canyon provides potential habitat for special status species such as Southwestern willow flycatcher (<i>Empidonax traillii extimus</i>, endangered 1995), Mexican spotted owl (<i>Strix occidentalis lucida</i>, threatened 1993), Yellow-billed cuckoo (<i>Coccyzus americanus, occidentalis</i>) threatened), Smith's black-headed snake (<i>Tantilla hobartsmithi</i>, Utah Species of Concern), and the rare spotted bat (<i>Euderma maculatum</i>, Utah Species of Concern), many of which are riparian obligates which rely on the presence of water. High concentrations of cultural sites and rock art panels exist along the stream corridor and canyon walls making the area important with respect to scientific, educational and recreational resources. While stream health, diversity, and condition are reduced with the diversion of flows and the encroachment of exotic vegetative species, the ecological communities, functions, and resources, which support scenery, recreation, and wildlife and fishery values in Mill Creek drainage, are Outstandingly Remarkable in the region.</p> <p>Wetland marshes, beaver ponds, slick rock runs, cascading waterfalls and pools dominate this portion of the Canyon. This segment contains public lands downstream of the private parcels at Flat Pass, and includes similar values within a large block of State land proposed for exchange to the BLM. Stream flows within the segment are reduced from diversions associated with Sheley diversion. A minimum stream flow of 3 cfs has been established for release below the diversion as a condition of the right-of-way. Perennial springs and tributary inflows, particularly from North Fork, provide a series of cascading pools, slickrock slides, riffles and waterfalls unique to the region. Public land portions are accessible only by foot or horseback, providing remote and primitive recreational opportunity.</p>
<p><b>MILL CREEK (STATE LAND SEGMENTS):</b> (3.5 Miles)</p> <p><b>Located between segments 1 and 2.</b></p>	<p>BLM may acquire these lands through a land exchange therefore this area has been included in the review for Wild and Scenic eligibility.</p> <p>The free-flowing character, and outstandingly remarkable values listed for Mill Creek segments 1 &amp; 2 are present here. The upstream portion of the state land between the two private land holdings should be included with segment 1 and would have a tentative classification of "recreational". The state land portion downstream of the segment just described should be included with segment 2 and have a tentative classification of "scenic".</p>
<p><b>NORTH FORK MILL CREEK</b></p>	<p><b>Scenery</b></p> <p>The North Fork of Mill Creek has incomparable scenic value. As it cuts through 600 feet of Navajo sandstone, the canyon displays high relief, pleasing colors, and sculptured landforms. The highly riparian corridor</p>

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River/Segment Name and Other Information	Description Of Values Present
<p><b>Forest boundary near Wilson Mesa to Mill Creek</b></p> <p><b>Tentative Classification:</b> Wild</p> <p><b>Reason for Tentative Classification:</b> No roads or development present.</p> <p><b>BLM Free-flowing River Miles:</b> 11.2</p> <p><b>Reason for Free-flowing Determination:</b> Natural Flow</p>	<p>supports a green swath of vegetation that provides great contrast to the dominant oranges and reds of the canyon walls. The perennial water adds movement and serenity to the scene, with numerous small cascades and pools. Spectacular displays of fall color turn cottonwoods yellow, adding diversity and variety to the views. The North Fork of Mill Creek has outstanding and remarkable scenery even within the Colorado Plateau.</p> <p><b>Recreation</b></p> <p>The North Fork of Mill Creek provides hiking, horseback riding and backpacking opportunities that are difficult to find and extremely rare in this region. The North Fork is a perennial stream flowing through a desert environment, with rich riparian resources that non-motorized travelers enjoy. It is within a Wilderness Study Area, and has a high level of remoteness. The North Fork of Mill Creek provides an outstanding and remarkable recreational experience within the Colorado Plateau.</p> <p><b>Cultural</b></p> <p>The North Fork of Mill Creek Canyon is significant in the fact that it contains a myriad of cultural resources that range from rock art, open campsites, rock shelters, alcoves, special activity areas. The presence of such a wide variety of site types indicates that Mill Creek Canyon has the potential to yield significant amounts of information concerning subsistence, settlement patterns, and technological developments. The prehistoric use represents more than one cultural period ranging from Archaic, Fremont to Numic. The sites are somewhat isolated and retain integrity and significance. They are important for interpreting regional prehistory and many are eligible for the National Register of Historic Places. The cultural resources of the North Fork of Mill Creek are outstanding and remarkable within the Colorado Plateau.</p> <p><b>Ecological</b></p> <p>The North Fork of Mill Creek Canyon drainage system includes the tributaries Rill Creek and Burkholder Draw. Seasonal runoff and large springs support perennial to intermittent flows. Collectively, the N. Fork stream system provides additional quantities of critical surface flow to lower portions of Mill Creek; a high-quality water source; thermal mitigation (cooler water temperatures important for trout fisheries as identified in TMDL/water quality report); provides recharge to Moab Municipal aquifer and TNC Scott Matheson Wetlands; and provides remote and undisturbed ecological stream-dependent resources (riparian, wildlife, scenic, cultural, recreational values). The North Fork system supports diverse wildlife species and habitat including important mule deer winter range, predators such as bear and mountain lion, riparian dependent and special status species such as neo-tropical birds, beaver, bats, cold-water trout fisheries, amphibians, and potential habitat for endangered Mexican spotted owl, Southwestern willow flycatcher, and Southwestern black-headed snake. The riparian corridor provides an excellent example of a narrow, deep, boulder and pool stream, with diverse woody native species such as cottonwood, willows,</p>

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River/Segment Name and Other Information	Description Of Values Present
	<p>water birch, and herbaceous wetland marshes including horsetail and maidenhair ferns. Near its confluence with Mill Creek, the North Fork contains unique bedrock cascading pools and large waterfalls picturesque enough to be included in several recreational guidebooks. The values described above are Outstanding and Remarkable within the region.</p>
<p><b>DOLORES RIVER: SEGMENT (1)</b></p> <p><b>CO-UT state-line to Fisher Creek</b></p> <p><b>Tentative Classification:</b> Scenic</p> <p><b>Reason for Tentative Classification:</b> Primitive road, and fields present.</p> <p><b>BLM Free-flowing River Miles:</b> 5.9</p> <p><b>Reason for Free-flowing Determination:</b> Natural Flow</p>	<p><b>Scenery</b></p> <p>This section of the Dolores River is characterized by an increase in vertical relief from the segment in Colorado. The canyon narrows to about one-quarter mile wide with sheer walls of Wingate Sandstone almost 500 feet high lining the river's course. The few long vistas available in this narrow canyon reveal the colorful strata above the Wingate, the Kayenta, the Navajo (which makes a distinctive beige cliff), the pink band of the Entrada and the ledgey Morrison Formation. Cottonwoods, willows, and tamarisk, as well as a variety of desert shrubs and grasses characterize the vegetation. The flow of this reach is relatively quick, with several rapids. The presence of the river adds motion and a variety of surface, as well as a gathering place for wildlife. The rich color combinations of the geology, vegetation, and water makes for a pleasing contrast which changes with the season. This segment is quite distinctive, and only segments of the Colorado River would be comparable. The combination of these elements along with the recreational use of the river by boaters, make these segments of the river outstanding and remarkable even within the Colorado Plateau.</p> <p><b>Recreation</b></p> <p>A float trip on the Dolores River offers spectacular views, camping, scenic hiking opportunities, and whitewater boating challenges for boaters who like technical rivers. The Dolores River attracts boaters from all over the intermountain west; it also attracts international visitors. The Dolores River is floatable by rafts, kayaks, and other whitewater craft during spring runoff, usually during the last part of April, May, and beginning of June. The season length varies with the snow pack, and releases from McPhee Reservoir. Opportunities for solitude abound. Hunting and horseback riding are also popular along the river corridor. A primitive road parallels the river upstream from Fisher Creek but sees little use. All this combines to make the Dolores River a regionally significant recreation opportunity.</p> <p><b>Wildlife</b></p> <p>This segment of the Dolores River is vitally important mule deer and elk winter range. In addition, the canyon is important to a diversity of avian and terrestrial wildlife. It is particularly crucial to raptor species, as it provides excellent habitat for them. The Dolores offers habitat for the Southwestern willow flycatcher, a federally listed species on the Endangered Species List. The Southwestern willow flycatcher is directly reliant on habitat that offers free standing water, riparian plant species, vegetative cover, and water related insects to nest and raise their young. The Dolores River corridor also provides important habitat for neotropical migrants. The Southwestern blackheaded snake is found in</p>

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River/Segment Name and Other Information	Description Of Values Present
	<p>this canyon. Bear and mountain lion also inhabit this river segment. Due to limited development, this reach of the river offers wildlife low levels of fragmentation, resulting in a diverse, vigorous and self-sustaining wildlife population. Within the arid southwest all riparian habitat is vital to all forms of wildlife, due to the lack of available free water. Water and the vegetative cover available within riparian areas offer needed drinking water, microclimates, food, and cover to wildlife and the various life stages of many species. The Dolores River corridor is regionally significant for wildlife values.</p> <p><b>Fish</b></p> <p>Utah Division of Wildlife Resources has determined that two Utah Sensitive species, the Bluehead Sucker and the Roundtail Chub inhabit the Dolores River. This area provides needed habitat for these native fish, making this reach of the river regionally important, as it provides sensitive habitat to these declining sensitive species.</p> <p><b>Geology/Hydrology</b></p> <p>Segment one begins at the most impressive rapid on the Dolores, known as Stateline Rapid. Outwash from a gully on the north bank created the rapid, and cliff fall from the southern walls of Wingate Sandstone has increased the difficulty of it. Upstream of the Utah-Colorado state line, strata generally dip toward the northwest, in the direction of river flow, and gradually pass beneath the river. As they dip under the river in the area of the Stateline rapid, the canyon narrows. Steep Cutler, Moenkopi and Chinle bluffs slope about 800 feet up from the river to meet vertical Wingate cliffs that rise up to 2,500 feet above the valley floor. Below Stateline rapid lie others, also complicated by fallen boulders of Wingate Sandstone. The north (right) shore grows steeper and its angular talus slopes impinge on the river. The rivers course is in the upper Moenkopi or lower Chinle, but these red shales are generally covered by fan-shaped talus slopes and detritus accumulations, which support vegetation. Below the Chinle, in the area of the Dolores, are the three shaley members of the Moenkopi Formation, and the Cutler Formation of purple arkosic sandstone and conglomerate. High above it, atop the Kayenta, are exposures of buff Navajo Sandstone. In addition the canyon displays excellent visibility of the geologic process and an unusually long sequence of Colorado Plateau stratigraphy. The Dolores River canyon is an important key to the Uncompahgre Uplift and to understanding the stream piracy of the ancestral Gunnison and Colorado rivers. The geology within the river corridor as described above; shows diversity and abundance of geologic features. In addition, the educational and scientific values make this river outstanding in the region.</p> <p><b>Ecological</b></p> <p>The Dolores River supports river-related values including fisheries, wildlife, scenic, and recreational resources found important within the region. The Dolores River provides stream flows to maintain picturesque cottonwood galleries and wetlands, State sensitive fisheries and wildlife habitats, and recreational river running. The Dolores River is a large</p>

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River/Segment Name and Other Information	Description Of Values Present
	<p>tributary to the Upper Colorado River which contributes seasonal inflow important to the Colorado River and creates important endangered fish rearing habitat at the Confluence. Although the Dolores River ecosystem is severely altered and controlled by water diversions, including McPhee Dam within the state of Colorado, surface flows and riverine conditions are present to be determined free-flowing. Ecological conditions are also degraded with respect to encroachment of noxious weeds and invasive exotic species (Russian knapweed, Russian olive, tamarisk etc). While ecological values are diminished within the Dolores River, they remain important in supporting other river-related resources which have been determined outstandingly remarkable.</p>
<p><b>DOLORES RIVER: SEGMENT (2)</b></p> <p><b>Fisher Creek to Bridge Canyon</b></p> <p><b>Tentative Classification:</b> Wild</p> <p><b>Reason for Tentative Classification:</b> No roads or development present.</p> <p><b>BLM Free-flowing River Miles:</b> 6.2</p> <p><b>Reason for Free-flowing Determination:</b> Natural Flow</p>	<p><b>Scenery</b></p> <p>This section of the Dolores River is characterized by a narrow canyon that is about one-quarter mile wide with sheer walls of Wingate Sandstone almost 500 feet high lining the river's course. The few long vistas available in this narrow canyon reveal the colorful strata above the Wingate, the Kayenta, the Navajo (which makes a distinctive beige cliff), the pink band of the Entrada and the ledge Morrison Formation. Cottonwoods, willows, and tamarisk, as well as a variety of desert shrubs and grasses characterize the vegetation. The flow of this reach is relatively quick, with several rapids. The presence of the river adds motion and a variety of surface, as well as a gathering place for wildlife. The rich color combinations of the geology, vegetation, and water makes for a pleasing contrast which changes with the season. This segment is quite distinctive, and only segments of the Colorado River would be comparable. The combination of these elements along with the recreational use of the river by boaters, make these segments of the river outstanding and remarkable even within the Colorado Plateau.</p> <p><b>Recreation</b></p> <p>A float trip on the Dolores River offers spectacular views, camping, scenic hiking opportunities, and whitewater boating challenges for boaters who like technical rivers. The Dolores River attracts boaters from all over the intermountain west; it also attracts international visitors. The Dolores River is floatable by rafts, kayaks, and other whitewater craft during spring runoff, usually during the last part of April, May, and beginning of June. The season length varies with the snow pack, and releases from McPhee Reservoir. Opportunities for solitude abound. Hunting and horseback riding are also popular along the river corridor. The Dolores from Fisher Creek to Bridge Canyon has no road access. All this combines to make the Dolores River a regionally significant recreation opportunity.</p> <p><b>Wildlife</b></p> <p>This segment of the Dolores River is vitally important mule deer and elk winter range. In addition, the canyon is important to a diversity of avian and terrestrial wildlife. It is particularly crucial to raptor species, as it provides excellent habitat for them. The Dolores offers habitat for the Southwestern willow flycatcher, a federally listed species on the Endangered Species List. The Southwestern willow flycatcher is directly</p>

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River/Segment Name and Other Information	Description Of Values Present
	<p>reliant on habitat that offers free standing water, riparian plant species, vegetative cover, and water related insects to nest and raise their young. The Dolores River corridor also provides important habitat for neotropical migrants. The Southwestern blackheaded snake is found in this canyon. Bear and mountain lion also inhabit this river segment. Due to limited development, this reach of the river offers wildlife low levels of fragmentation, resulting in a diverse, vigorous and self-sustaining wildlife population. Within the arid southwest all riparian habitat is vital to all forms of wildlife, due to the lack of available free water. Water and the vegetative cover available within riparian areas offer needed drinking water, microclimates, food, and cover to wildlife and the various life stages of many species. The Dolores River corridor is regionally significant for wildlife values.</p> <p><b>Fish</b></p> <p>Utah Division of Wildlife Resources has determined that two Utah Sensitive species, the Bluehead Sucker and the Roundtail Chub inhabit the Dolores River. This area provides needed habitat for these native fish, making this reach of the river regionally important, as it provides sensitive habitat to these declining sensitive species.</p> <p><b>Geology/Hydrology</b></p> <p>Segment two of the Dolores River is characterized by steep Cutler, Moenkopi and Chinle bluffs which slope about 800 feet up from the river to meet vertical Wingate cliffs that rise up to 2,500 feet above the valley floor. The river's course is in the upper Moenkopi or lower Chinle, but these red shales are generally covered by fan-shaped talus slopes and detritus accumulations, which support vegetation. Below the Chinle, in the area of the Dolores, are the three shaley members of the Moenkopi Formation, and the Cutler Formation of purple arkosic sandstone and conglomerate. High above it, atop the Kayenta, are exposures of buff Navajo Sandstone. The Dolores has spectacularly variable flows, even as compared to other rivers throughout the desert southwest, which makes it remarkable. In addition the canyon displays excellent visibility of the geologic process and an unusually long sequence of Colorado Plateau stratigraphy. The Dolores River canyon is an important key to the Uncompahgre Uplift and to understanding the stream piracy of the ancestral Gunnison and Colorado rivers. The geology within the river corridor as described above shows diversity and abundance of geologic features. In addition, the educational and scientific values make this river outstanding in the region.</p> <p><b>Ecological</b></p> <p>The Dolores River supports river-related values including fisheries, wildlife, scenic, and recreational resources found important within the region. The Dolores River provides stream flows to maintain picturesque cottonwood galleries and wetlands, State sensitive fisheries and wildlife habitats, and recreational river running. The Dolores River is a large tributary to the Upper Colorado River which contributes seasonal inflow important to the Colorado River and creates important endangered fish rearing habitat at the Confluence. Although the Dolores River ecosystem</p>

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River/Segment Name and Other Information	Description Of Values Present
	<p>is severely altered and controlled by water diversions, including McPhee Dam within the state of Colorado, surface flows and riverine conditions are present to be determined free-flowing. Ecological conditions are also degraded with respect to encroachment of noxious weeds and invasive exotic species (Russian knapweed, Russian olive, tamarisk etc). While ecological values are diminished within the Dolores River, they remain important in supporting other river-related resources which have been determined outstandingly remarkable.</p>
<p><b>DOLORES RIVER: SEGMENT (3)</b></p> <p><b>Bridge Canyon to the Colorado River</b></p> <p><b>Tentative Classification:</b> Scenic</p> <p><b>Reason for Tentative Classification:</b> Occasional road access and evidence of past mining activity present.</p> <p><b>BLM Free-flowing River Miles:</b> 9.9</p> <p><b>Reason for Free-flowing Determination:</b> Natural Flow</p>	<p><b>Recreation</b></p> <p>A trip on the Dolores River offers spectacular views, camping, scenic hiking opportunities, and whitewater boating challenges. This stretch is popular with youth groups, due to the ease of getting permits. The Dolores River attracts boaters from the intermountain west, as well as international visitors. It is floatable by rafts, kayaks, and other whitewater craft during spring runoff, usually during the last part of April, May, and beginning of June. The season length varies with the snow pack, and releases from McPhee Reservoir. Opportunities for solitude abound. There is primitive road access to this stretch. It has remarkable and outstanding recreation values within the Colorado Plateau.</p> <p><b>Wildlife</b></p> <p>This segment of the Dolores River is vitally important mule deer and elk winter range. In addition, the canyon is important to a diversity of avian and terrestrial wildlife. The Dolores River corridor is the second richest riparian area in the Colorado Plateau and as such, is crucial to raptor species such as the peregrine falcon, as it provides excellent habitat for them. The Dolores offers habitat for the Southwestern willow flycatcher, a federally listed species on the Endangered Species List. The Southwestern willow flycatcher is directly reliant on habitat that offers free standing water, riparian plant species, vegetative cover, and water related insects to nest and raise their young. The Dolores River corridor also provides habitat for neotropical migrants. The Southwestern blackheaded snake is found in this canyon. Bear and mountain lion also inhabit this river segment. Many species of bats are found in this stretch of the Dolores, of which several are listed on the Utah Sensitive Species List. The Northern River Otter has been identified as utilizing this stretch of the Dolores. Due to limited development, this reach of the river offers wildlife low levels of fragmentation, resulting in a diverse, vigorous and self-sustaining wildlife population. Within the arid southwest all riparian habitat is vital to all forms of wildlife, due to the lack of available free water. Water and the vegetative cover available within riparian areas offers needed drinking water, microclimates, food, and cover to wildlife and the various life stages of many species. The Dolores River has remarkable and outstanding wildlife values.</p> <p><b>Fish</b></p> <p>The confluence of the Dolores and the Colorado River provides habitat for the endangered Colorado Pikeminnow, making this river nationally important, as these fish are endemic to the Colorado River System. Due to the limited development through this reach of the river, this rare fish</p>

**Attachment 2: Outstandingly Remarkable Values Of Eligible Rivers**

River/Segment Name and Other Information	Description Of Values Present
	<p>species is able to spawn and reproduce, allowing for recovery of this endemic, unique species. Utah Division of Wildlife Resources has determined that two Utah Sensitive species, the Bluehead Sucker and the Roundtail Chub live in the Dolores Rivers. This area provides needed habitat for these native fish, making this reach of the river regionally important, as it provides sensitive habitat to these declining species.</p> <p><b>Geology</b></p> <p>In the area of Utah Bottom, the axis of the Sagers Wash Syncline crosses the river, replacing the general southwestern dip of the rock off the Uncompahgre Plateau with a northeasterly dip, the result of the Yellow Cat dome that lies west of the Colorado River. Perhaps the most striking geologic feature in the Utah Bottom area is the Entrada sandstone with its distinctive cross-hatching. An oxbow in the Lake Bottom area marks a change to rising strata and the river re-encounters Entrada Sandstone at its confluence with the Colorado. This is a unique geologic process for the region.</p> <p><b>Ecological</b></p> <p>The Dolores River supports river-related values including fisheries, wildlife, scenic, and recreational resources found important within the region. The Dolores River provides stream flows to maintain picturesque cottonwood galleries and wetlands, State sensitive fisheries and wildlife habitats, and recreational river running. The Dolores River is a large tributary to the Upper Colorado River which contributes seasonal inflow important to the Colorado River and creates important endangered fish rearing habitat at the Confluence. Although the Dolores River ecosystem is severely altered and controlled by water diversions, including McPhee Dam within the state of Colorado, surface flows and riverine conditions are present to be determined free-flowing. Ecological conditions are also degraded with respect to encroachment of noxious weeds and invasive exotic species (Russian knapweed, Russian olive, tamarisk etc). While ecological values are diminished within the Dolores River, they remain important in providing the basis for and supporting other river-related resources which have been determined outstandingly remarkable.</p>
<p><b>THOMPSON CANYON</b></p> <p><b>Source to Fisher Creek (Cottonwood Canyon)</b></p> <p><b>Tentative Classification:</b> Wild</p> <p><b>Reason for Tentative Classification:</b></p>	<p><b>Scenery</b></p> <p>Thompson Canyon, a tributary of Fisher Creek, drops 1500 feet in its four mile run. Richly riparian, this perennial stream supports a variety of vegetation. This vegetation provides a strong contrast with the towering red walls of the canyon. Thompson Canyon contains several hanging gardens of vegetation, which is a scarce resource in this arid region. The Thompson Canyon gorge is visually striking, and is unique in the Colorado Plateau.</p> <p><b>Ecological</b></p> <p>Portions of Thompson Canyon contain intermittent flows that support a high quality riparian ecosystem. Stream flows periodically surface and subsurface along a bedrock channel within a highly picturesque grotto canyon. Mature narrow leaf cottonwoods and willows line the stream</p>

**Attachment 2: Outstandingly Remarkable Values Of Eligible Rivers**

River/Segment Name and Other Information	Description Of Values Present
<p>No roads or development present.</p> <p><b>BLM Free-flowing River Miles:</b> 5.5</p> <p><b>Reason for Free-flowing Determination:</b> Natural Flow</p>	<p>channel within a deep narrow winding canyon, which scours during large flood events. Hanging gardens are present among seeps located in the canyon walls. Silver-colored canyon tree frogs are often observed within the canyon. The remote pristine nature and ecological diversity within Thompson Canyon are Outstandingly Remarkable within the region.</p>
<p><b>BEAVER CREEK: SEGMENT (1)</b></p> <p><b>Forest Service boundary to one mile from the Dolores River</b></p> <p><b>Tentative Classification:</b> Wild</p> <p><b>Reason for Tentative Classification:</b> No roads or development present.</p> <p><b>BLM Free-flowing River Miles:</b> 6.7</p> <p><b>Reason for Free-flowing Determination:</b> Natural Flow</p>	<p><b>Scenery</b> Beaver Creek is a perennial stream, supporting a rich riparian zone. In this green ribbon grow cottonwoods, alders, and other herbaceous vegetation. The flowing water and green vegetation contrast with the multi-hued pink sandstone cliffs of the canyon walls. These pink to orange walls rise 1200 feet; the width of the canyon varies between 100 and 1000 feet. Beaver Creek is highly scenic with a great diversity of views. It has remarkable and outstanding scenery, even by the standards of the Colorado Plateau.</p> <p><b>Recreation</b> Beaver Creek is one of the principal tributaries of the Dolores River, and shares many of its recreational opportunities. The canyon provides outstanding opportunity for solitude due to its remoteness, especially for hiking and backpacking. Despite its isolation, several commercial backpacking outfitters find the area remarkable enough to offer guided trips. Were it not for its remoteness from population centers, Beaver Creek undoubtedly would attract significant visitation for its combination of scenery and canyon hiking opportunities. The recreation opportunities found in Beaver Creek are remarkable and outstanding within the Colorado Plateau.</p> <p><b>Fish</b> Large plunge pools, providing desirable coldwater trout fisheries, dominate the upper 2 miles of Beaver Creek. Native cutthroat trout and other sport trout species have been documented within the drainage. Upper portions of Beaver Creek have been identified as suitable habitat in a regional plan to conserve the rare Colorado River cutthroat trout, a native Utah Conservation Species (<i>Oncorhynchus clarki pleuriticus</i>). Fisheries values contained within the upper portions of Beaver Creek are outstandingly remarkable with respect to providing remote habitat for the recovery of rare native fish species.</p> <p><b>Ecological</b> Beaver Creek is one of three perennial tributaries to the Dolores River. The upper 2 miles of Beaver Creek (BLM land below the USFS boundary) cut through steep canyon walls in excess of 500 feet tall.</p>

**Attachment 2: Outstandingly Remarkable Values Of Eligible Rivers**

River/Segment Name and Other Information	Description Of Values Present
	<p>Access is difficult due to the remote location and character of the canyon. Cascading waterfalls with heights of 3 to 12 feet are common, created by large boulders and talus rubble. Large plunge pools dominate the stream, providing desirable coldwater trout fisheries. The riparian corridor contains willows, cottonwoods, and horsetails, with ponderosa pine and pinyon-juniper forests along canyon walls. Headwaters of the drainage contain water diversions for irrigation purposes, but the river remains riverine in appearance. The ecological diversity and values associated with Beaver Creek are outstandingly remarkable within the region.</p>
<p><b>Beaver Creek: Segment (2)</b></p> <p><b>Forest Service boundary to one mile from the Dolores River</b></p> <p><b>Tentative Classification:</b> Scenic</p> <p><b>Reason for Tentative Classification:</b> Dirt road present.</p> <p><b>BLM Free-flowing River Miles:</b> 1</p> <p><b>Reason for Free-flowing Determination:</b> Natural Flow</p>	<p><b>Scenery</b></p> <p>Beaver Creek is a perennial stream, supporting a rich riparian zone. In this green ribbon grow cottonwoods, alders, and other herbaceous vegetation. The flowing water and green vegetation contrast with the multi-hued pink sandstone cliffs of the canyon walls. These pink to orange walls rise 1200 feet; the width of the canyon varies between 100 and 1000 feet. Beaver Creek is highly scenic with a great diversity of views. It has remarkable and outstanding scenery, even by the standards of the Colorado Plateau.</p> <p><b>Recreation</b></p> <p>Beaver Creek is one of the principal tributaries of the Dolores River, and shares many of its recreational opportunities. The canyon provides outstanding opportunity for solitude due to its remoteness, especially for hiking and backpacking. Despite its isolation, several commercial backpacking outfitters find the area remarkable enough to offer guided trips. Were it not for its remoteness from population centers, Beaver Creek undoubtedly would attract significant visitation for its combination of scenery and canyon hiking opportunities. The recreation opportunities found in Beaver Creek are remarkable and outstanding within the Colorado Plateau.</p> <p><b>Geology</b></p> <p>Beaver Creek is a major drainage off the northeastern flank of the La Sal Mountains that has incised a deep canyon in to sedimentary rocks as it runs between North and South Beaver Mesas down to the Dolores River. The main and side canyons exhibit as much as 1000 feet of relief between the canyon rim and the creek bottom. Rock exposures in the area consist, in ascending order, of the Permian Cutler Formation, the Triassic Moenkopi and Chinle Formations, the Jurassic: Wingate, Kayenta, Navajo, Entrada, Summerville and Morrison Formations. The last ¼ mile lies within the Dolores River canyon which is an important key to the Uncompahgre Uplift and to understanding the stream piracy of the ancestral Gunnison and Colorado rivers. The geology within the river corridor as described above; shows diversity and abundance of geologic features. In addition, the educational and scientific values make the values along Beaver Creek outstanding in the region.</p>

**Attachment 2: Outstandingly Remarkable Values Of Eligible Rivers**

River/Segment Name and Other Information	Description Of Values Present
<p><b>GREEN RIVER DRAINAGES: The Price Field Office (in coordination with the Moab Field Office) reviewed segments 1 through 6 of the Green River as part of the Price Field Office RMP. The Moab RMP will carry forward eligibility findings for the Moab side of the Green River.</b></p>	
<p><b>GREEN RIVER: TAVAPUTS PLATEAU (DESOLATION CANYON)</b></p> <p><b>Segment (1): Coal Creek to Nefertiti Boat Ramp</b></p> <p><b>Segment (2): Nefertiti Boat Ramp to Swasey's Boat Ramp</b></p> <p><b>Segment (3): Swasey's Boat Ramp to I- 70 bridge</b></p> <p><b>Tentative Classification:</b></p> <p>Segment (1): Wild</p> <p>Segment (2): Recreational</p> <p>Segment (3): Recreational</p> <p><b>Reason for Tentative Classification:</b></p> <p>Segment (1): No development present</p> <p>Segments (2) &amp; (3): Roads and ranch development present.</p> <p><b>Total River Miles:</b></p> <p>Segment (1): 6</p> <p>Segment (2): 8</p> <p>Segment (3): 13</p>	<p><b>Cultural</b></p> <p>This area has evidence of significant occupation and use by prehistoric peoples. It includes rock art and other features that remain significant to some Native American populations today. It also includes some of area of study used by Noel Morss in defining of the Fremont Culture. The prehistoric use represents more than one cultural period (Archaic, Fremont and Numic). The sites have been largely isolated and retain integrity. They are important for interpreting regional prehistory. Many sites are eligible for the National Register of Historic Places. Flat Canyon Archaeological District, within Desolation Canyon, is listed on this register.</p> <p><b>Historic</b></p> <p>Much of this river corridor is a National Historic Landmark because of its recognition as the least changed of the river corridors associated with John Wesley Powell and the exploration of the Green and Colorado Rivers. Other historic values are associated with settlement, farming/ranching, mining, prohibition, recreational river running, waterworks and reclamation. Sites have been largely isolated and therefore retain their original character.</p> <p><b>Recreation</b></p> <p>A trip though Desolation and Gray Canyons of the Green River, consecutive canyons within the Tavaputs Plateau, is a premier, wilderness recreation experience. The 84-mile trip from Sand Wash to Swasey's Beach is world renown. Located in Utah's deepest canyon and largest WSA, Desolation and Gray Canyons offer outstanding white water boating with approximately 60 rapids and riffles. There is also ample opportunity for land-based activity like hiking in the more than 60 side canyons. The BLM receives over 3,000 applications per year for the 450 available trip permits issued to self-outfitted users. Eighteen commercial outfitters market trips through these canyons both nationally and internationally.</p> <p><b>Scenic</b></p> <p>At over one mile deep, Desolation Canyon is Utah's deepest canyon, cutting through the youngest exposed strata on the Colorado Plateau. Desolation and Gray Canyons consist of complexes of many canyons draining to the Green River. Outstanding scenic values are dictated primarily by the domination of geologic features. In addition to canyon walls rising thousands of feet, there are also many interesting rock formations such as arches and hoodoos. Though the landscape is mostly dry and austere, pleasing contrasts are found in the green ribbon of life along the river, as well as the hanging gardens and pockets of huge fir trees scattered within the cliffs.</p>

**Attachment 2: Outstandingly Remarkable Values Of Eligible Rivers**

River/Segment Name and Other Information	Description Of Values Present
<p><b>Reason for Free-flowing Determination:</b> (All segments) Natural Flow</p>	<p><b>Geology</b> These segments of the Green River offer an outstanding example of an antecedent river cutting through structural geology that should have been impassable to it. As the land surface rises towards the south, the Green River continues to flow to the south and hence decreases in elevation despite the trend of the surrounding landscape. This results in the deepest canyon in Utah, Desolation Canyon. The corridor of the Green in this stretch also provides the region's best examples of reattachment bars and separation bars formed by the processes of fluvial geomorphology in bedrock canyons.</p> <p><b>Fish</b> This portion of the Green River provides habitat for four Federally listed fish species: Colorado Pikeminnow, Humpback Chub, Bonytail Chub, and Razorback Sucker. Of notable significance, this river contains designated critical habitat for the pikeminnow. Spawning areas for this species have been confirmed within this river, which is also considered important for young of the year pikeminnows. Known populations of Humpback Chub and Razorback Sucker have been confirmed within this river, while Bonytail Chubs are suspected to occur. This river is considered regionally important for the recovery of these four Federally listed species.</p> <p><b>Wildlife</b> This portion of the Green River is considered to have remarkable value for both avian and terrestrial wildlife populations. With regard to avian species, this river corridor is regionally significant, both for its diversity of avian species and for supporting habitats for Federally listed and BLM sensitive avian species. Confirmed Federally listed species present include Bald Eagle, Mexican Spotted Owl and Southwestern Willow Flycatcher. BLM sensitive species known to occur include Peregrine Falcon, Yellow-breasted Chat, Yellow-billed Cuckoo. The river corridor is presently used by Bald Eagles during the winter, but is also considered potential nesting habitat. Mexican Spotted Owl have been verified nesting within this river corridor. The corridor, designated critical habitat for Mexican Spotted Owl, is believed to be significant for their expansion. The Green River segment is also important for Rocky Mountain Bighorn Sheep, mule deer and elk. The entire corridor is regionally significant as lambing habitat for the Rocky Mountain bighorn and considered important winter range for mule deer and elk.</p> <p><b>Ecological</b> The Green River hosts a variety of avian, terrestrial, and aquatic species populations. The river and its properly functioning riparian area provide a corridor of habitat through an otherwise arid region for many sensitive and Federally listed species of birds and fish, as well as populations of bighorn sheep, deer, elk, black bear, mountain lion, and beaver. The corridor supports rare plant species including a recently discovered</p>

**Attachment 2: Outstandingly Remarkable Values Of Eligible Rivers**

River/Segment Name and Other Information	Description Of Values Present
	species of columbine. The stability of this ecosystem, largely unchanged from the passage of John Wesley Powell, contributed to the designation of Desolation Canyon National Historic Landmark.
<p><b>Green River: Labyrinth Canyon</b></p> <p><b>Segment (4): I-70 bridge to river mile 91 below Ruby Ranch</b></p> <p><b>Segment (5): Mile 91 below Ruby Ranch to Hey Joe Canyon</b></p> <p><b>Segment (6): Hey Joe Canyon to Canyonlands NP boundary</b></p> <p><b>Tentative Classification:</b></p> <p>Segment (4): Scenic</p> <p>Segment (5): Wild</p> <p>Segment (6): Scenic</p> <p><b>Reason for Tentative Classification:</b></p> <p>Segment (4): Road access and ranch development</p> <p>Segment (5): No development present</p> <p>Segment (6): Dirt road present.</p> <p><b>Total River Miles:</b></p> <p>Segment (4): 28</p> <p>Segment (5): 15</p>	<p><b>Cultural</b></p> <p>This area has evidence of significant occupation and use by prehistoric peoples and includes some of the area of study used by Noel Morss in definition of the Fremont Culture. Its rock art and other features remain significant to some Native American populations today. The prehistoric use represent more than one cultural period (Archaic, Fremont and Numic). The sites have been largely isolated and retain integrity and are important for interpreting regional prehistory. Many sites are eligible for the National Register of Historic Places.</p> <p><b>Recreation</b></p> <p>Labyrinth Canyon of the Green River is approximately 68 miles in length. The character of this canyon is completely different from that of Desolation Canyon. This stretch of river has no rapids, making it an excellent experience for canoe paddlers of all abilities. It provides a four to seven day backcountry paddling experience. There are also great opportunities for dispersed camping and hiking to cultural sites, unique geologic features and other attractions. Approximately 7,000 people per year enjoy this popular trip. The section is also suitable for powerboat use at some water levels and provides for much of the annual Friendship Cruise route, a decades-long running powerboat event. This section of the Green River has been widely reported on in newspapers from coast to coast as well as in specialty publications such as Paddler Magazine.</p> <p><b>Scenic</b></p> <p>Scenic values are largely a product of the geology. The Green River meanders through a deeply incised canyon. Explorer John Wesley Powell named the canyon for its many intricate twists and turns. At Bowknot Bend, one travels a distance of seven river miles to end up within a quarter mile of one's start. Varnished cliffs are cut in places by the narrow mouths of shaded side canyons where mature cottonwood trees are harbored. In the lower parts of the canyon, vertical cliffs of Wingate sandstone rise 1,000 feet above the river.</p> <p><b>Fish</b></p> <p>This portion of the Green River provides habitat for four endangered fish: the Colorado Pikeminnow, Humpback Chub, Bonytail Chub, and Razorback Sucker. The Green River provides spawning habitat for the Colorado Pikeminnow. The river contains critical habitat as designated by U.S. Fish and Wildlife Service for these species.</p> <p><b>Paleontology</b></p> <p>Fossilized dinosaur bones visible in Morrison Formation outcrop have been reported by reliable sources (Dr. Paul Bybee, geology professor at Utah Valley State College in Orem, UT). These fossils are visible from the river.</p>

**Attachment 2: Outstandingly Remarkable Values Of Eligible Rivers**

River/Segment Name and Other Information	Description Of Values Present
<p>Segment (6): 29</p> <p><b>Reason for Free-flowing Determination:</b> (All segments) Natural Flow</p>	
<p><b>RATTLESNAKE CANYON</b></p> <p><b>Source to Green River (including Flat Nose George Tributary)</b></p> <p><b>Tentative Classification:</b> Wild</p> <p><b>Reason for Tentative Classification:</b> No roads or development present.</p> <p><b>BLM Free-flowing River Miles:</b> 31.6</p> <p><b>Reason for Free-flowing Determination:</b> Natural Flow</p>	<p><b>Scenery</b> The Rattlesnake Canyon system cuts deeply into the Book Cliffs, providing great topographical relief with sheer canyons. Green riparian vegetation contrasts with the gray-yellow of the surrounding cliffs. The Rattlesnake Canyon system is one of the many complexes of canyons that form Desolation/Gray Canyon, Utah's deepest canyon. It is a remarkable and outstanding scenic resource within the entire Tavaputs Plateau.</p> <p><b>Wildlife</b> Rattlesnake and its associated canyons have remarkable value to both avian and terrestrial wildlife populations. These canyons are important for Rocky mountain bighorn sheep, mule deer and elk. These segments are vitally significant as lambing habitat for the Rocky Mountain bighorn and considered important winter range for mule deer and elk. In addition, predators, such as lion and bear inhabit these canyons. Raptors, including the peregrine falcon and golden eagle, also depend on the canyons for habitat and nesting and roosting sites. These canyons are important habitat for neotropical migrants, and possible habitat for southwestern willow flycatcher and Mexican spotted owl, both federally listed on the Endangered Species List. Here, riparian areas and steep canyons offer these two rare species of birds optimum nesting and foraging habitat , with the Southwestern willow flycatcher being directly reliant on habitat that offers free standing water, riparian plant species, vegetative cover, and water related insects to nest and raise their young. Rattlesnake Canyon has a great variety of wildlife species, due to the limited development of this area which offers wildlife low levels of fragmentation and disturbances, resulting in diverse, vigorous, and self-sustaining wildlife populations. Within the arid southwest all riparian habitat is vital to all forms of wildlife, due to the lack of available free water. Water and the vegetative cover available within riparian areas offers needed drinking water, microclimates, food, and cover to wildlife and the varies life stages of many species. Rattlesnake Canyon is vital wildlife habitat within the larger Book Cliffs wildlife habitat.</p> <p><b>Geology</b> Rattlesnake Canyon provides an outstanding example of one of the most rugged areas in Utah known as the Book Cliffs, where strata of Cretaceous and Tertiary ages form massive linear cliffs and sloping pediments. This canyon provides an opportunity to study the inter-fingering of offshore and onshore sedimentary rocks that were deposited</p>

**Attachment 2: Outstandingly Remarkable Values Of Eligible Rivers**

River/Segment Name and Other Information	Description Of Values Present
	<p>during the advance and retreat of Cretaceous seas.</p> <p>The Book Cliffs retreat northward through erosion, and run at right angles to the Cretaceous shore, as represented by the fine gray Mancos Shale. These cliffs are composed of the freshwater deposits of the Mesa Verde Group, primarily light brown sandstones that form terraced cliffs several hundred feet high, as well as shale and coal beds, which were deposited as plant matter in lagoons and swamps along Cretaceous shores. Some geologists differentiate a Tusher deposit above the Mesa Verde while others include it in the Mesa Verde Group. Above are the Wasatch and Green River Formations. This is a unique geologic resource.</p> <p><b>Ecological</b></p> <p>Rattlesnake Canyon is a large tributary to the Green River. Rattlesnake Canyon and its tributaries represent a wide range of ecological communities ranging from arid desert Mancos shale badlands along the Green River near 4,000 feet to alpine Douglas fir and spruce communities in the Book Cliffs near 9,200 feet elevation. The majority of the canyon system is extremely rugged and remote, with access only by foot and horse, or from boat along the Green River. The area contains mature old growth forests, which provide textbook examples of remote inaccessible high mountain elevations. Upper portions of Rattlesnake and its tributaries contain lush, wetland marshes and riparian resources of unusually high quality and distribution. Upper portions of the canyon system are generally perennial, with lower elevations containing intermittent flow supported by springs and seeps. The ecological diversity of the canyons provides excellent remote habitat for other wildlife species including moose, bear, elk, mountain lion and beaver. The stream canyon provides habitat for a population of Rocky Mountain bighorn sheep which were reintroduced into the canyons in the early 1970s. Nearly 250 species of birds can be found near the Green River portions of the canyon, as well as others throughout the diverse mountain habitats. The ecologically diverse nature and extent of Rattlesnake Canyon, particularly its headwaters that support remote, mountain and wetlands habitats, provides Outstandingly Remarkable ecological values within the region.</p>

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### Attachment 3. Eligible River/Segments and Their Tentative Classification, Moab Field Office

River/ Segment Name	Segment Description and Approximate Length in Free-Flowing BLM River Miles (BLMRM), Total River Miles (TRM) <sup>1</sup>	Outstandingly Remarkable Value(s)	Tentative Classification
Colorado River  TRM segments 1-6 is 99.5	(1) Colorado/Utah Stateline to Westwater Canyon (BLMRM 1)(TRM 6.7)	Scenery, recreation, wildlife, fish, cultural, ecological	Scenic
	(2) Westwater Canyon, Mile 125, to River Mile 112 (BLMRM 11.8)(TRM 13)	Scenery, recreation, wildlife, fish, cultural, geology, ecological	Wild
	(3) River Mile 112 to confluence with the Dolores River (BLMRM 11.2)(TRM 15.7)	Recreation, wildlife, fish, cultural, ecological	Scenic
	(4) Confluence with the Dolores River to mile 49 near Potash (BLMRM 32.6)(TRM 53.5)	Scenery, recreation, wildlife, fish, cultural, geology, ecological	Recreational
	(5) River Mile 44.5 to Mile 38.5 State land boundary (BLMRM 6.1)(TRM 6.8)	Scenery, recreation, wildlife, fish, cultural, ecological	Scenic
	(6) River Mile 37.5 State land to Mile 34 Canyonlands NP (BLMRM 3.8) (TRM 3.8)	Scenery, recreation, wildlife, fish, cultural, ecological	Wild
Cottonwood Canyon	Source near Cottonwood Point to Private land boundary including the first half mile of Horse Canyon (BLMRM 10.4)(TRM 13.6)	Scenery, wildlife, ecological	Scenic
Onion Creek (TRM 13.22)	(1) Source to Onion Creek Road (BLMRM 3.5)	Scenery, geology, ecological	Wild
	(2) Beginning of Onion Creek Rd to Colorado River (BLMRM 9)	Scenery, geology	Recreational
Professor Creek (Mary Jane Canyon)	Forest Service and State land boundary to Diversion near private land (BLMRM 7.4) (TRM 7.7)	Scenery, recreation	Wild
Salt Wash	Arches NP boundary to the Colorado River (BLMRM .33) (TRM 6.33)	Scenery, recreation, wildlife, fish, geology	Wild
Negro Bill Canyon (TRM 7.45)	(1) From state land below rim to ¼ mile from Colorado River (BLMRM 7.2)	Scenery, recreation, ecological	Wild
	(2) Last ¼ mile to Colorado River (BLMRM .25)	Scenery, recreation, ecological	Recreational
Mill Creek (1-Upper) (2-Middle) (TRM 12.6)	(1) Forest boundary to private property below the diversion (BLMRM 1.4)	Scenery, recreation, fish, cultural, ecological	Recreational
	(2) T.26 S. R. 23 E., Sec. 19 to Power Dam (BLMRM 4.6)	Scenery, recreation, fish, cultural, ecological	Scenic
North Fork Mill Creek	Forest boundary near Wilson Mesa to Mill Creek (BLMRM 11.2)(TRM 11.7)	Scenery, recreation, cultural, ecological	Wild

**Attachment 3. Eligible River/Segments and Their Tentative Classification, Moab Field Office**

<b>River/ Segment Name</b>	<b>Segment Description and Approximate Length in Free-Flowing BLM River Miles (BLMRM), Total River Miles (TRM)<sup>1</sup></b>	<b>Outstandingly Remarkable Value(s)</b>	<b>Tentative Classification</b>
Dolores River (TRM 23.63)	(1) Colorado-Utah Stateline to Fisher Creek (BLMRM 5.9)	Scenery, recreation, wildlife, fish, geology, ecological	Scenic
	(2) Fisher Creek to Bridge Canyon (BLMRM 6.2)	Scenery, recreation, wildlife, fish, geology, ecological	Wild
	(3) Bridge Canyon to Colorado River (BLMRM 9.9)	Recreation, wildlife, fish, geology, ecological	Scenic
Beaver Creek (TRM 9)	(1) FS boundary to 1 mile from Dolores River (BLMRM 6.7)	Scenery, recreation, fish, ecological	Wild
	(2) One mile to Dolores River (BLMRM 1)	Scenery, recreation, geology	Scenic
Thompson Canyon	Source of Thompson to Fisher Creek (Cottonwood Cyn) (BLMRM 5.5)(TRM 5.5)	Scenery, ecological	Wild
Green River <sup>2</sup>	(1) Coal Creek to Nefertiti Boat Ramp (TRM 6)	Scenery, recreation, wildlife, fish, cultural/historic, geology, ecological	Wild
	(2) Nefertiti Boat Ramp to Swasey's Boat Ramp (TRM 8)	Scenery, recreation, wildlife, fish, cultural/historic, geology, ecological	Recreational
	(3) Swasey's Boat Ramp to I-70 bridge (TRM 13)	Scenery, recreation, wildlife, fish, cultural/historic, geology, ecological	Recreational
	(4) I-70 Bridge to river mile 91 below Ruby Ranch (TRM 28)	Scenery, recreation, fish, cultural/historic, paleontology	Scenic
	(5) Mile 91 below Ruby Ranch to Hey Joe Canyon (TRM 15)	Scenery, recreation, fish, cultural/historic	Wild
	(6) Hey Joe Canyon to Canyonlands NP boundary (TRM 29)	Scenery, recreation, fish, cultural/historic	Scenic
Rattlesnake Canyon	Source to Green River (including Flat Nose George Trib) (BLMRM 31.6) (TRM 36)	Scenery, wildlife, geology, ecological	Wild

<sup>1</sup>Total River Miles (TRMs) are estimated. Segment 4 of the Colorado River TRM includes river along the Potash Plant.

<sup>2</sup>The Price Field Office (in coordination with the Moab Field Office) reviewed the Green River as part of the Price Field Office RMP. The Moab RMP will carry forward eligibility findings for the Moab side of the Green River.

**Attachment 4: Suitability Considerations by Eligible River Segment**

Suitability Considerations	Consideration Applied to Eligible River
<b>Colorado River – Segments 1, 2, and 3</b>	
Characteristics which would or would not make it suitable	The Colorado River possesses outstandingly remarkable scenic, fish, recreation, geologic, wildlife, cultural and ecological values.
Land ownership status and current use of the area.	<ul style="list-style-type: none"> <li>♦ Segment 1 is adjacent to private land and downstream from BLM land managed by the Grand Junction Field Office</li> <li>♦ Segment 2 is 100% BLM, is in a WSA and all minerals have been withdrawn.</li> <li>♦ Segment 3 is approximately 60% BLM and 30% private land</li> <li>♦ Recreational water related activities, boating, rafting, fishing, sight-seeing, and hunting.</li> <li>♦ Segment 1 would be difficult to manage due to the block of private land with which it is surrounded.</li> <li>♦ Segment 3 may need to have tentative classification changed from scenic to recreational to accommodate possible development on private lands.</li> </ul>
Uses, including reasonably foreseeable uses, that would be enhanced or curtailed if designated; and values that would be diminished if not designated.	<ul style="list-style-type: none"> <li>♦ Interstate [water] compacts are not affected by WSR [WSRA, Sec 13: Jurisdiction of the States]</li> <li>♦ There are withdrawals in the area including the Three Rivers Withdrawal.</li> <li>♦ Recreation: no difference if designated or not; BLM Moab FO issues permits on Westwater Canyon portion of the Colorado R; Moab FO patrols segments 1-3.</li> <li>♦ Riparian / Vegetative / Wildlife: enhancement or protective mgmt are available under law/policy.</li> <li>♦ Grazing: most occurs on mesas outside ¼ mile; however, some within ¼ mile at river edge</li> <li>♦ WSA/Wilderness: 1 WSA (Westwater WSA) is within the Colorado River area of the Moab FO</li> <li>♦ Segment 2 may be designated as wilderness, Wild and Scenic River (WSR) designation would enhance this. WSR designation would enhance recreational opportunities including commercial river trips.</li> <li>♦ SITLA – although the Moab FO RMP management decisions will not be binding upon trust lands, development of trust land can be drastically affected by management prescriptions applied to adjacent public lands.</li> <li>♦ Mining – Wild segments would be withdrawn. Hard rock mining (locatable minerals) would be curtailed under segment 2 although it is already withdrawn.</li> <li>♦ Segment 3 - mineral development could be diminished.</li> </ul>
Interest of federal, public, state, tribal, local, or other public entity in designation of non-designation, including administration sharing.	<ul style="list-style-type: none"> <li>♦ Interest/Support: high from national River groups, NPS, some local residents, rafting companies, and environmental organizations; American Rivers, Utah River Council, and NRI listing.</li> <li>♦ Participation: other federal agencies are actively participating in WSR process</li> <li>♦ NPS: no eligible river/segments on Colorado river segments 1-3</li> <li>♦ USFS: no eligible river/segments on Colorado River</li> <li>♦ Other BLM Areas: eligibility determination and tentative classification levels are the same as those determined by the BLM Grand Junction FO for the Loma segment which is</li> </ul>

**Attachment 4: Suitability Considerations by Eligible River Segment**

Suitability Considerations	Consideration Applied to Eligible River
	adjacent to segment 1. ♦ Cost sharing – BLM only. No monetary contribution from counties, state or outfitters can be expected. ♦ Interest/Support: No support from Grand County government. ♦ Participation: None from Grand County or SITLA
Manageability of the river if designated and other means of protecting values.	BLM uses management prescriptions and applicable laws / policies to protect the river and its ORVs. Currently, recreational for Westwater (segment 2) use is under a permit system administered by the BLM. Westwater WSA protection overlays in segment 2 no other management protection overlays segments 1 and 3. Segment 1 has a high percentage of non-federal land.  Segment 1 & 3 zoned R & G.  Withdrawn from mining.  The county has ability to manage through zoning ordinances. Zoning ordinances protect and address natural resource concerns.  Potential tools already available can protect river related values.  NEPA, ESA, ARPA, FLPMA give tools to protect some of the river related values (SJ).
The estimated costs of administering the river, including costs for acquiring lands.	Administration costs for segments 1-3 would include staff / time to develop and complete study and management reports. Current management protects Wild and Scenic values and would not change.  ♦ Segment 1 – Acquisitions or easements could be costly due to the high percentage of non-federal lands present. ♦ Segment 2 – No non-federal lands and no acquisition costs. ♦ Segment 3 – Private lands on this segment not necessary for designation.
The extent to which administration costs will be shared by local and state governments.	No monetary contribution from counties or state can be expected.
<b>Colorado River – Segments 4, 5, and 6</b>	
Characteristics which would or would not make it suitable	The Colorado River possesses outstandingly remarkable scenic, fish, recreation, geologic, wildlife, cultural and ecological values.
Land ownership status and current use of the area.	Moab FO ownership for segment 4 is approx. 80% BLM and 20% private land. Segments 5 and 6 are downstream and share a boundary with Monticello FO.  Ownership along the Monticello Field Office administered [the east/south side of the river; Moab FO administers the west/north side] portion of the river is 73%; the remaining 27% is in state ownership (SITLA).  ♦ Recreational water related activities, boating, rafting, fishing, sight-seeing ♦ Available for grazing ♦ OHV use limited to designated roads and trails
Uses, including reasonably foreseeable uses, that would be	♦ The Colorado River segments 5, 6, and a portion of segment 4 are navigable, thus much of the water is controlled by the State of Utah [The privately owned Potash facility is located on the

**Attachment 4: Suitability Considerations by Eligible River Segment**

Suitability Considerations	Consideration Applied to Eligible River
<p>enhanced or curtailed if designated; and values that would be diminished if not designated.</p>	<p>west side within the Moab FO segment 4, and leases are issued by the State of Utah].</p> <ul style="list-style-type: none"> <li>♦ Interstate [water] compacts are not affected by WSR [WSRA, Sec 13: Jurisdiction of the States].</li> <li>♦ Segment 4 within Grand County is in the Three Rivers Withdrawal.</li> <li>♦ There are power site withdrawals in the area.</li> <li>♦ On the lower 12 mile segment (segments 5 &amp; 6) mineral leasing is currently Category 1, surface use with standard conditions apply for approximately the first 4 miles of land adjacent to the river. Below approximately river mile 40 to the Canyonlands NP boundary, mineral leasing is Category 2, special conditions apply.</li> <li>♦ Recreation: no difference if designated or not; NPS issues permits on Colorado River downstream from segment 6; Moab FO patrols segments 4-6.</li> <li>♦ Geology: is millions of years old and will not change except for natural weathering/erosion.</li> <li>♦ Riparian/Vegetative/Wildlife: enhancement or protective mgmt are available under law/policy.</li> <li>♦ Grazing: most occurs on mesas outside ¼ mile; however, some within ¼ mile at river edge.</li> <li>♦ WSAs/Wilderness: no WSAs along Colorado River segments 4-6.</li> <li>♦ SITLA – although the Moab and Monticello FO RMP management decisions will not be binding upon trust lands, development of trust land can be drastically affected by management prescriptions applied to adjacent public lands.</li> </ul>
<p>Interest of federal, public, state, tribal, local, or other public entity in designation of non-designation, including administration sharing.</p>	<ul style="list-style-type: none"> <li>♦ Interest/Support: high from national River groups, rafting companies, NPS, some local residents, and environmental organizations; American Rivers, Utah River Council, and NRI listing.</li> <li>♦ Participation: other federal agencies are actively participating in WSR process, and currently (NPS and BLM Moab FO) partner with administration of river, and carry costs associated with permit process.</li> <li>♦ NPS: eligibility for lower portion of the Monticello FO Colorado River segment as it flows into Canyonlands NP shows same tentative classification as determined by NPS: Wild</li> <li>♦ USFS: no eligible river/segments on Colorado River</li> <li>♦ Other BLM Areas: eligibility determination and tentative classification levels are the same as those determined by the BLM Moab FO for the Colorado River.</li> <li>♦ Interest/Support: low or negative interests or support from local people and from the San Juan County government.</li> <li>♦ Participation: San Juan County notes they do not have the staff or financial ability to participate, share, nor help administer or manage values on a WSR. ... San Juan County will not share in either the administration or the cost of WSR designation of the Colorado River. ... The State or its political subdivisions will not participate in the preservation and administration of lands or rivers which are located on federal lands [stated by San Juan</li> </ul>

**Attachment 4: Suitability Considerations by Eligible River Segment**

Suitability Considerations	Consideration Applied to Eligible River
	County].
Manageability of the river if designated and other means of protecting values.	<p>BLM uses management prescriptions and applicable laws / policies to protect the river and its ORVs. Currently, recreational use is under a permit system administered by the National Park Service (Canyonlands NP). There are no other current management / protection overlays along segments 4-6 of the Colorado River.</p> <p>Portions of segment 4 and all of segments 5 and 6 are navigable stretches of river, and the bed and banks under the jurisdiction of the state of Utah.</p> <p>SITLA - The presence of trust lands along the WSR corridor could encumber the manageability of the WSR system by over segmentation or by development that is inconsistent with the purpose of the WSRA.</p>
The estimated costs of administering the river, including costs for acquiring lands.	There should be no acquisition costs involved in the potential designation of the Colorado River as a WSR. Administration costs would include staff / time to develop and complete study and management reports
The extent to which administration costs will be shared by local and state governments.	San Juan County: "Considering the budget status of the State and County, it seems highly unlikely that either would put much priority in managing and/or protecting the non-federal lands in the area".
<b>Cottonwood Canyon (Book Cliffs)</b>	
Characteristics which would or would not make it suitable	Cottonwood Canyon possesses outstandingly remarkable scenery, wildlife, and ecological values.
Land ownership status and current use of the area.	<p>The 13.6 mile eligible segment of Cottonwood Canyon crosses 3 state sections of land.</p> <ul style="list-style-type: none"> <li>♦ Recreational activities including sight-seeing, hiking, hunting, and horseback riding.</li> <li>♦ Available for grazing</li> <li>♦ OHV use limited to inventoried vehicle ways.</li> </ul>
Uses, including reasonably foreseeable uses, that would be enhanced or curtailed if designated; and values that would be diminished if not designated.	<ul style="list-style-type: none"> <li>♦ Interstate [water] compacts are not affected by WSR [WSRA, Sec 13: Jurisdiction of the States]</li> <li>♦ There are no withdrawals.</li> <li>♦ Area is open to mineral leasing.</li> <li>♦ Oil and Gas category is open with special stipulations.</li> <li>♦ Recreation: no difference if designated or not; BLM Moab FO-</li> <li>♦ Riparian / Vegetative / Wildlife: enhancement or protective mgmt are available under law/policy.</li> <li>♦ Grazing: occurs in this canyon</li> <li>♦ WSA/Wilderness: Cottonwood Canyon falls within the Spruce Canyon WSA.</li> </ul>
Interest of federal, public, state, tribal, local, or other public entity in designation of non-designation, including administration sharing.	<ul style="list-style-type: none"> <li>♦ Interest/Support: high from some local residents, and environmental organizations; American Rivers, Utah River Council, and NRI listing.</li> <li>♦ Participation: other federal agencies are actively participating in WSR process but none adjacent to this river segment.</li> <li>♦ NPS: none</li> <li>♦ USFS: none</li> <li>♦ Other BLM Areas: none</li> </ul>

**Attachment 4: Suitability Considerations by Eligible River Segment**

Suitability Considerations	Consideration Applied to Eligible River
Manageability of the river if designated and other means of protecting values.	BLM uses management prescriptions and applicable laws / policies to protect the river and its ORVs. Currently Cottonwood Canyon is in a WSA and is protected by interim management policy. No other management overlays are in this location. SITLA intermixed with public lands may affect management.
The estimated costs of administering the river, including costs for acquiring lands.	There should be no acquisition costs involved in the potential designation of the Cottonwood Canyon as a WSR. Administration costs would include staff / time to develop and complete study and management reports SITLA easements may be necessary.
The extent to which administration costs will be shared by local and state governments.	No support from state or local governments.
<b>Onion Creek – Segments 1 and 2</b>	
Characteristics which would or would not make it suitable	Onion Creek possesses outstandingly remarkable scenery, geology, and ecological values.
Land ownership status and current use of the area.	96% BLM, 4% private land <ul style="list-style-type: none"> <li>♦ Recreational activities including sight-seeing, hiking, and horseback riding.</li> <li>♦ Available for grazing</li> <li>♦ OHV use limited to designated roads and trails.</li> </ul>
Uses, including reasonably foreseeable uses, that would be enhanced or curtailed if designated; and values that would be diminished if not designated.	<ul style="list-style-type: none"> <li>♦ Interstate [water] compacts are not affected by WSR [WSRA, Sec 13: Jurisdiction of the States]</li> <li>♦ There are no withdrawals</li> <li>♦ Mineral leasing is open.</li> <li>♦ Oil and gas lease category is open with special stipulations.</li> <li>♦ Recreation: no difference if designated or not; current restrictions exist for vehicle use in the streambed.</li> <li>♦ Geology: is millions of years old and will not change except for natural weathering / erosion</li> <li>♦ Riparian / Vegetative / Wildlife: enhancement or protective mgmt are available under law/policy.</li> <li>♦ Grazing: occurs next to stream</li> <li>♦ WSA/Wilderness: No WSAs in this area.</li> </ul>
Interest of federal, public, state, tribal, local, or other public entity in designation of non-designation, including administration sharing.	<ul style="list-style-type: none"> <li>♦ Interest/Support: high from some local residents, and environmental organizations</li> <li>♦ Participation: other federal agencies are actively participating in WSR process</li> <li>♦ NPS: none</li> <li>♦ USFS: none</li> <li>♦ Other BLM Areas: none</li> </ul>
Manageability of the river if designated and other means of protecting values.	BLM uses management prescriptions and applicable laws / policies to protect the river and its ORVs. Currently Onion Creek has no management overlays. Road issues in and near Onion Creek could affect management.
The estimated costs of administering the river, including costs for acquiring lands.	There should be no acquisition costs involved in the potential designation of the Onion Creek as a WSR. Administration costs would include staff / time to develop and complete study and

**Attachment 4: Suitability Considerations by Eligible River Segment**

Suitability Considerations	Consideration Applied to Eligible River
	management reports.
The extent to which administration costs will be shared by local and state governments.	No support from state or local governments.
<b>Professor Creek</b>	
Characteristics which would or would not make it suitable	Professor Creek possesses outstandingly remarkable scenery and recreation.
Land ownership status and current use of the area.	99.5% BLM, .5% private land <ul style="list-style-type: none"> <li>♦ Recreational activities including sight-seeing, hiking, and horseback riding.</li> <li>♦ Available for grazing</li> <li>♦ OHV use limited to designated roads and trails.</li> </ul>
Uses, including reasonably foreseeable uses, that would be enhanced or curtailed if designated; and values that would be diminished if not designated.	<ul style="list-style-type: none"> <li>♦ Interstate [water] compacts are not affected by WSR [WSRA, Sec 13: Jurisdiction of the States]</li> <li>♦ There are no withdrawals</li> <li>♦ Open to mineral leasing.</li> <li>♦ Oil and gas category is open with special stipulations.</li> <li>♦ Recreation: no difference if designated or not</li> <li>♦ Riparian / Vegetative / Wildlife: enhancement or protective mgmt are available under law/policy.</li> <li>♦ Grazing: occurs in this area</li> <li>♦ WSA/Wilderness: No WSAs in area.</li> </ul>
Interest of federal, public, state, tribal, local, or other public entity in designation of non-designation, including administration sharing.	<ul style="list-style-type: none"> <li>♦ Interest/Support: high from some local residents, and environmental organizations</li> <li>♦ Participation: other federal agencies are actively participating in WSR process</li> <li>♦ NPS: none</li> <li>♦ USFS: none</li> <li>♦ Other BLM Areas: none</li> </ul>
Manageability of the river if designated and other means of protecting values.	BLM uses management prescriptions and applicable laws / policies to protect the river and its ORVs. Currently Professor Creek has no management overlays.
The estimated costs of administering the river, including costs for acquiring lands.	There should be no acquisition costs involved in the potential designation of the Professor Creek as a WSR. Administration costs would include staff / time to develop and complete study and management reports.
The extent to which administration costs will be shared by local and state governments.	No support from state or local governments.
<b>Salt Wash</b>	
Characteristics which would or would not make it suitable	Salt Wash possesses outstandingly remarkable scenery, fish, recreation, geology, and wildlife.
Land ownership status and current use of the area.	8% BLM, 92% National Park Service in Arches NP <ul style="list-style-type: none"> <li>♦ Recreational activities including sight-seeing, hiking.</li> <li>♦ OHV use limited to designated roads and trails on BLM (no OHV allowed in Arches NP) BLM portion is inaccessible to</li> </ul>

**Attachment 4: Suitability Considerations by Eligible River Segment**

Suitability Considerations	Consideration Applied to Eligible River
<p>Uses, including reasonably foreseeable uses, that would be enhanced or curtailed if designated; and values that would be diminished if not designated.</p>	<p>OHV's.</p> <ul style="list-style-type: none"> <li>♦ Interstate [water] compacts are not affected by WSR [WSRA, Sec 13: Jurisdiction of the States]</li> <li>♦ The 6 miles in Arches NP is withdrawn</li> <li>♦ Falls within the boundary of the three rivers withdrawal.</li> <li>♦ Mineral leasing: This area is no surface occupancy due to being within ¼ mile of the Colorado River.</li> <li>♦ Recreation: no difference if designated or not Geology: is millions of years old and will not change except for natural weathering / erosion</li> <li>♦ Riparian / Vegetative / Wildlife: enhancement or protective mgmt are available under law/policy.</li> <li>♦ Grazing: no grazing occurs here.</li> <li>♦ WSA/Wilderness: No BLM WSA present. (proposed wilderness within Arches NP)</li> </ul>
<p>Interest of federal, public, state, tribal, local, or other public entity in designation of non-designation, including administration sharing.</p>	<ul style="list-style-type: none"> <li>♦ Interest/Support: high from NPS, some local residents, and environmental organizations; Participation: other federal agencies are actively participating in WSR process</li> <li>♦ NPS: found 6 miles of Salt Wash inside Arches NP as eligible and classified as wild. Arches NP is not doing suitability at this time.</li> <li>♦ USFS: none</li> <li>♦ Other BLM Areas: none</li> </ul>
<p>Manageability of the river if designated and other means of protecting values.</p>	<p>BLM uses management prescriptions and applicable laws / policies to protect the river and its ORVs. The majority of Salt Wash is managed by Arches National Park.</p>
<p>The estimated costs of administering the river, including costs for acquiring lands.</p>	<p>There should be no acquisition costs involved in the potential designation of the Salt Wash as a WSR. Administration costs would include staff / time to develop and complete study and management reports. (BLM and NPS staff time)</p>
<p>The extent to which administration costs will be shared by local and state governments.</p>	<p>No support from state or local governments.</p>
<p><b>Negro Bill Canyon – Segments 1 and 2</b></p>	
<p>Characteristics which would or would not make it suitable</p>	<p>Negro Bill Canyon possesses outstandingly remarkable scenery, recreation, and ecology.</p>
<p>Land ownership status and current use of the area.</p>	<p>100% BLM</p> <ul style="list-style-type: none"> <li>♦ Recreational activities including sight-seeing, hiking, swimming and wading.</li> <li>♦ No grazing for first 2 miles from river.</li> <li>♦ OHV use closed.</li> </ul>
<p>Uses, including reasonably foreseeable uses, that would be enhanced or curtailed if designated; and values that would be diminished if not designated.</p>	<ul style="list-style-type: none"> <li>♦ Interstate [water] compacts are not affected by WSR [WSRA, Sec 13: Jurisdiction of the States]</li> <li>♦ Segment 1 falls within the Three Rives Withdrawal. Segment 2 has not been withdrawn.</li> <li>♦ Segments 1 and 2 are closed to oil and gas leasing. This area is in a WSA.</li> <li>♦ Recreation: no difference if designated or not</li> <li>♦ Riparian / Vegetative / Wildlife: enhancement or protective</li> </ul>

**Attachment 4: Suitability Considerations by Eligible River Segment**

Suitability Considerations	Consideration Applied to Eligible River
	mgmt are available under law/policy. ♦ Grazing: excluded for the first two miles from Colorado River ♦ WSA/Wilderness: Negro Bill Canyon is in the Negro Bill Canyon WSA
Interest of federal, public, state, tribal, local, or other public entity in designation of non-designation, including administration sharing.	♦ Interest/Support: some local residents, and environmental organizations ♦ Participation: other federal agencies are actively participating in WSR process ♦ NPS: none ♦ USFS: none ♦ Other BLM Areas: none
Manageability of the river if designated and other means of protecting values.	BLM uses management prescriptions and applicable laws / policies to protect the river and its ORVs. Currently Negro Bill Canyon is protected by interim management for the Negro Bill WSA.
The estimated costs of administering the river, including costs for acquiring lands.	There should be no acquisition costs involved in the potential designation of the Negro Bill Canyon as a WSR. Administration costs would include staff / time to develop and complete study and management reports
The extent to which administration costs will be shared by local and state governments.	No support from state or local governments.
<b>Mill Creek – Segments 1 and 2</b>	
Characteristics which would or would not make it suitable	Mill Creek Canyon possesses outstandingly remarkable scenery, recreation, fish, cultural and ecology.
Land ownership status and current use of the area.	50% BLM, 22% private land, 28% SITLA (BLM may acquire SITLA through a land exchange) ♦ Recreational activities including sight-seeing, rock-art viewing, hiking, water-play and horseback riding. ♦ No grazing ♦ OHV use limited to designated roads and trails.
Uses, including reasonably foreseeable uses, that would be enhanced or curtailed if designated; and values that would be diminished if not designated.	♦ Interstate [water] compacts are not affected by WSR [WSRA, Sec 13: Jurisdiction of the States] ♦ There are no withdrawals. ♦ Open to mineral leasing. ♦ Oil and gas category is open with no surface occupancy. ♦ Recreation: no difference if designated or not ♦ Riparian / Vegetative / Wildlife: enhancement or protective mgmt are available under law/policy. ♦ Cultural: could be protected under ARPA. ♦ Grazing: most occurs on mesas outside ¼ mile; ♦ WSA/Wilderness: Mill Creek Canyon falls within the Mill Creek Canyon WSA
Interest of federal, public, state, tribal, local, or other public entity in designation of non-designation, including administration sharing.	♦ Interest/Support: from some local residents, and environmental organizations ♦ Participation: other federal agencies are actively participating in WSR process ♦ NPS: none ♦ USFS: Mill Creek Gorge was found to be eligible with a tentative classification of wild on Manti La Sal National Forest

**Attachment 4: Suitability Considerations by Eligible River Segment**

Suitability Considerations	Consideration Applied to Eligible River
	<ul style="list-style-type: none"> <li>♦ Other BLM Areas: none</li> </ul>
Manageability of the river if designated and other means of protecting values.	BLM uses management prescriptions and applicable laws / policies to protect the river and its ORVs. Currently Mill Creek is protected by interim management for the Mill Creek WSA.
The estimated costs of administering the river, including costs for acquiring lands.	There should be no acquisition costs involved in the potential designation of the Mill Creek as a WSR. Administration costs would include staff / time to develop and complete study and management reports.
The extent to which administration costs will be shared by local and state governments.	No support from state or local governments.
<b>North Fork Mill Creek</b>	
Characteristics which would or would not make it suitable	Mill Creek Canyon possesses outstandingly remarkable scenery, recreation, cultural and ecology.
Land ownership status and current use of the area.	99% BLM, 1% private land <ul style="list-style-type: none"> <li>♦ Recreational activities including sight-seeing, hiking, and horseback riding.</li> <li>♦ Available for grazing</li> <li>♦ OHV use limited to designated roads and trails.</li> </ul>
Uses, including reasonably foreseeable uses, that would be enhanced or curtailed if designated; and values that would be diminished if not designated.	<ul style="list-style-type: none"> <li>♦ Interstate [water] compacts are not affected by WSR [WSRA, Sec 13: Jurisdiction of the States]</li> <li>♦ There are no withdrawals.</li> <li>♦ Open to mineral leasing.</li> <li>♦ Oil and gas category is open with no surface occupancy.</li> <li>♦ Recreation: no difference if designated or not</li> <li>♦ Riparian / Vegetative / Wildlife: enhancement or protective mgmt are available under law/policy.</li> <li>♦ Cultural: would be protected by ARPA</li> <li>♦ Grazing: occurs in this area</li> <li>♦ WSA/Wilderness: Falls within Mill Creek Canyon WSA</li> </ul>
Interest of federal, public, state, tribal, local, or other public entity in designation of non-designation, including administration sharing.	<ul style="list-style-type: none"> <li>♦ Interest/Support: from some local residents, and environmental organizations</li> <li>♦ Participation: other federal agencies are actively participating in WSR process</li> <li>♦ NPS: none</li> <li>♦ USFS: none</li> <li>♦ Other BLM Areas: none</li> </ul>
Manageability of the river if designated and other means of protecting values.	BLM uses management prescriptions and applicable laws / policies to protect the river and its ORVs. Currently North Fork Mill Creek is protected by interim management for the Mill Creek WSA.
The estimated costs of administering the river, including costs for acquiring lands.	There should be no acquisition costs involved in the potential designation of the North Fork of Mill Creek as a WSR. Administration costs would include staff / time to develop and complete study and management reports.
The extent to which administration costs will be shared by local and state governments.	No support from state or local governments.

**Attachment 4: Suitability Considerations by Eligible River Segment**

Suitability Considerations	Consideration Applied to Eligible River
<b>Dolores River – Segments 1, 2, and 3</b>	
Characteristics which would or would not make it suitable	The Dolores River possesses outstandingly remarkable scenery, recreation, wildlife, fish, geology and ecology.
Land ownership status and current use of the area.	93% BLM, 7% private land <ul style="list-style-type: none"> <li>♦ Recreational water related activities include, sight-seeing, boating, rafting, fishing, and hiking.</li> <li>♦ Available for grazing</li> <li>♦ OHV use limited to existing roads and trails.</li> </ul>
Uses, including reasonably foreseeable uses, that would be enhanced or curtailed if designated; and values that would be diminished if not designated.	<ul style="list-style-type: none"> <li>♦ Interstate [water] compacts are not affected by WSR [WSRA, Sec 13: Jurisdiction of the States]</li> <li>♦ There are power site withdrawals in place.</li> <li>♦ Falls within the Three Rivers Withdrawal.</li> <li>♦ Oil and gas category is open with no surface occupancy.</li> <li>♦ Recreation: no difference if designated or not; BLM Moab FO issues permits on the Dolores River; Moab FO patrols segments 1-3.</li> <li>♦ Geology: is millions of years old and will not change except for natural weathering / erosion</li> <li>♦ Riparian / Vegetative / Wildlife: enhancement or protective mgmt are available under law/policy.</li> <li>♦ Grazing: most occurs on mesas outside ¼ mile; however, some within ¼ mile at river edge</li> <li>♦ WSA/Wilderness: No WSAs in area</li> </ul>
Interest of federal, public, state, tribal, local, or other public entity in designation of non-designation, including administration sharing.	<ul style="list-style-type: none"> <li>♦ Interest/Support: high from national River groups, some local residents, rafting companies, and environmental organizations; American Rivers, Utah River Council, and NRI listing.</li> <li>♦ Participation: other federal agencies are actively participating in WSR process</li> <li>♦ NPS: none</li> <li>♦ USFS: none</li> <li>♦ Other BLM Areas: eligibility determination and tentative classification levels are the same as those determined by the BLM Grand Junction FO for the segment of the Dolores River in Colorado which is upstream from segment 1.</li> </ul>
Manageability of the river if designated and other means of protecting values.	BLM uses management prescriptions and applicable laws / policies to protect the river and its ORVs. The Dolores River has no management overlays.
The estimated costs of administering the river, including costs for acquiring lands.	There should be no acquisition costs involved in the potential designation of the Dolores River as a WSR. Administration costs would include staff / time to develop and complete study and management reports. Possible costs of acquiring easements from private landowners, but not necessary for designation.
The extent to which administration costs will be shared by local and state governments.	No support from state or local governments.
<b>Beaver Creek – Segments 1 and 2</b>	
Characteristics which would or would not make it suitable	Beaver Creek possesses outstandingly remarkable scenery, recreation, fish, geology and ecology.

**Attachment 4: Suitability Considerations by Eligible River Segment**

Suitability Considerations	Consideration Applied to Eligible River
Land ownership status and current use of the area.	86% BLM, 14% SITLA <ul style="list-style-type: none"> <li>♦ Recreational activities including sight-seeing, hiking, and horseback riding.</li> <li>♦ Available for grazing</li> <li>♦ OHV use limited to designated roads and trails.</li> </ul>
Uses, including reasonably foreseeable uses, that would be enhanced or curtailed if designated; and values that would be diminished if not designated.	<ul style="list-style-type: none"> <li>♦ Interstate [water] compacts are not affected by WSR [WSRA, Sec 13: Jurisdiction of the States]</li> <li>♦ There are no withdrawals in the area.</li> <li>♦ Open to mineral leasing.</li> <li>♦ Oil and gas category is open.</li> <li>♦ Recreation: no difference if designated or not</li> <li>♦ Geology: is millions of years old and will not change except for natural weathering / erosion</li> <li>♦ Riparian / Vegetative / Wildlife: enhancement or protective mgmt are available under law/policy.</li> <li>♦ Grazing: occurs in areas</li> <li>♦ WSA/Wilderness: No WSAs</li> </ul>
Interest of federal, public, state, tribal, local, or other public entity in designation of non-designation, including administration sharing.	<ul style="list-style-type: none"> <li>♦ Interest/Support: from some local residents, and environmental organizations</li> <li>♦ Participation: other federal agencies are actively participating in WSR process</li> <li>♦ NPS: none</li> <li>♦ USFS: none</li> <li>♦ Other BLM Areas: none</li> </ul>
Manageability of the river if designated and other means of protecting values.	BLM uses management prescriptions and applicable laws / policies to protect the river and its ORVs. Beaver Creek has no management overlays.
The estimated costs of administering the river, including costs for acquiring lands.	There should be no acquisition costs involved in the potential designation of the Beaver Creek as a WSR. Administration costs would include staff / time to develop and complete study and management reports. Possible cost of acquiring easement for SITLA.
The extent to which administration costs will be shared by local and state governments.	No support from state or local governments.
<b>Thompson Canyon</b>	
Characteristics which would or would not make it suitable	Thompson Canyon possesses outstandingly remarkable scenery and ecology.
Land ownership status and current use of the area.	100% BLM <ul style="list-style-type: none"> <li>♦ Recreational activities including sight-seeing, hiking, and horseback riding.</li> <li>♦ Available for grazing</li> <li>♦ OHV use limited to existing roads and trails.</li> </ul>
Uses, including reasonably foreseeable uses, that would be enhanced or curtailed if designated; and values that would be diminished if not	<ul style="list-style-type: none"> <li>♦ Interstate [water] compacts are not affected by WSR [WSRA, Sec 13: Jurisdiction of the States]</li> <li>♦ There are no withdrawals in the area.</li> <li>♦ Open to mineral leasing.</li> <li>♦ Oil and gas category open.</li> </ul>

**Attachment 4: Suitability Considerations by Eligible River Segment**

Suitability Considerations	Consideration Applied to Eligible River
designated.	<ul style="list-style-type: none"> <li>♦ Recreation: no difference if designated or not</li> <li>♦ Riparian / Vegetative / Wildlife: enhancement or protective mgmt are available under law/policy.</li> <li>♦ Grazing: occurs in area</li> <li>♦ WSA/Wilderness: No WSAs</li> </ul>
Interest of federal, public, state, tribal, local, or other public entity in designation of non-designation, including administration sharing.	<ul style="list-style-type: none"> <li>♦ Interest/Support: from some local residents, and environmental organizations</li> <li>♦ Participation: other federal agencies are actively participating in WSR process</li> <li>♦ NPS: none</li> <li>♦ USFS: none</li> <li>♦ Other BLM Areas: none</li> </ul>
Manageability of the river if designated and other means of protecting values.	BLM uses management prescriptions and applicable laws / policies to protect the river and its ORVs. Thompson Canyon has no management overlays.
The estimated costs of administering the river, including costs for acquiring lands.	There should be no acquisition costs involved in the potential designation of the Thompson Canyon as a WSR. Administration costs would include staff / time to develop and complete study and management reports.
The extent to which administration costs will be shared by local and state governments.	No support from state or local governments.
<b>Rattlesnake Canyon</b>	
Characteristics which would or would not make it suitable	Rattlesnake Canyon possesses outstandingly remarkable scenery, wildlife, geology and ecology.
Land ownership status and current use of the area.	91% BLM, 9% SITLA <ul style="list-style-type: none"> <li>♦ Recreational activities including sight-seeing, hiking, hunting, and horseback riding.</li> <li>♦ Available for grazing</li> <li>♦ OHV use limited to existing roads and trails.</li> </ul>
Uses, including reasonably foreseeable uses, that would be enhanced or curtailed if designated; and values that would be diminished if not designated.	<ul style="list-style-type: none"> <li>♦ Interstate [water] compacts are not affected by WSR [WSRA, Sec 13: Jurisdiction of the States]</li> <li>♦ There are no withdrawals in the area.</li> <li>♦ Open to mineral leasing.</li> <li>♦ Oil and gas category is open with special stipulations.</li> <li>♦ Recreation: no difference if designated or not;</li> <li>♦ Geology: is millions of years old and will not change except for natural weathering / erosion</li> <li>♦ Riparian / Vegetative / Wildlife: enhancement or protective mgmt are available under law/policy.</li> <li>♦ Grazing: occurs in area</li> <li>♦ WSA/Wilderness: Is within the Desolation Canyon WSA.</li> </ul>
Interest of federal, public, state, tribal, local, or other public entity in designation of non-designation, including administration sharing.	<ul style="list-style-type: none"> <li>♦ Interest/Support: from some local residents, and environmental organizations</li> <li>♦ Participation: other federal agencies are actively participating in WSR process</li> <li>♦ NPS: none</li> <li>♦ USFS: none</li> <li>♦ Other BLM Areas: none</li> </ul>

**Attachment 4: Suitability Considerations by Eligible River Segment**

Suitability Considerations	Consideration Applied to Eligible River
Manageability of the river if designated and other means of protecting values.	BLM uses management prescriptions and applicable laws / policies to protect the river and its ORVs. Rattlesnake Canyon has management overlays, it is in a WSA.
The estimated costs of administering the river, including costs for acquiring lands.	There should be no acquisition costs involved in the potential designation of the Rattlesnake Canyon as a WSR. Administration costs would include staff / time to develop and complete study and management reports. May need to acquire easements from SITLA.
The extent to which administration costs will be shared by local and state governments.	No support from state or local governments.
<b>Green River – Segments 1 through 6</b>	
Characteristic which would or would not make it suitable	The Green River possesses outstandingly remarkable scenic, recreation, wildlife, historic, cultural, fish, geologic, and ecologic values many of which are nationally significant. These values are described in detail in Table 3.
Land ownership and current use	<p>Ownership within Price’s eligible river corridor is 66-percent federal (BLM lands), 18-percent Indian reservation, 1-percent State lands, and 15-percent private. Although the west bank is mostly BLM owned, the east bank of the river corridor in Desolation and Gray Canyons is Uintah and Ouray Indian Reservation for about 66 miles. A large majority of the private land is concentrated north and south of the town of Green River.</p> <p>The upper river segment through Desolation and Gray Canyons is managed according to the Desolation and Gray Canyons River Management Plan (1979), which provides for the allocation of private and commercial boating trips. The segment through Labyrinth Canyon is also managed for recreational boating through an MOU between the BLM and the State of Utah.</p> <p>Desolation and Gray Canyons receive high levels of primitive recreation use from early spring to late fall. Six private and commercial river launches of up to 25 people per launch are permitted every day of the high-use season (May 15 to August 15). Total user day capacity for the area is 35,000 user days per season. Desolation Canyon and Lower Gray Canyon SRMAs have been established to give focus to recreation management along the river corridor and side canyons.</p> <p>The river corridor and adjacent lands through Labyrinth Canyon, also a SRMA, attracts a large number of recreationists seeking a scenic river float. Roughly 3,000 to 4,000 visitors experience this flatwater float annually.</p> <p>About 66 of the roughly 80 miles of eligible river through Desolation and Gray Canyons either form the eastern boundary of Desolation Canyon WSA or bisect it. Also, roughly 22 of the 50 miles of river between the mouth of the San Rafael River and where the river enters Canyonlands National Park (the stretch of river through Labyrinth Canyon) form the eastern boundary of Horseshoe Canyon WSA. The river corridor within the WSAs is managed</p>

**Attachment 4: Suitability Considerations by Eligible River Segment**

Suitability Considerations	Consideration Applied to Eligible River
	<p>according to the IMP.</p> <p>Downstream of where the river exits Gray Canyon, below Swaseys Rapid, the river is considered a navigable waterway with State jurisdiction. Much of the lands between Swaseys Rapid and the confluence with the San Rafael River is private, used for agriculture, and has residential, commercial, and municipal development in and around the town of Green River. There is a large diversion dam at Tusher Wash, upstream of the town of Green River. A wide variety of activities occur within the river corridor.</p>
<p>Uses, including reasonably foreseeable uses, that would be enhanced or curtailed if designated; and values that would be diminished if not designated</p>	<p>Congressional designation would provide permanent protection specifically of the free-flowing condition of the river, its water quality, and ORVs in addition to protection already afforded portions of the river corridor by its WSA status. Those portions of the Green River corridor within WSAs have been recommended by BLM to Congress for wilderness designation. Designation of this river for inclusion in the National Wild and Scenic Rivers System would be compatible with and enhance wilderness use and management of these areas.</p> <p>Local municipalities, industries, and other water users have expressed concerns that existing water rights could be affected and that opportunities for future water development could be foreclosed, not only within the designated river segments, but also upstream or downstream of these segments; however, for the reasons discussed below, congressional designation of the Green River for inclusion in the National Wild and Scenic Rivers System would be expected to have no effect on water use, allocation, or flow regimes.</p> <p>Inclusion of a river in the National Wild and Scenic Rivers System could preclude dams or other water-related projects if they occur within the designated segment and have direct or adverse effects on the ORVs or free-flowing condition. None are currently proposed. Other projects on federal lands within the designated river area, such as construction of roads, pipelines, or other structures would not be allowed, and the lands would be closed to mineral location if Congress were to classify this segment as wild; however, in the preferred alternative considered in the Draft RMP/EIS, the recommendation is that Congress classify the river as Scenic, which would allow for various types of development. This classification is in keeping with a Scenic classification committed to in a MOU between the U.S. Department of the Interior and the Ute Tribe of the Uintah and Ouray Reservation for transfer of previous oil shale reserve lands on the east bank of the river to the Ute Tribe (described in more detail below). No development is currently proposed or foreseeable within the federal portions of this segment considering the area's WSA status. Water-related projects proposed outside the segment would be precluded only if they would invade or unreasonably diminish scenic, recreational, fish, or wildlife within the designated segment. None are currently proposed.</p>

**Attachment 4: Suitability Considerations by Eligible River Segment**

Suitability Considerations	Consideration Applied to Eligible River
	<p>Although the Wild and Scenic Rivers Act infers a federal reserved water right upon designation, rather than establishing an amount, it actually imposes a limit, stating that any such right is to be the minimum necessary for the purposes of the Act. Such a right would have to be adjudicated through the State and would be junior to any existing rights.</p> <p>Under normal operations, reservoir releases through the Flaming Gorge power plant, the primary influence of river flows outside of spring run-off flows, range from 800 to 4,600 cubic feet per second (cfs). These flows adhere to the interim operating criteria for Flaming Gorge Dam established by the Bureau of Reclamation in September 1974. Under these criteria, the Bureau of Reclamation agreed to provide (1) a minimum flow of 400 cfs at all times, (2) flows of 800 cfs under normal circumstances and for the foreseeable future, and (3) flows exceeding 800 cfs when compatible with other Colorado River Storage Project reservoir operations. These minimum flows are maintained to enhance the use of the river for fishing, fish spawning, and boating (United States Department of the Interior 2003).</p> <p>The Bureau of Reclamation completed the final EIS on the operation of Flaming Gorge Dam in February 2006. The purpose of the proposed action in the <i>Record of Decision, Operation of Flaming Gorge Dam, Final Environmental Impact Statement, February 26, 2006</i>, is to protect and assist in recovery of the populations and designated critical habitat of the four endangered fishes, while maintaining all authorized purposes of the Flaming Gorge Unit of the Colorado River Storage Project, including those related to the development of water resources in accordance with the Colorado River compact. BLM supports these recommendations and recognizes that the proposed minimum flow release from Flaming Gorge Dam would be sufficient to maintain or enhance the values for which the river was determined eligible. Because this minimum flow release would be adequate to maintain the ORVs, BLM sees no need for and would not pursue a federal reserved water right in any recommendation that is forwarded to Congress.</p> <p>On the other hand, failure of Congress to include these segments of the Green River in the National Wild and Scenic Rivers System would not necessarily diminish the values for which the river was determined eligible inasmuch as the area's WSA status would continue. The Lower Gray, Labyrinth Rim/Gemini Bridges SRMAs provide for the protection and enjoyment of certain values within the river corridor. The status of the WSAs, SRMAs, and other management prescriptions are subject to change as a result of congressional action or future revisions to land use plans. Such prescriptions would be temporary and could be changed through plan amendment or plan revision.</p>
<p>Interest of federal, public, state, tribal, local, or other public entity in designation or non-designation, including</p>	<p>Some private citizens and regional and national conservation groups have promoted congressional designation of the Green River.</p>

**Attachment 4: Suitability Considerations by Eligible River Segment**

Suitability Considerations	Consideration Applied to Eligible River
administration sharing	<p>The Navajo Tribe supports designation of the Green River, recognizing the river as a Traditional Cultural Property.</p> <p>Members of the Uintah and Ouray Indian Reservation Ute Tribal Council have expressed concerns pertaining to the effects of designation on potential use of tribal lands within the designated corridor; however, there is an agreement in place between the tribe and the Department of the Interior to administer the river corridor, including Reservation lands, consistent with “Scenic” Wild and Scenic River classification.</p> <p>The State of Utah has also expressed concerns regarding the designation of the Green River; however, it is supportive of designating portions of the Green River only if the Department of the Interior does not seek to acquire a federal reserved water right to ensure a minimal instream flow for the river. The State recognizes that the proposed minimum flow releases from Flaming Gorge Dam would be sufficient to maintain or enhance the river values that make the river eligible for designation and that no change in water use or allocation would be necessary or prudent.</p>
Manageability of the river if designated, and other means of protecting values	<p>BLM would be capable of managing this river if it were designated, particularly with adequate funding. Congressional designation of the Green River for inclusion in the National Wild and Scenic Rivers System would increase Utah BLM’s ability to compete for agency dollars, and with increased funding and focused management, the agency’s ability to deal with recreational and other management of the area would improve. Designation would promote national and public recognition of the values associated with this stream and further the goals and policy established by Congress in the Wild and Scenic Rivers Act.</p> <p>Designation of the Green River would not result in a substantial shift in management of the river corridor from current management, particularly those portions of the Green River within Desolation, Gray, and Labyrinth Canyons. The Desolation and Gray Canyons River Management Plan is consistent with the objectives of congressional Wild and Scenic river designation. Other protective management prescriptions currently in place that would complement National Wild and Scenic Rivers System management, if designated, are those for OHV use, fluid minerals leasing, SRMAs, WSAs, riparian habitat, and visual resources. The current management would provide a high degree of continuity and make the adjustment to Wild and Scenic management easy because current objectives are substantially similar to those of congressional designation.</p> <p>The U.S. Department of the Interior and the Ute Tribe of the Uintah and Ouray Reservation (among other government entities) signed the Memorandum of Understanding Concerning the Transfer of Naval Oil Shale Reserves Numbered 2, dated February 11, 2000. As part of the MOU agreement, a “Green River Protective Corridor” was established, which conveyed a scenic easement to the U.S. Department of the Interior for the river area lying within one-quarter</p>

**Attachment 4: Suitability Considerations by Eligible River Segment**

Suitability Considerations	Consideration Applied to Eligible River
	<p>mile east of the Green River within the Hill Creek Extension of the Uintah and Ouray Reservation. This MOU included a commitment by the Ute Tribe to administer this corridor consistent with the Scenic tentative classification, while preserving and protecting its values. This MOU is clearly, if not intentionally, consistent with potential congressional Wild and Scenic river designation.</p> <p>Another MOU between the State of Utah and BLM provides for the cooperative management of recreational boating through Labyrinth Canyon. The MOU established a permit system to ensure the scenic river experience is maintained, while reducing some of the negative impacts, whether on recreational or other river values, associated with a popular river float. This cooperative management would be perpetuated and likely enhanced if the Green River were congressionally designated.</p> <p>The free-flowing nature of this stream is not currently at risk, and the identified ORVs could be effectively managed with existing and other land-use prescriptions considered in the Moab Proposed RMP/Final EIS should designation not occur and if the management prescriptions were implemented. The status of the WSAs, SRMAs, and other management prescriptions are subject to change as a result of congressional action or revised land use plans; therefore, the protection they afford the river values is subject to change.</p>
<p>The estimated costs of administering the river, including costs for acquiring lands</p>	<p>The initial costs of administration for the first 3 years would involve management plan preparation. Yearly administration costs thereafter would involve plan implementation and could include additional studies, monitoring, and additional BLM presence in the area. Funding is not expected to be sought for the acquisition of private land (given willing sellers) because adequate management of the designated segments would not require acquisition of these lands.</p>
<p>The extent to which administration costs will be shared by local and state governments</p>	<p>Local governments have made it clear that they would not share management costs if the Green River were designated.</p> <p>The State of Utah would probably limit its support to the cooperative management of Labyrinth Canyon in accordance with the MOU between the State and the BLM.</p>

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## APPENDIX K.

# CONSERVATION MEASURES FOR T & E SPECIES OF UTAH FROM THE USE PLAN PROGRAMMATIC BAS AND SECTION 7 CONSULTATIONS

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As part of the proposed action, the BLM has included conservation measures to minimize or eliminate adverse impacts to federally listed species. The species known to currently inhabit the Moab planning area are: Mexican spotted owl, southwestern willow flycatcher, Jones cycladenia, and the four Colorado river fishes. The bald eagle is no longer a federally listed species; however, conservation measures to ensure the species' protection during the required monitoring period following delisting are included here. These measures are listed by species:

### K.1 BALD EAGLE (*HALIAEETUS LEUCOCEPHALUS*) CONSERVATION MEASURES

The following list of measures provides species-specific guidance intended to avoid, minimize, or reduce potential adverse impacts from implementation of BLM actions under the authority of current Utah BLM LUPs on the Bald eagle (*Haliaeetus leucocephalus*). This list is not comprehensive. Additional conservation measures, or other modified versions of these measures, may be applied for any given BLM-authorized activity upon further analysis, review, coordination efforts, and/or appropriate levels of section 7 consultation with the Service.

1. BLM will place restrictions on all authorized (i.e., permitted) activities that may adversely impact bald eagles, their breeding habitat, roosting sites, and known winter concentration areas, in order to avoid or minimize potential impacts.

Measures have been adapted from guidance published in the *Utah Field Office Guidelines for Raptor Protection from Human and Land-use Disturbances* (USFWS 2002), as well as coordination between BLM and the Service. Measures include, but may not be limited to seasonal/daily timing limitations, and/or spatial buffers as follows:

- Temporary activities<sup>1</sup> or habitat alterations that may disturb nesting bald eagles will be restricted from January 1st, to August 31st within 1.0 mile of Bald eagle nest sites. Exceptions may be granted where no nesting behavior is initiated prior to June 1st.
- Temporary activities or habitat alterations that may disturb bald eagles will be restricted within 0.5 mile of known winter concentration areas from November 1st to March 31st. Additionally, where daily activities must occur within these spatial buffers, and are approved through subsequent consultation, activities should be properly scheduled to occur after 9 a.m. and terminate at least one hour before official sunset to ensure that bald eagles using these roosts are allowed the opportunity to vacate their roost in the morning and return undisturbed in the evening.

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<sup>1</sup> Temporary activities are defined as those that are completed prior to the start of the following raptor breeding season, leaving no permanent structures and resulting in no permanent habitat loss.

- No permanent<sup>2</sup> infrastructure will be placed within 1.0 mile of bald eagle nest sites or within 0.5 mile of bald eagle winter concentration areas.
  - Where activities are authorized within breeding habitats or known winter concentration areas, monitoring efforts would document what, if any, impacts occur during project implementation, and to what extent the species was affected. The results of these monitoring efforts would be carried forward in the design and implementation of future projects as part of the adaptive management process.
2. For all project-related survey and monitoring actions:
    - Reports must be provided to affected field offices within 15 days of completion of survey or monitoring efforts. Reports must follow field office guidance for BLM-specified formats for written and automated databases.
    - Any detection of bald eagle presence during survey or monitoring efforts must be reported to the authorized officer within 48 hours of detection.
  3. Appropriately timed surveys in suitable bald eagle nesting habitat or identified concentration areas shall be conducted in accordance with approved protocols prior to any activities that may disturb bald eagles. Surveys would only be conducted by BLM-approved individuals or personnel.
  4. BLM shall in coordination with cooperating agencies and/or partners (e.g., UDWR, Service, etc.), verify annual status (active vs. inactive) of all known bald eagle nests, and other identified concentration areas on BLM administered lands.
  5. When project proposals that may affect threatened and endangered species are received, BLM will coordinate with the Service at the earliest possible date so that the Service can provide necessary information to minimize, or avoid, the need to redesign projects at a later date to include conservation measures that may be determined as appropriate by the Service.
  6. BLM administered lands within 1.0 mile of bald eagle nests, or identified communal winter roosts, should not be exchanged or sold. If it is imperative that these lands be transferred out of BLM ownership, then every effort should be made to include conservation easements or voluntary conservation restrictions to protect the bald eagles and support their conservation.
  7. Proponents of BLM authorized actions will be advised that roadside carrion can attract foraging bald eagles and potentially increase the risk of vehicle collisions with individuals feeding on carrion. When carrion occurs on the road, appropriate officials will be notified for necessary removal.
  8. Power lines will be built to standards and guidelines identified by the Avian Protection Plan (APP) Guidelines (APLIC and USFWS 2005).
  9. BLM will make educational information available to project proponents and the general public pertaining to the following topics:
    - appropriate vehicle speeds and the associated benefit of reduced vehicle collisions with wildlife;

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<sup>2</sup> Permanent activities continue for more than one breeding season and/or cause a loss of habitat or displace individuals through disturbance (e.g., creation of a permanent structure including but not limited to well pads, roads, pipelines, electrical power line).

- use of lead shot (particularly over water bodies);
- use of lead fishing weights; and
- general ecological awareness of habitat disturbance.

10. Since bald eagles are often dependent on aquatic species as prey items, BLM will periodically review existing water quality records (e.g., UDEQ, UDWR, USGS) from monitoring stations on, or near, important bald eagle habitats (i.e., nests, roost, concentration areas) on BLM lands for any conditions that could adversely affect bald eagles or their prey. If water quality problems are identified, BLM will contact the appropriate jurisdictional entity to cooperatively monitor the condition and/or take corrective action.

## **K. 2 MEXICAN SPOTTED OWL (*STRIX OCCIDENTALIS LUCIDA*) CONSERVATION MEASURES**

The following list of measures provides species-specific guidance, intended to avoid, minimize, or reduce potential adverse impacts from implementation of BLM actions under the authority of current Utah BLM LUPs on the Mexican spotted owl (*Strix occidentalis lucida*). This list is not comprehensive. Additional conservation measures, or other modified versions of these measures, may be applied for any given BLM-authorized activity upon further analysis, review, coordination efforts, and/or appropriate levels of section 7 consultation with the Service.

1. BLM will place restrictions on all authorized (permitted) activities that may adversely affect the Mexican spotted owl in identified PACs, breeding habitat, or designated critical habitat, to reduce the potential for adverse impacts to the species. Restrictions and procedures have been adapted from guidance published in the Utah Field Office Guidelines for Raptor Protection from Human and Land-use Disturbances (USFWS 2002b), as well as coordination between BLM and the Service. Measures include:
  - Surveys, according to USFWS protocol, will be required prior to any disturbance related activities that have been identified to have the potential to impact Mexican spotted owl, unless current species occupancy and distribution information is complete and available. All surveys must be conducted by USFWS certified individuals, and approved by the BLM authorized officer.
  - Assess habitat suitability for both nesting and foraging using accepted habitat models in conjunction with field reviews. Apply the appropriate conservation measures below if project activities occur within 0.5 mile of suitable owl habitat, dependent in part on if the action is temporary<sup>3</sup> or permanent<sup>4</sup>:

For all temporary actions that may impact owls or suitable habitat:

- If action occurs entirely outside of the owl breeding season, and leaves no permanent structure or permanent habitat disturbance, action can proceed without an occupancy survey.

<sup>3</sup> Temporary activities are defined as those that are completed prior to the start of the following raptor breeding season, leaving no permanent structures and resulting in no permanent habitat loss.

<sup>4</sup> Permanent activities continue for more than one breeding season and/or cause a loss of owl habitat or displaces owls through disturbances, e.g., creation of a permanent structure including but not limited to well pads, roads, pipelines, electrical power line.

- If action will occur during a breeding season, survey for owls prior to commencing activity. If owls are found, activity should be delayed until outside of the breeding season.
- Eliminate access routes created by a project through such means as raking out scars, revegetation, gating access points, etc.

For all permanent actions that may impact owls or suitable habitat:

- Survey two consecutive years for owls according to established protocol prior to commencing of activity.
  - If owls are found, no actions will occur within 0.5 mile of identified nest site.
  - If nest site is unknown, no activity will occur within the designated Protected Activity Center (PAC).
  - Avoid placing permanent structures within 0.5 mi of suitable habitat unless surveyed and not occupied.
  - Reduce noise emissions (e.g., use hospital-grade mufflers) to 45 dBA at 0.5 mile from suitable habitat, including canyon rims (Delaney et al. 1997). Placement of permanent noise-generating facilities should be determined by a noise analysis to ensure noise does not encroach upon a 0.5 mile buffer for suitable habitat, including canyon rims.
  - Limit disturbances to and within suitable owl habitat by staying on designated routes.
  - Limit new access routes created by the project.
2. BLM will, as a condition of approval (COA) on any project proposed within identified PACs, designated critical habitat, or within spatial buffers for Mexican spotted owl nests (0.5 mile), ensure that project proponents are notified as to their responsibilities for rehabilitation of temporary access routes and other temporary surface disturbances, created by their project, according to individual BLM Field Office standards and procedures, or those determined in the project-specific Section 7 Consultation.
  3. BLM will require monitoring of activities in designated critical habitat, identified PACs, or breeding habitats, wherein it has been determined that there is a potential for take. If any adverse impacts are observed to occur in a manner, or to an extent that was not considered in the project-specific Section 7 Consultation, then consultation must be reinitiated.
    - Monitoring results should document what, if any, impacts to individuals or habitat occur during project construction/implementation. In addition, monitoring should document successes or failures of any impact minimization, or mitigation measures. Monitoring results would be considered an opportunity for adaptive management, and as such, would be carried forward in the design and implementation of future projects.
  4. For all survey and monitoring actions:
    - Reports must be provided to affected field offices within 15 days of completion of survey or monitoring efforts.
    - Report any detection of Mexican spotted owls during survey or monitoring to the authorized officer within 48 hours.

5. BLM will, in areas of designated critical habitat, ensure that any physical or biological factors (i.e., the primary constituent elements), as identified in determining and designating such habitat, remains intact during implementation of any BLM-authorized activity.
6. For all BLM actions that “*may adversely affect*” the primary constituent elements in any suitable Mexican spotted owl habitat, BLM will implement measures as appropriate to minimize habitat loss or fragmentation, including rehabilitation of access routes created by the project through such means as raking out scars, revegetation, gating access points, etc.
7. Where technically and economically feasible, use directional drilling from single drilling pads to reduce surface disturbance, and minimize or eliminate needing to drilling in canyon habitats suitable for Mexican spotted owl nesting.
8. Prior to surface-disturbing activities in Mexican spotted owl PACs, breeding habitats, or designated critical habitat, specific principles should be considered to control erosion. These principles include:
  - Conduct long-range transportation planning for large areas to ensure that roads will serve future needs. This will result in less total surface disturbance.
  - Avoid surface disturbance in areas with high erosion hazards to the greatest extent possible. Avoid mid-slope locations, headwalls at the source of tributary drainages, inner valley gorges, and excessively wet slopes such as those near springs. In addition, avoid areas where large cuts and fills would be required.
  - Locate roads to minimize roadway drainage areas and to avoid modifying the natural drainage areas of small streams.
9. Project developments should be designed, and located to avoid direct or indirect loss or modification of Mexican spotted owl nesting and/or identified roosting habitats.
10. Water production associated with BLM authorized actions should be managed to ensure maintenance or enhancement of riparian habitats.

### **K. 3 SOUTHWESTERN WILLOW FLYCATCHER (*EMPIDONAX TRAILLII EXTIMUS*) CONSERVATION MEASURES**

The following list of measures provides species-specific guidance intended to avoid, minimize, or reduce potential adverse impacts from implementation of BLM actions under the authority of current Utah BLM LUPs on the Southwestern willow flycatcher (*Empidonax traillii extimus*). This list is not comprehensive. Additional conservation measures, or other modified versions of these measures, may be applied for any given BLM-authorized activity upon further analysis, review, coordination efforts, and/or appropriate levels of section 7 consultation with the USFWS.

1. Surveys will be required prior to operations that “*may adversely affect*” the Southwestern willow flycatcher unless species occupancy data and distribution information is complete and available. Surveys will only be conducted by BLM-approved personnel. In the event species occurrence is verified, project proponents may be required to modify operational plans at the discretion of the authorized officer. Modifications may include appropriate measures for minimization of adverse effects to the Southwestern willow flycatcher and its habitat.

2. BLM will monitor and restrict, when and where necessary, authorized or casual use activities that “*may adversely affect*” the Southwestern willow flycatcher, including but not limited to, recreation, mining, and oil and gas activities. Monitoring results should be considered in the design and implementation of future projects.
3. To monitor the impacts of BLM-authorized projects determined “*likely to adversely affect*” the Southwestern willow flycatcher, BLM should prepare a short report describing progress, including success of implementation of all associated mitigation. Reports shall be submitted annually to the USFWS Utah Field Office by March 1<sup>st</sup> beginning one full year from date of implementation of the proposed action. The report shall list and describe the following items:
  - When, or if, the level of anticipated take (as allowed by separate Incidental Take Statements from site- Any unforeseen adverse effects resulting from activities of each site-specific project (may also require reinitiation of formal Consultation);
  - When, and if, any level of anticipated incidental take is approached (as allowed by separate Incidental Take Statements of site-specific Formal Section 7 Consultation efforts);
  - specific formal consultations) is exceeded; and
  - Results of annual, periodic monitoring which evaluate the effectiveness of the reasonable and prudent measures or terms and conditions of the site-specific Consultation.
4. BLM should avoid granting activity permits or authorizing development actions in Southwestern willow flycatcher habitat. Unoccupied potential habitat should be protected in order to preserve them for future management actions associated with the recovery of the Southwestern willow flycatcher.
5. BLM will ensure project design incorporates measures to avoid direct disturbance to populations and suitable habitats where possible. At a minimum, project designs should include consideration of water flows, slope, seasonal and spatial buffers, possible fencing, and pre-activity flagging of critical areas for avoidance.
6. The BLM will continue to address illegal and unauthorized OHV use and activity upon BLM administered lands. In order to protect, conserve, and recover the Southwestern willow flycatcher in areas of heavy unauthorized use, temporary closures, or use restrictions beyond those which are already in place, may be imposed. As funding allows, BLM should complete a comprehensive assessment of all OHV use areas that interface with Southwestern willow flycatcher populations. Comparison of Southwestern willow flycatcher populations and OHV use areas using GIS would give BLM personnel another tool to manage and/or minimize impacts.
7. All surface-disturbing activities should be restricted within a 0.25 mile buffer from suitable riparian habitats and permanent surface disturbances should be avoided within 0.5 mile of suitable Southwestern willow flycatcher habitat.
  - Unavoidable ground disturbing activities in occupied Southwestern willow flycatcher habitat should only be conducted when preceded by current year survey, should only occur between August 16 and April 30 (the period when Southwestern willow flycatcher are not likely to be breeding), and should be monitored to ensure that adverse impacts to Southwestern willow flycatcher are minimized or avoided, and to document the success of project specific

mitigation/protection measures. As monitoring is relatively undefined, project specific requirements must be identified.

8. BLM will properly consider nesting periods for Southwestern willow flycatcher when conducting horse gathering operations in the vicinity of habitat.
9. BLM will ensure that plans for water extraction and disposal are designed to avoid changes in the hydrologic regime that would likely result in loss or undue degradation of riparian habitat.
10. Native species will be preferred over non-native for revegetation of habitat in disturbed areas.
11. BLM will coordinate with other agencies and private landowners to identify voluntary opportunities to modify current land stewardship practices that may impact the Southwestern willow flycatcher and its habitats.
12. Limit disturbances to within suitable habitat by staying on designated routes.
13. Ground-disturbing activities will require monitoring throughout the duration of the project to ensure that adverse impacts to Southwestern willow flycatcher are avoided. Monitoring results should document what, if any, impacts to individuals or habitat occur during project construction/implementation. In addition, monitoring should document successes or failures of any impact minimization or mitigation measures. Monitoring results would be considered an opportunity for adaptive management and, as such, would be carried forward in the design and implementation of future projects.
14. Where technically and economically feasible, use directional drilling or multiple wells from the same pad to reduce surface disturbance and eliminate drilling in Southwestern willow flycatcher habitat.
15. Habitat disturbances (i.e., organized recreational activities requiring special use permits, drilling activities, etc.) will be avoided within 0.25 mile of suitable Southwestern willow flycatcher habitat from May 1 to August 15.

Grazing allotments that contain habitat for the species will be managed with consideration for recommendations provided by the Southwestern Willow Flycatcher Recovery Plan, and other applicable research.

#### **K. 4 JONES CYCLADENIA (*CYCLADENIA HUMILIS* VAR. *JONESII*) CONSERVATION MEASURES**

The following list of measures provides species-specific guidance intended to avoid, minimize, or reduce potential adverse impacts from implementation of BLM actions under the authority of current Utah BLM LUPs on the Jones cycladenia (*Cycladenia humilis* var. *jonesii*). This list is not comprehensive. Additional conservation measures, or other modified versions of these measures, may be applied for any given BLM-authorized activity upon further analysis, review, coordination efforts, and/or appropriate levels of section 7 consultation with the USFWS.

1. Prior to surface-disturbing activities in habitat for the species, presence/absence surveys of potentially affected areas will be conducted in accordance with established protocols.
2. Appropriate avoidance/protection/mitigation will be used to manage potential impacts of similar subsequent projects. These measures should include, but are not be limited to:
  - the stabilization of soils to minimize or avoid impacts related to soil erosion;

- marking/flagging of suitable and/or occupied habitat (including predetermined buffers) prior to development to avoid trampling by crew members or equipment during disturbance related activities; and
  - require project proponents to conduct surveys and monitoring actions using BLM-approved specialists to document population effects and individual impacts.
3. BLM shall continue to document new populations of Jones cycladenia (*Cycladenia humilis* var. *jonesii*) as they are encountered.
  4. To assist and support recovery efforts, BLM will minimize or avoid surface disturbances in habitats that support the species.
  5. BLM will encourage and assist project proponents in development and design of their proposed actions in order to avoid direct disturbance to populations or individuals where feasible. Designs should consider water flow, slope, appropriate buffer distances, possible fencing needs, and pre-activity flagging of sensitive areas that are planned for avoidance.
  6. BLM will consider emergency OHV closure or additional restrictions to protect, conserve, and recover the species.
  7. In areas where dispersed recreational uses are identified as threats to populations of the species, BLM will consider the development of new recreational facilities/opportunities that concentrate dispersed recreational use away from habitat, especially occupied habitat.
  8. Cultural and paleontological survey/recovery technicians (i.e., archeologists and/or paleontologists), conducting work in the vicinity of known populations, will be educated in the identification of listed species in order to avoid inadvertent trampling or removal during survey, mapping, or excavation of cultural or paleontological resources.
  9. Areas of viable habitat, in the vicinity of populations considered for prescribed burning, will be surveyed according to established protocols for new or undocumented populations of the species.
  10. Lands being considered for exchange or disposal that contain suitable habitat for the species will be surveyed for undocumented populations, according to established protocols, prior to approval of such disposal. Lands supporting populations shall not be disposed of unless it is determined that the action will not threaten the survival and recovery of the species in accordance with the ESA and BLM Guidance and Policy Manual 6840 – Special Status Species Management.
  11. BLM will encourage the avoidance of key habitats during livestock herding and trailing activities on BLM administered lands. (Key habitats are those that are deemed necessary for the conservation of the species including, but not necessarily limited to, designated critical habitat and other occupied or unoccupied habitats considered important for the species survival and recovery as determined in coordination with the USFWS).

## **K.5 COLORADO RIVER ENDANGERED FISHES CONSERVATION MEASURES**

**Bonytail (*Gila elegans*), Colorado pikeminnow (*Ptychocheilus lucius*), Humpback chub (*Gila cypha*), and Razorback sucker (*Xyrauchen texanus*)**

The following list of measures provides species-specific guidance intended to avoid, minimize, or reduce potential adverse impacts from implementation of BLM actions under the authority of current Utah BLM LUPs on the Colorado pikeminnow, Humpback chub, bonytail, and razorback

sucker, herein referred to as the Colorado River fishes. This list is not comprehensive. Additional conservation measures, or other modified versions of these measures, may be applied for any given BLM-authorized activity upon further analysis, review, coordination efforts, and/or appropriate levels of section 7 consultation with the USFWS.

1. Monitoring of impacts of site-specific projects authorized by the BLM will result in the preparation of a report describing the progress of each site-specific project, including implementation of any associated reasonable and prudent measures or reasonable and prudent alternatives. This will be a requirement of project proponents and will be included as a condition of approval (COA) on future proposed actions that have been determined to have the potential for take. Reports will be submitted annually to the USFWS - Utah Field Office, beginning after the first full year of implementation of the project, and shall list and describe:
  - Any unforeseen direct or indirect adverse impacts that result from activities of each site-specific project;
  - Estimated levels of impact or water depletion, in relation to those described in the original project-level Consultation effort, in order to inform the Service of any intentions to reinitiate Section 7 Consultation; and
  - Results of annual, periodic monitoring which evaluates the effectiveness of any site-specific terms and conditions that are part of the formal Consultation process. This will include items such as an assessment of whether implementation of each site-specific project is consistent with that described in the BA, and whether the project has complied with terms and conditions.
2. The BLM shall notify the USFWS immediately of any unforeseen impacts detected during project implementation. Any implementation action that may be contributing to the introduction of toxic materials or other causes of fish mortality must be immediately stopped until the situation is remedied. If investigative monitoring efforts demonstrate that the source of fish mortality is not related to the authorized activity, the action may proceed only after notification of USFWS authorities.
3. Unoccupied, suitable habitat areas should be protected in order to preserve them for future management actions associated with the recovery of the Endangered Colorado River Fish, as well as approved reintroduction, or relocation efforts.
  - BLM will avoid impacts where feasible, to habitats considered most representative of prime suitable habitat for these species.
  - Surface-disturbing activities will be restricted within ¼ mile of the channel centerline of the Colorado, Green, Duchesne, Price, White, and San Rafael Rivers
  - Surface-disturbing activities proposed to occur within floodplains or riparian areas will be avoided unless there is no practical alternative or the development would enhance riparian/aquatic values. If activities must occur in these areas, construction will be designed to include mitigation efforts to maintain, restore, and/or improve riparian and aquatic conditions. If conditions could not be maintained, offsite mitigation strategies should be considered.
4. BLM will ensure project proponents are aware that designs must avoid as much direct disturbance to current populations and known habitats as is feasible. Designs should include:
  - protections against toxic spills into rivers and floodplains;

- plans for sedimentation reduction;
  - minimization of riparian vegetation loss or degradation;
  - pre-activity flagging of critical areas for avoidance;
  - design of stream-crossings for adequate passage of fish; and
  - measures to avoid or minimize impacts on water quality at the 25-year frequency runoff
5. Prior to surface-disturbing activities, specific principles will be considered to control erosion. These principles include:
    - Conduct long-range transportation planning for large areas to ensure that roads will serve future needs. This will result in less total surface disturbance.
    - Avoid, where possible, surface disturbance in areas with high erosion hazards.
    - Avoid mid-slope location of drill pads, headwalls at the source of tributary drainages, inner valley gorges, excessively wet slopes such as those near springs and avoid areas where large cuts and fills would be required.
    - Design and locate roads to minimize roadway drainage areas and to avoid modifying the natural drainage areas of small streams.
  6. Where technically and economically feasible, project proponents will use directional drilling or multiple wells from a single pad to reduce surface disturbance and eliminate drilling in suitable riparian habitat. Ensure that such drilling does not intercept or degrade alluvial aquifers. Drilling will not occur within 100 year floodplains that contain listed fish species or their designated critical habitats.
  7. The Utah Oil and Gas Pipeline Crossing Guidance (BLM National Science and Technology Center), or other applicable guidance, will be implemented for oil and gas pipeline river/stream crossings.
  8. In areas adjacent to 100-year floodplains, particularly in systems prone to flash floods, BLM will analyze the risk for flash floods to impact facilities. Potential techniques may include the use of closed loop drilling and pipeline burial or suspension as necessary to minimize the potential for equipment damage and resultant leaks or spills.
  9. Water depletions from any portion of the Upper Colorado River drainage basin above Lake Powell are considered to adversely affect and adversely modify the critical habitat of these endangered fish species. Section 7 consultation will be completed with the Service prior to any such water depletions.
  10. Design stream-crossings for adequate passage of fish (if present), minimum impact on water quality, and at a minimum, a 25-year frequency run-off.

## **OIL AND GAS LEASE NOTICES**

Standard terms and conditions (oil and gas lease notices) applicable to all surface-disturbing activities which are required to protect special status species and comply with the endangered species act, are described in full in Appendix C : Stipulations Applicable to Oil and Gas Leasing and Other Surface-disturbing Activities. These standard lease terms and conditions are found on pages C-31 through C-39.

**RESOURCE PROTECTION MEASURES INCORPORATED FROM THE UTAH LAND-USE PLAN AMENDMENT FOR FIRE AND FUELS MANAGEMENT (UT-USO-04-01)**

1. Initiate emergency Section 7 consultation with U.S. Fish and Wildlife Service upon the determination that wildfire suppression may pose a potential threat to any listed threatened or endangered species or adverse modification of designated critical habitat.
2. Prior to planned fire management actions, survey for listed threatened and endangered and non-listed sensitive species. Initiate Section 7 consultation with U.S. Fish and Wildlife Service as necessary if proposed project may affect any listed species. Review appropriate management, conservation and recovery plans and include recovery plan direction into project proposals. For non-listed special status plant and animal species, follow the direction contained in the BLM 6840 Manual. Ensure that any proposed project conserves non-listed sensitive species and their habitats and ensure that any action authorized, funded or carried out by the BLM does not contribute to the need for any species to become listed.
3. Follow Terms and Conditions identified in the Biological Opinion accompanying the Utah Land-use Plan Amendment for Fire and Fuels Management

**CONSERVATION MEASURES FROM THE BIOLOGICAL OPINION FOR THE UTAH BLM LAND USE PLANS (LUP) AMENDMENTS BA AND FIRE MANAGEMENT PLANS (FMP) BAs**

Firefighter and public safety is the first priority in every fire management activity. Setting priorities among protecting human communities, community infrastructure, other property and improvements, and natural and cultural resources must be based on the values to be protected, human health and safety, and costs of protection. The Applicant Committed Resource Protection Measures will apply to the species covered in this consultation, unless a threat to human life or property exists.

During the wildfire suppression activities, the Incident Commander has the final decision-making authority for suppression operations and tactics, including implementation of resource protection operations, thereby minimizing or avoiding many effects to federally protected species. However, in the event that measures cannot be implemented during fire suppression operations due to safety concerns, some effects may occur to federally protected species. In these cases, BLM would initiate emergency consultation with the Service for these fire suppression efforts.

**LAND USE PLAN AMENDMENT**

The project proponent commits to the following resource protection measures as identified in the March 4, 2005 Biological Assessment. These measures have been developed as part of the proposed action to provide statewide consistency in reducing the effects of fire management activities on listed, proposed, and candidate species and their habitats. Resource protection measures for fire management practices use the following codes to represent which actions fall within each of the measures:

SUP: wildland fire suppression,

WFU: wildland fire use for resource benefit,

RX: prescribed fire,

NF: non-fire fuel treatments,

ESR: Emergency Stabilization and Rehabilitation

**Measures designed to protect air quality include:**

A-1 Evaluate weather conditions, including wind speed and atmospheric stability, to predict impacts from smoke from prescribed fires and wildland fire uses. Coordinate with Utah Department of Environmental Quality for prescribed fires and wildland fire use (RX, WFU).

A-2 When using chemical fuels reduction methods, follow all label requirements for herbicide application (NF).

**Measures designed to protect soil and water quality include:**

SW-1 Avoid heavy equipment use on highly erosive soils (soils with low soil loss tolerance), wet or boggy soils and slopes greater than 30%, unless otherwise analyzed and allowed under appropriate NEPA evaluation with implementation of additional erosion control and other soil protection mitigation measures. (SUP, WFU, RX, NF, ESR)

SW-2 There may be situations where high intensity fire will occur on sensitive and erosive soil types during wildland fire, wildland fire use or prescribed fire. If significant areas show evidence of high severity fire, then evaluate area for soil erosion potential and downstream values at risk and implement appropriate or necessary soil stabilization actions such as mulching or seeding to avoid excessive wind and water erosion. (SUP, WFU, RX)

SW-3 Complete necessary rehabilitation on fire lines or other areas of direct soil disturbance, including but not limited to water barring fire lines, covering and mulching fire lines with slash, tilling and/or sub soiling compacted areas, scarification of vehicle tracks, OHV closures, seeding and/or mulching for erosion protection. (SUP, WFU, RX)

SW-4 When using mechanical fuels reduction treatments, limit tractor and heavy equipment use to periods of low soil moisture to reduce the risk of soil compaction. If this is not practical, evaluate sites, post treatment and if necessary, implement appropriate remediation, such as sub soiling, as part of the operation. (NF)

- SW-5 Treatments such as chaining, plowing and roller chopping shall be conducted as much as practical on the contour to reduce soil erosion. (NF, ESR)
- SW-6 When using chemical fuel reduction treatments follow all label directions, additional mitigations identified in project NEPA evaluation and the Approved Pesticide Use Permit. At a minimum, provide a 100-foot-wide riparian buffer strip for aerial application, 25 feet for vehicle application and 10 feet for hand application. Any deviations must be accordance with the label. Herbicides would be applied to individual plants within 10 feet of water where application is critical. (NF)
- SW-7 Avoid heavy equipment in riparian or wetland areas. During fire suppression or wildland fire use, consult a Resource Advisor before using heavy equipment in riparian or wetland areas. (SUP, WFU, RX, NF, ESR)
- SW-8 Limit ignition within native riparian or wetland areas. Allow low-intensity fire to burn into riparian areas. (RX)
- SW-9 Suppress wildfires consistently with compliance strategies for restoring or maintaining the restoration of water quality impaired [303(d) listed] water bodies. Do not use retardant within 300 feet of water bodies. (SUP, WFU)
- SW-10 Plan and implement projects consistent with compliance strategies for restoring or maintaining the restoration of water quality impaired [303(d) listed] water bodies. Planned activities should take into account the potential impacts on water quality, including increased water yields that can threaten fisheries and aquatic habitat; improvements at channel crossings; channel stability; and downstream values. Of special concern are small headwaters of moderate to steep watersheds, erosive or saline soils; multiple channel crossings; at-risk fisheries, and downstream residents. (RX, NF, ESR)

**Measures designed to protect vegetation include:**

- V-1 When restoring or rehabilitating disturbed rangelands, non-intrusive, non-native plant species are appropriate for use when native species: (1) are not available; (2) are not economically feasible; (3) cannot achieve ecological objectives as well as non-native species; and/or (4) cannot compete with already established native species. (RX, NF, ESR)
- V-2 In areas known to have weed infestations, aggressive action should be taken in rehabilitating fire lines, seeding and follow-up monitoring and treatment to reduce the spread of noxious weeds. Monitor burned areas and treat as necessary. All seed used would be tested for purity and for noxious weeds. Seed with noxious weeds would be rejected. (SUP, WFU, RX, NF, ESR)

**Measures designed to protect special status species (including threatened and endangered species) include:**

- SSS-1 Initiate emergency Section 7 consultation with United States Fish and Wildlife Service (Service) upon the determination that wildfire suppression may pose a potential threat to any listed threatened or endangered species or adverse modification of designated critical habitat. (SUP)

SSS-2 Prior to planned fire management actions, survey for listed threatened, endangered, and non-listed sensitive species. Initiate Section 7 consultation with the Service as necessary if a proposed project may affect any listed species. Review appropriate management, conservation and recovery plans and include recovery plan direction into project proposals. For non-listed special status plant and animal species, follow the direction contained in the BLM 6840 Manual. Ensure that any proposed project conserves non-listed sensitive species and their habitats and ensure that any action authorized, funded, or carried out by BLM does not contribute to the need for any species to become listed. (RX, NF, ESR)

SSS-3 Incorporate site-specific conservation measures identified in this BA. (SUP, WFU, RX, NF, ESR)

**Measures designed to protect fish and wildlife resources include:**

FW-1 Avoid treatments during nesting, fawning, spawning, or other critical periods for wildlife or fish. (RX, NF, ESR)

FW-2 Avoid if possible or limit the size of, wildland fires in important wildlife habitats such as, mule deer winter range, riparian and occupied sage grouse habitat. Use Resource Advisors to help prioritize resources and develop Wildland Fire Situation Analyses (WFSAs) and Wildland Fire Implementation Analyses (WFSAs) and Wildland Fire Implementation Plans (WFIPs) when important habitats may be impacted. (SUP, WFU)

FW-3 Minimize wildfire size and frequency in sagebrush communities where sage grouse habitat objectives will not be met if a fire occurs. Prioritize wildfire suppression in sagebrush habitat with an understory of invasive, annual species. Retain unburned islands and patches of sagebrush unless there are compelling safety, private property and resource protection or control objectives at risk. Minimize burn out operations (to minimize burned acres) in occupied sage-grouse habitats when there are not threats to human life and/or important resources. (SUP)

FW-4 Establish fuel treatment projects at strategic locations to minimize size of wildfires and to limit further loss of sagebrush. Fuel treatments may include green stripping to help reduce the spread of wildfires into sagebrush communities. (RX, NF)

FW-5 Use wildland fire to meet wildlife objectives. Evaluate impacts to sage grouse habitat in areas where wildland fire use for resource benefit may be implemented. (WFU, RX)

FW-6 Create small openings in continuous or dense sagebrush (>30% canopy cover) to create a mosaic of multiple-age classes and associated understory diversity across the landscape to benefit sagebrush-dependent species. (WFU, RX, NF)

FW-7 On sites that are currently occupied by forests or woodlands, but historically supported sagebrush communities, implement treatments (fire, cutting, chaining, seeding, etc.) to re-establish sagebrush communities. (RX, NF)

FW-8 Evaluate and monitor burned areas and continue management restrictions until the recovering and/or seeded plant community reflect the desired condition. (SUP, WFU, RX, ESR)

FW-9 Utilize the Emergency Stabilization and Rehabilitation program to apply appropriate post fire treatments within crucial wildlife habitats, including sage grouse habitats. Minimize seeding with non-native species that may create a continuous perennial grass cover and restrict establishment of native vegetation. Seed mixtures should be designed to re-establish important seasonal habitat components for sage grouse. Leks should not be re-seeded with plants that change the vegetation heights previously found on the lek. Forbs should be stressed in early and late brood-rearing habitats. In situations of limited funds for emergency stabilization and rehabilitation actions, prioritize rehabilitation of sage grouse habitats. (ESR)

**Measures designed to protect wild horses and burros include:**

WHB-1 Avoid fencing that would restrict access to water. (RX, NF, ESR)

**Measures designed to protect cultural resources include:**

CR-1 Cultural Resource Advisors should be contacted when fires occur in areas containing sensitive cultural resources. (SUP)

CR-2 Wildland fire use is discouraged in areas containing sensitive cultural resources. A Programmatic Agreement is being prepared between the Utah State Historic Preservation Office, BLM, and the Advisory Council to cover the finding of adverse effects to cultural resources associated with wildland fire use. (WFU)

CR-3 Potential impacts of proposed treatments should be evaluated for compliance with the National Historic Preservation Act (NHPA) and the Utah Statewide Protocol. This should be conducted prior to the proposed treatment. (RX, NF, ESR)

**Measures designed to protect paleontology resources include:**

P-1 Planned projects should be consistent with BLM Manual and Handbook H-8270-1, Chapter III (A) and III (B) to avoid areas where significant fossils are known or predicted to occur or to provide for other mitigation of possible adverse effects. (RX, NF, ESR)

P-2 In the event that paleontological resources are discovered in the course of surface fire management activities, including fires suppression, efforts should be made to protect these resources. (SUP, WFU, RX, NF, ESR)

**Measures designed to protect forestry resources include:**

F-1 Planned projects should be consistent with HFRA Section 102(e)(2) to maintain or contribute to the restoration of old-growth stands to a pre-fire suppression condition and to retain large trees contributing to old-growth structure. (SUP, WFU, RX, NF)

F-2 During planning, evaluate opportunities to utilize forest and woodland products prior to implementing prescribed fire activities. Include opportunities to use forest and woodland stands, consider developing silvicultural prescriptions concurrently with fuel treatments prescriptions. (RX, NF)

**Measures designed to protect livestock grazing resources include:**

LG-1 Coordinate with permittees regarding the requirements for non-use or rest of treated areas. (SUP, WFU, RX, NF, ESR)

LG-2 Rangelands that have been burned by wildfire, prescribed fire, or wildland fire use, would be ungrazed for a minimum of one complete growing season following the burn. (SUP, WFU, RX)

LG-3 Rangelands that have been re-seeded or otherwise treated to alter vegetation composition, chemically or mechanically, would be ungrazed for a minimum of two complete growing seasons. (RX, NF, ESR)

**Measures designed to protect recreation and visitor services include:**

Rec-1 Wildland fire suppression efforts would preferentially protect Special Recreation Management Areas and recreation site infrastructure in line with fire management goals and objectives. (SUP)

Rec-2 Vehicle tracks created off of established routes would be obliterated after fire management actions in order to reduce unauthorized OHV travel. (SUP, WFU, RX, NF, ESR)

**Measures designed to protect land and reality resources include:**

LR-1 Fire management practices would be designed to avoid or otherwise ensure the protection of authorized rights-of-way and other facilities located on the public lands, including coordination with holders of major rights-of-way systems within rights-of-way corridors and communication sites. (WFU, RX, NF, ESR)

LR-2 Fire management actions must not destroy, deface, change or remove to another place any monument or witness tree of the Public Land Survey System. (SUP, WFU, RX, NF, ESR)

**Measures designed to minimize impacts confounded by hazardous waste include:**

HW-1 Recognize hazardous wastes and move fire personnel to a safe distance from dumped chemicals, unexploded ordnance, drug labs, wire burn sites, or any other hazardous wastes. Immediately notify BLM Field Office hazmat coordinator or state hazmat coordinator upon discovery of any hazardous materials, following the BLM hazardous materials contingency plan. (SUP, WFU, RX, NF, ESR)

**Measures designed to protect mineral resources include:**

M-1 A safety buffer should be maintained between fire management activities and at-risk facilities. (SUP, WFU, RX)

**Measures designed to protect wilderness and wilderness study areas (WSAs) include:**

Wild-1 The use of earth-moving equipment must be authorized by the field office manager. (SUP, WFU, RX, ESR)

Wild-2 Fire management actions would rely on the most effective methods of suppression that are least damaging to wilderness values, other resources and the environment, while requiring the least expenditure of public funds. (SUP, WFU)

Wild-3 A Resource Advisor should be consulted when fire occurs in Wilderness and WSAs. (SUP, WFU)

**ADDITIONAL RESOURCE PROTECTION MEASURES**

In addition to the resource protection measures listed in the LUP Amendment and five FMPs, the following conservation measures were developed through the Section 7 (of the ESA) consultation process. The BLM has incorporated these measures into the six Proposed Actions by reference to their BA, and include:

- Manage natural and prescribed Fire Regimes to protect or improve Utah prairie dog habitat.
- Within Utah prairie dog habitat, reseeded would be implemented according to the Utah Prairie Dog Recovery Plan.
- Manage prescribed fire and wildland fire use within Mexican spotted owl Protected Activity Centers (PACs) to ensure protection of nesting, roosting, and foraging habitats.
- Wildland fire suppression would be prioritized for use in Mexican spotted owl PACs. When feasible, fire camps associated with suppression efforts would be built outside of the PACs and nest protection areas.
- For treatments within suitable habitat for listed species, pre- and post-monitoring would take place as determined on a case-by-case basis.
- Incorporate the standards and guidelines recommended by the Inland Native Fish Strategy (USFS 1995)
- As per the decision of the Resource Advisor, avoid construction of fire lines using mechanized equipment across the stream channel. If used, the mechanized equipment would terminate at, and not cross, the stream channel.
- Avoid transferring water from one watershed into another for the purpose of water drops, as this could aid in the spread of water-borne diseases such as whirling disease.
- Avoid retardant use in any riparian/wetland communities.
- Restrict use of mechanical treatments and hand tools.
- Per-burn acreage limitations of 5-100 acres, as long as human life or property are not threatened.
- If the white-tailed prairie dog is listed, initiate emergency Section 7 consultation with the Service upon the determination that wildland fire suppression may pose a potential threat to the species. (SUP)

Prior to planned fire management actions, survey for listed threatened and endangered and non-listed sensitive species. Initiate Section 7 consultation with the Service as necessary if proposed projects may impact the white-tailed prairie dog, if listed. Review appropriate management, conservation, and recovery plans and include recovery plan direction into project proposals, if listed. Until the white-tailed prairie dog is listed, follow the direction contained in the BLM 6840 Manual. Ensure that any proposed project conserves non-listed sensitive species and their habitats and ensure that any action, authorized, funded or carried out by BLM does not contribute to the need for any species to become listed.

**MEASURE SPECIFIC TO THE MOAB FIRE REGION (MOAB, PRICE, AND MONTICELLO FIELD OFFICES)**

Restoration and rehabilitation measures may follow prescribed and non-fire management actions. They would emphasize the re-establishment and perpetuation of habitat diversity and prevention of reduction of invasive weeds species. The short-term objective would be to stabilize soils, reduce potential impacts to values at risk (cultural, watershed, fish and wildlife, and any adjacent private holdings), and prevent the establishment of non-native invasive species. Long-term objectives include further stabilization of sites to assist in the re-establishment of the native vegetation community that existed prior to the disturbance. Restoration and rehabilitation efforts are selectively applied to planned management actions. Emergency stabilization and rehabilitation is a part of wildland fire suppression action and is considered separately from standard restoration and rehabilitation.

# APPENDIX L.

## DESIRED FUTURE CONDITION FOR VEGETATION

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### L.1 INTRODUCTION

The purpose of this report is to provide a description of desired vegetative conditions on the landscape over the life of the Moab RMP. This process is referred to as determining the Desired Future Condition (DFC). The determination of the DFC takes a number of factors into consideration such as:

- Current vegetation communities and conditions on the landscape;
- Landscape setting;
- Current uses of vegetative resources;
- Desired management direction for specific uses across the landscape;
- Vegetative treatment/manipulation potentials and methods;
- Current and projected climatic conditions; and
- Soil conditions and availability.

The DFC provides general landscape level guidelines, not site specific prescriptions for project or activity level work within the Moab area. When initiating "on the ground activities", either in response to management related disturbance (vegetative manipulations, damaged land restoration, fuel reductions, etc.) or natural disturbance (flooding, fire, drought, etc.), area specific guidelines would be utilized that are provided in corresponding Natural Resource Conservation Service (NRCS) Ecological Site Inventories and State and Transition model data (as these models are developed). The types of data found in these documents would allow the development of detailed prescriptions for specific vegetative type's, recommended percentages by species, distribution, etc., based on the particular elevational, climatic, soil, and landform features present at that site.

The distribution of vegetative communities across a landscape are primarily influenced by soil type, elevation, precipitation, topography, and to varying degrees by land management activities such as livestock and wildlife grazing, road and mineral development, and OHV use. These vegetative communities subsequently form a mosaic across the landscape, sometimes occurring in relatively homogenous individual species stands, more often however, occurring in various species combinations and associations dependent on the abiotic factors listed above.

Of more recent influence however, are changes in types and distribution of vegetation communities as a result of extended regional drought across southeastern Utah during the last 5-6 years. This has resulted in severe stress and in some cases loss of significant portions of vegetative communities in the region, in particular pinyon pine, sagebrush and salt desert shrub species. We have also seen an increase in the distribution of invasive species, particularly halogeton and cheatgrass. And perhaps more alarming and potentially impacting than below normal precipitation patterns over the region, is the increasing temperatures recorded over the

past century. This temperature increase could have a variety of long-term effects including: plants entering spring green up earlier and going into dormancy later, altered snowmelt patterns and subsequent water availability, evapotranspiration dynamics and increased losses for soil infiltration, in addition to affecting growth of some plants as a result of decreased nutrient uptake.

The uncertainty associated with future climatic conditions makes the identification of DFC's uncertain to some extent. The DFC's developed herein are based on some level of return to regional climatic conditions over the past 20 to 30 years. If the current ongoing regional dry trend continues, and temperatures continue to rise, these DFC's could be difficult to obtain, and any treatment efforts undertaken to help achieve these DFC's could be subject to failure.

## **L.2 PROCESS**

The primary data source for development of the DFC for the Moab Field Office is the Southwest ReGAP (SW ReGAP) terrestrial ecological classification system. The SW ReGAP is an update of the GAP Analysis Program's mapping and assessment of regional biodiversity for a five state region (NM, AZ, CO, UT, and NV) completed in 1995. Both endeavors were multi-institutional cooperative efforts coordinated by the U.S. Geological Survey GAP Analysis Program. The classification was conducted using Landsat-7 satellite imagery, field data, digital elevation models, and other spatial data. The remote imagery utilized and the subsequent processing of this data provides a spatial resolution of 5 hectares.

Although GAP analysis was never intended to provide fine scale resolution, stand alone vegetation maps, the outcome of the terrestrial ecological system classification process provides a useful set of "proxy" vegetation association maps. The classification methodology used specifically group's terrestrial ecological systems as plant community types (associations) that co-occur within landscapes with similar ecological processes, substrates, and/or environmental gradients. The systems approach complements the National Vegetation Classification system (NVCS), whose finer-scale units provide a basis for interpreting larger-scale ecological system patterns and concepts.

Three methodological improvements were utilized in the ReGAP program to increase the accuracy and utility of the vegetation map: 1) a universal standard for the identification of plant communities, the NVCS, 2) the use of a single methodology for constructing predictive models of plant community distribution, classification and regression trees (CART), and 3) the subdivision of the 5-state regions into map zones, or provinces of homogeneous geology, climate and phenology, to reduce the complexity of predictive landcover models.

Plant community types utilized in SW ReGAP are derived from a vegetation classification unit at the association or alliance level, where these are available in the NVCS (Grossman et al. 1998, Jennings et al. 2003, NatureServe 2003), or, if these are not available, other comparable vegetation units. NVCS associations are used wherever possible to describe the component biotic communities of each terrestrial system. The NVCS provides a multi-tiered, nested hierarchy for classifying vegetation types.

The SW ReGAP is intended to provide classification at a "meso-scale," both spatially and temporally, and the specific spatial and temporal scales are further refined by the biotic and ecological distinctiveness of the systems identified. A given system will typically manifest itself in a landscape at intermediate geographic scales of tens to thousands of hectares and will persist for 50 or more years. This temporal scale allows typical successional dynamics to be integrated into the concept of each classified unit. Mapping at this scale is spatially comparable to the scale of analysis for most RMPs.

The DFC recommendations for the current revision of the Moab RMP are based on grouping the various vegetative land cover classifications identified in the SW ReGAP program for the Moab area. Analysis of the SW ReGAP data identified 43 vegetative classifications within the overall boundaries of the Moab Field office. We subsequently grouped these 43 units into 12 broader categories for the Moab RMP DFC. These groups were determined primarily by the dominant vegetation type present. These DFC groupings also correspond with vegetation groupings in the draft Utah Fire Management Plan. These groupings are shown on the Table at the end of this Appendix.

The following discussion of each vegetative group is taken primarily from information presented for each classification unit identified in SW ReGAP. The information presented includes a description of the physical environment the vegetation association occurs in, the dynamics of that system, and the vegetation types present. It should be emphasized that these descriptions describe current conditions and dynamics. At the end of each section is the DFC for that vegetation grouping. In many instances the DFC will reflect a continuation of the current systems described, with some exceptions, particularly for invasive or exotic species. The DFC will also describe what types of treatment actions would work best in that system in the event of management or natural disturbances requiring rehabilitation or restoration.

Again it will be emphasized that this DFC is a landscape level analysis, and is intended to provide general descriptions of what the desired conditions should include in any given broad vegetation community. Any details that would be required to conduct restoration or rehabilitation projects would use this only as general guidance and would refer to NRCS Ecological Site Inventories, soil surveys and other site specific data that may be available specific details for that system. The Figure illustrating the Desired Future Condition of vegetation in the Moab Field Office is shown at the end of this Appendix.

## **L.3 DOMINANT VEGETATION COMMUNITIES AND DESIRED FUTURE CONDITIONS FOR THE MOAB FIELD OFFICE RMP**

### **L.3.1 GRASSLANDS**

#### **Corresponding SW ReGAP Landcover Classification:**

- S090 Inter-mountain Basins Semi-desert Grassland

**Environment:** Low-elevation grasslands in the region occur in semi-arid to arid climates at approximately 4,750-7,610 feet in elevation. Grasslands within this system are typically

characterized by a sparse to moderately dense herbaceous layer dominated by medium-tall and short bunch grasses, often in a sod-forming growth. These grasslands occur in lowland and upland areas and may occupy swales, playas, mesa tops, plateau parks, alluvial flats, and plains. These grasslands typically occur on xeric sites. This system experiences cold temperate conditions. Hot summers and cold winters with freezing temperatures and snow are common. Annual precipitation is usually from 7.9-15.7 inches. A significant portion of the precipitation falls in July through October during the summer monsoon storms, with the rest falling as snow during the winter and early spring months. These grasslands occur on a variety of aspects and slopes. Sites may range from flat to moderately steep. Soils supporting this system also vary from deep to shallow, and from sandy to finer-textured. The substrate is typically sand or shale-derived. Some sandy soil occurrences have a high cover of cryptogams on the soil. These cryptogamic species would tend to increase the stability of the highly erodible sandy soils of these grasslands during torrential summer rains and heavy wind storms (Kleiner and Harper 1977).

**Vegetation:** These grasslands are typically dominated or codominated by *Achnatherum hymenoides*, *Aristida* spp., *Bouteloua gracilis*, *Hesperostipa comata*, *Muhlenbergia pungens*, or *Pleuraphis jamesii*, and may include scattered shrubs and dwarf-shrubs of species of *Artemisia*, *Atriplex*, *Coleogyne*, *Ephedra*, or *Gutierrezia*. The dominant perennial bunch grasses and shrubs within this system are all very drought-resistant plants.

**Dynamics:** This system is maintained by frequent fires and sometimes associated with specific soils, often well drained clay soils. A combination of precipitation, temperature, and soils limits this system to the lower elevations within the region. The dominant perennial bunch grasses and shrubs are all very drought resistant plants. Grasses that dominate semi-arid grasslands develop a dense network of roots concentrated in the upper parts of the soil where rainfall penetrates most frequently (Blydenstein 1966, Cable 1969, Sala and Lauenroth 1985, as cited by McClaran and Van Devender 1995). *Bouteloua gracilis* is also very grazing-tolerant and generally forms a short sod. *Pleuraphis jamesii* is only moderately palatable to livestock, but decreases when heavily grazed during drought and in the more arid portions of its range where it is the dominant grass (West 1972). This grass reproduces extensively from scaly rhizomes making the plant resistant to trampling by livestock and providing good soil-binding properties (Weaver and Albertson 1956, West 1972). *Achnatherum hymenoides* is one of the most drought-tolerant grasses in the western U.S. (USDA 1937). It is also a valuable forage grass in arid and semiarid regions. Improperly managed livestock grazing could increase soil erosion, decrease cover of this palatable plant species and increase weedy species (USDA 1937). *Muhlenbergia asperifolia*, along with the flooding regime and high evaporation rate in its preferred habitat, causes accumulations of soluble salts in the soil. Total vegetation cover (density and height), species composition and soil salinity depend on the amount and timing of precipitation and flooding. Growth-inhibiting salt concentrations are diluted when the soil is saturated allowing the growth of less salt-tolerant species. As the saturated soils dry, the salt concentrates until it precipitates out on the soil surface (Dodd and Coupland 1966, Ungar 1968).

**Desired Future Condition:** Where native grasslands occurred historically the DFC is native grass and forb communities. In many instances native grasslands have been lost to pinyon and juniper encroachment, cheatgrass/halogeton invasion and non-native plant seedings (e.g., crested

wheatgrass, perennial ryegrass, etc.). Where non-native grasslands occur the DFC may be the restoration of the native grassland or shrub community. Treatments of these native grasslands with fire, mechanical, or chemical treatments to reduce encroaching trees (mainly juniper), shrubs and invasive plants results in the potential for cheatgrass/halogeton invasion (areas below 7,000 feet that have adjacent cheatgrass/halogeton populations) (Pellant 2002). Following disturbance, these grasslands should be aggressively seeded to reduce potential for cheatgrass/halogeton and other invasive weeds.

### **L.3.2 SALT DESERT SHRUB**

This vegetation grouping for Moab is a combination of 5 SW ReGAP vegetative cover types that occur within the boundaries of the Moab Field Office. These groupings are similar enough in characteristics to serve the purposes of broad vegetation groupings for this DFC.

#### **Corresponding SW ReGAP Landcover Classification:**

- S011 - Inter-mountain Basins Shale Badland
- S045 - Inter-mountain Basins Mat Saltbush Shrubland
- S065 - Inter-mountain Basins Mixed Salt Desert Scrub
- S079 - Inter-mountain Basins Semi-Desert Shrub Steppe
- S096 - Inter-mountain Basins Greasewood Flat

**Environment:** Vegetative communities within this broad area receive relatively low annual precipitation (5 to 10 inches) and infiltration rates are typically low, which translates into very little soil moisture available for plant growth. Elevation ranges from 4,000 to 5,400 feet. Regionally, thirty-three plant communities have been recognized in this zone, indicated by the dominant species: shadscale, greasewood, blackbrush, salt cedar, fourwing saltbush, nuttall saltbush, mat saltbush, buckwheat, spiny hopsage, salina wildrye, and other perennial grasses. Soils are often very saline or alkaline and vary in moisture availability from drier, well-drained sites to areas where the water table is near the surface (MacMahon 1988).

The shale-badland portions of this community are primarily composed of barren and sparsely vegetated substrates (<10% plant cover) typically derived from marine shales, but also including substrates derived from siltstones and mudstones (clay). Landforms are typically rounded hills and plains that form a rolling topography. The harsh soil properties and high rate of erosion and deposition are driving environmental variables supporting sparse dwarf-shrubs and herbaceous vegetation.

The mat saltbush shrubland areas occur on gentle slopes and rolling plains primarily associated with the Mancos Shale badlands in the Moab area. Substrates are shallow, typically saline, alkaline, fine-textured soils developed from shale or alluvium. Infiltration rate is typically low. These landscapes that typically support dwarf shrublands composed of relatively pure stands of *Atriplex* spp. The herbaceous layer is typically sparse. Scattered perennial forbs occur and the perennial grasses may dominate the herbaceous layer. In less saline areas, there may be inclusion grasslands. Annuals are seasonally present in some areas.

The mixed salt desert scrub communities consist of open-canopied shrublands of typically saline basins, alluvial slopes and plains. Substrates are often saline and calcareous, medium- to fine-textured alkaline soils, but include some coarser-textured soils. The vegetation is characterized by a typically open to moderately dense shrubland composed of one or more *Atriplex* species. Other shrubs present may also codominate. The herbaceous layer varies from sparse to moderately dense and is dominated by perennial graminoids. Various forbs are also present.

The semi-desert shrub steppe component typically occurs at lower elevations on alluvial fans and flats with moderate to deep soils. This semi-arid shrub-steppe is typically dominated by graminoids (>25% cover) with an open shrub layer, but includes sparse mixed shrublands without a strong graminoid layer. The woody layer is often a mixture of shrubs and dwarf-shrubs. Scattered *Artemisia tridentata* may be present but does not dominate. The general aspect of occurrences may be either open shrubland with patchy grasses or patchy open herbaceous layer. Disturbance may be important in maintaining the woody component. Microphytic crust is very important in some occurrences.

The greasewood flat component of this group typically occurs near drainages on stream terraces and flats or may form rings around playas. Sites typically have saline soils, a shallow water table and flood intermittently, but remain dry for most growing seasons. This system usually occurs as a mosaic of multiple communities, with open to moderately dense shrublands dominant or codominant. Occurrences are often surrounded by mixed salt desert scrub. The herbaceous layer, if present, is usually dominated by graminoids. There may be inclusions of herbaceous types.

**Vegetation:** Occurrences of these grouped ecological systems varies from almost pure occurrences of single species to fairly complex mixtures. The characteristic mix of low shrubs and grasses is sparse, with large open spaces between the plants (Blaisdell and Holmgren 1984). Occurrences have a sparse to moderately dense cover of woody species that is dominated by *Atriplex canescens* (may codominate with *Artemisia tridentata*), *Atriplex confertifolia* (may codominate with *Lycium andersonii*), *Atriplex obovata*, *Picrothamnus desertorum*, or *Krascheninnikovia lanata*. Other shrubs that may occur within these occurrences include *Purshia stansburiana*, *Psoralea polydenius*, *Ephedra* spp., *Acacia greggii*, *Encelia frutescens*, *Tiquilia latior*, *Atriplex polycarpa*, *Atriplex lentiformis*, *Picrothamnus desertorum* (= *Artemisia spinescens*), *Artemisia frigida*, *Chrysothamnus* spp., *Lycium* ssp., *Suaeda* spp., *Yucca glauca*, and *Tetradymia spinosa*.

Dwarf-shrubs include *Gutierrezia sarothrae* and *Eriogonum* spp. Warm-season medium-tall and short perennial grasses dominate in the sparse to moderately dense graminoid layer. The species present depend on the geographic range of the grasses, alkalinity/salinity and past land use. Species may include *Pleuraphis jamesii*, *Bouteloua gracilis*, *Sporobolus airoides*, *Sporobolus cryptandrus*, *Achnatherum hymenoides*, *Elymus elymoides*, *Distichlis spicata*, *Leymus salinus*, *Pascopyrum smithii*, *Hesperostipa comata*, *Pseudoroegneria spicata*, *Poa secunda*, *Leymus ambiguus*, and *Muhlenbergia torreyi*. A number of annual species may also grow in association with the shrubs and grasses of this system, although they are usually rare and confined to areas of recent disturbance (Blaisdell and Holmgren 1984). Forb cover is generally sparse. Perennial forbs that might occur include *Sphaeralcea coccinea*, *Chaetopappa ericoides*, *Xylorhiza venusta*, *Descurainia sophia*, and *Mentzelia* species. Annual natives include *Plantago* spp., *Vulpia*

*octoflora*, or *Monolepis nuttalliana*. Associated halophytic annuals include *Salicornia rubra*, *Salicornia bigelovii*, and *Suaeda* species. Exotic annuals that may occur include *Salsola kali* and *Bromus tectorum*. Cacti like *Opuntia* spp. and *Echinocereus* spp. may be present in some occurrences. Trees are not usually present but some scattered *Juniperus* spp. may be found.

**Dynamics:** West (1982) stated that "salt desert shrub vegetation occurs mostly in two kinds of situations that promote soil salinity, alkalinity, or both. These are either at the bottom of drainages in enclosed basins or where marine shales outcrop." However, salt-desert shrub vegetation may be an indication of climatically dry as well as physiologically dry soils (Blaisdell and Holmgren 1984). Not all salt-desert shrub soils are salty, and their hydrologic characteristics may often be responsible for the associated vegetation (Naphan 1966). Species of the salt-desert shrub complex have different degrees of tolerance to salinity and aridity, and they tend to sort themselves out along a moisture/salinity gradient (West 1982). Species and communities are apparently sorted out along physical, chemical, moisture, and topographic gradients through complex relations that are not understood and are in need of further study (Blaisdell and Holmgren 1984). The winter months within this system are a good time for soil moisture accumulation and storage. There is generally at least one good snow storm per season that will provide sufficient moisture to the vegetation. The winter moisture accumulation amounts will affect spring plant growth. Plants may grow as little as a few inches to 1 m. Unless more rains come in the spring, the soil moisture will be depleted in a few weeks, growth will slow and ultimately cease, and the perennial plants will assume their various forms of dormancy (Blaisdell and Holmgren 1984). If effective rain comes later in the warm season, some of the species will renew their growth from the stage at which it had stopped. Others, having died back, will start over as if emerging from winter dormancy (Blaisdell and Holmgren 1984). *Atriplex confertifolia* shrubs often develop large leaves in the spring, which increase the rate of photosynthesis. As soil moisture decreases, the leaves are lost, and the plant takes on a dead appearance. During late fall, very small overwintering leaves appear which provide some photosynthetic capability through the remainder of the year (IVC 1999). Other communities are maintained by intra- or inter-annual cycles of flooding followed by extended drought, which favor accumulation of transported salts. The moisture supporting these intermittently flooded wetlands is usually derived off-site, and they are dependent upon natural watershed function for persistence (Reid et al. 1999).

In summary, desert communities of perennial plants are dynamic and changing. The composition within this system may change dramatically and may be both cyclic and unidirectional. Superimposed on the compositional change is great variation from year to year in growth of all the vegetation – the sum of varying growth responses of individual species to specific conditions of different years (Blaisdell and Holmgren 1984). Desert plants grow when temperature is satisfactory, but only if soil moisture is available at the same time. Because amount of moisture is variable from year to year and because different species flourish under different seasons of soil moisture, seldom do all components of the vegetation thrive in the same year (Blaisdell and Holmgren 1984).

**Desired Future Condition:** The DFC for this vegetation community consists of native, open salt desert scrub vegetation with little to no cheatgrass or halogeton cover, and scattered pockets and

patches of herbaceous material and forbs, primarily in the lower areas of the terrain. These communities should exhibit the types of dynamic interactions identified above.

Soils that these communities often occur on are generally highly sensitive to erosion under most types of disturbance, and are usually the first soils to show evidence of stress and/or failure during long sustained periods of drought. As indicated, most of the plant species present have developed a natural level of drought resistance based on the minimal amounts of precipitation they receive even during good climatic cycles; however extended periods of low precipitation can cross critical precipitation required thresholds for the plants. Salt desert shrub communities are often susceptible to severe drought and may require partial or total removal of livestock during prolonged drought (USDA, SCS, Grand County Soil Survey, Central Part, 1989). The best management practices in trying to achieve the DFC during extended drought conditions are to avoid unnecessary disturbance.

Treatments on salt desert scrub types can consist of a combination of mechanical, chemical, seeding and biological treatments to reduce cheatgrass and halogeton cover and restore native communities. However, restoration potentials for salt desert shrub communities are often limited due to high salt contents within the soil and degree of aridity which limit vegetative response (USDA, SCS, Grand County Soil Survey, Central Part, 1989). Surface disturbing treatments should not be attempted during drought conditions however. Prescribed fire may be used in conjunction with seeding when part of a cheatgrass/halogeton control objective (Pellant 2002). However, fire within these communities often results in high densities of exotic annual grasses (*Eremopyrum triticeum*, MFO). Due to the high incidence of cheatgrass and halogeton in this vegetation type, consider seeding following any surface disturbing activity.

### **L.3.3 BLACKBRUSH**

#### **Corresponding SW ReGAP Landcover Classification:**

- 059 Colorado Plateau Blackbrush-Mormon Tea Shrubland

**Environment:** This ecological system typically occurs on gentle benchlands, colluvial slopes, pediments or bajadas, and steep or rocky slopes of mountains, canyons, and mesas with varying aspects. This system is an evergreen, microphyllous desert scrub with succulents, half-shrubs, and scattered deciduous shrubs typically found at elevations ranging from 1,900-5,250 feet. This shrubland system occurs in an arid to semi-arid climate with annual precipitation in the form of summer monsoons and winter storms averaging approximately 8 in. Soils are highly variable and parent materials may include shale, sandstone, limestone, quartzites, and igneous rocks. Soils are generally coarse-textured, calcareous, non-saline and gravelly, often rocky, shallow and well-drained. Substrates are shallow, typically sandy soils over sandstone alluvium or caliche. It also occurs in deeper soils on sandy plains where it may have invaded desert grasslands. Effective soil moisture appears to be primarily controlled by regolith depth and position in relation to the water table. This brushland system occupies most sites where regolith is uniformly shallow. In association with blackbrush (*Coleogyne ramosissima*) sites, the soil moisture is concentrated on top of impermeable bedrock at a shallow depth. This perching effect allows for gradual uptake of moisture by the plants roots (Loope and West 1979). This permits growth of plants with more mesic habitat requirements (Warren et al. 1982). On sites with deep soil, blackbrush may occur

in almost pure occurrences with only a few associated species (Warren et al. 1982). Dark-colored cryptogamic soil crusts composed of lichens, mosses, fungi, and algae, are often present in this system in fairly undisturbed areas. Sandy soils may have more cryptogamic crusts than clayish or silty soil surfaces.

**Vegetation:** The vegetation within this ecological system is characterized by extensive open shrublands dominated by *Coleogyne ramosissima* often with *Ephedra viridis*, *Ephedra torreyana*, or *Grayia spinosa*. Sandy portions may include *Artemisia filifolia* as codominant. Within a blackbrush shrubland disturbed patches are dominated by shrubs such as *Chrysothamnus viscidiflorus*, *Ericameria* spp., *Ephedra* spp., *Grayia spinosa*, *Poliomintha incana* or exotic annual grasses. There is usually a sparse herbaceous layer with some perennial grasses and forbs such as *Achnatherum hymenoides*, *Pleuraphis jamesii*, or *Sporobolus cryptandrus*. Annual grasses and forbs are present seasonally. Some characteristic species associated with this system include the shrubs *Gutierrezia sarothrae*, *Chrysothamnus viscidiflorus*, *Yucca baccata*, and succulents such as *Opuntia* spp., *Echinocereus* spp., and *Echinocactus* spp., the graminoid *Pleuraphis rigida*, and perennial forbs such as *Machaeranthera pinnatifida* and *Sphaeralcea ambigua*. Adjacent vegetation often includes *Atriplex* dominated shrubland communities and upland areas of pinyon-juniper woodlands. Grasslands dominated by *Pleuraphis jamesii*, *Hesperostipa comata*, and *Achnatherum hymenoides* also occur.

**Dynamics:** Fire does not appear to play a role in maintenance of shrublands within this system. Topographic breaks dissect the landscape, and isolated pockets of vegetation are separated by rock walls or steep canyons. Blackbrush is fire-intolerant (Loope and West 1979). Following fires, these communities are often colonized by non-native grasses, which serve to encourage recurrent fires and delay shrub regeneration (IVC 1999). In shallow regolith situations, secondary succession, in the sense of site preparation by seral plants, may not occur at all (Loope and West 1979).

**Desired Future Condition:** The DFC recommends a vegetative composition of dense-to-scattered shrubs and dense-to-open native grasses. Disturbances should be avoided whenever possible in blackbrush communities due to invasive species concerns and extremely poor regeneration of blackbrush following disturbance.

Following surface disturbing activities, aggressively seed to reduce potential for invasion of cheatgrass/halogeton and noxious weeds.

### **L.3.4 SAGEBRUSH**

This vegetation grouping for Moab is a combination of 3 SW ReGAP vegetative cover types that occur within the boundaries of the Moab Field Office. These groupings are similar enough in characteristics to serve the purposes of broad vegetation groupings for this DFC. The groupings range from relatively pure stands of big sage to mixed stands to montane steppe environments.

### **Corresponding SW ReGAP Landcover Classification:**

- 054 - Inter-Mountain Basins Big Sagebrush Shrubland
- 056 - Colorado Plateau Mixed Low Sagebrush Shrubland
- 071 - Inter-Mountain Basins Montane Sagebrush Steppe

**Environment:** The predominant community in the Moab Field Office area is the Colorado Plateau mixed low sagebrush shrubland. This ecological system occurs in canyons, gravelly draws, hilltops, and dry flats at elevations generally below 5,900 feet. Soils are often rocky, shallow, and alkaline. It includes open shrublands and steppe. Semi-arid grasses are often present and may form a graminoid layer with over 25% cover.

The climate regime is cool, semi-arid to subhumid, with yearly precipitation ranging from 10 to 35 in/year. Much of this precipitation falls as snow. Temperatures are continental with large annual and diurnal variation. In general this system shows an affinity for mild topography, fine soils, and some source of subsurface moisture. Soils generally are moderately deep to deep, well-drained, and of loam, sandy loam, clay loam, or gravelly loam textural classes; soils often have a substantial volume of coarse fragments, and are derived from a variety of parent materials. This system primarily occurs on deep-soiled to stony flats, ridges, nearly flat ridgetops, and mountain slopes. All aspects are represented, but the higher elevation occurrences may be restricted to south- or west-facing slopes.

The environment for the big sagebrush shrubland system is typically broad basins between mountain ranges, plains and foothills between 4,900-7,500 feet elevation. Soils are typically deep, well drained and non-saline. These shrublands are dominated by *Artemisia tridentata ssp. tridentata* and/or *Artemisia tridentata ssp. wyomingensis*. Scattered Juniper may be present in some stands. *Ericameria nauseosa*, *Chrysothamnus viscidiflorus*, *Purshia tridentata*, or *Symphoricarpos oreophilus* may codominate disturbed stands. Perennial herbaceous components typically contribute less than 25% vegetative cover. Common graminoid species include *Achnatherum hymenoides*, *Bouteloua gracilis*, *Elymus lanceolatus*, *Hesperostipa comata*, *Leymus cinereus*, *Pleuraphis jamesii*, *Pascopyrum smithii*, *Poa secunda*, or *Pseudoroegneria spicata*.

The environment of the montane sagebrush steppe includes sagebrush communities occurring at montane and subalpine elevations from 3,200 feet to over 9,800 feet. Climate is cool, semi-arid to subhumid. This system primarily occurs on deep-soiled to stony flats, ridges, nearly flat ridgetops, and mountain slopes. It is composed primarily of mountain sagebrush and related taxa such as *Artemisia tridentata ssp.* non-riparian *Artemisia cana ssp. viscidula*, and *Artemisia arbuscula ssp. arbuscula*. *Purshia tridentata* may codominate or even dominate some stands. Other common shrubs include *Symphoricarpos spp.*, *Amelanchier spp.*, *Ericameria nauseosa*, *Peraphyllum ramosissimum*, *Ribes cereum*, and *Chrysothamnus viscidiflorus*. Most stands have an abundant perennial herbaceous layer (over 25% cover), but this system also includes *Artemisia tridentata ssp. vaseyana* shrublands. Common graminoids include *Hesperostipa comata*, *Poa fendleriana*, *Elymus trachycaulus*, *Bromus carinatus*, *Poa secunda*, *Leucopoa kingii*, *Deschampsia caespitosa*, and *Pseudoroegneria spicata*. Frequent wildfire maintains an open herbaceous-rich steppe condition.

**Vegetation:** Vegetation types within these ecological systems are dominated by *Artemisia tridentata* ssp. *vaseyana*, *Artemisia cana* ssp. *viscidula*, or *Artemisia tridentata* ssp. *spiciformis*. A variety of other shrubs can be found in some occurrences, but these are seldom dominant. They include *Artemisia frigida*, *Artemisia arbuscula*, *Ericameria nauseosa*, *Chrysothamnus viscidiflorus*, *Symphoricarpos oreophilus*, *Purshia tridentata*, *Peraphyllum ramosissimum*, *Ribes cereum*, *Rosa woodsii*, *Ceanothus velutinus*, and *Amelanchier alnifolia*. The canopy cover is usually between 20-80%. The herbaceous layer is usually well represented, but bare ground may be common in particularly arid or disturbed occurrences. Graminoids that can be abundant include *Festuca idahoensis*, *Festuca thurberi*, *Festuca ovina*, *Elymus elymoides*, *Stipa* spp., *Pascopyrum smithii*, *Bromus carinatus*, *Elymus trachycaulus*, *Pseudoroegneria spicata*, *Poa fendleriana*, or *Poa secunda*, and *Carex* spp. Forbs are often numerous and an important indicator of health. Forb species may include *Castilleja*, *Potentilla*, *Erigeron*, *Phlox*, *Astragalus*, *Geum*, *Lupinus*, and *Eriogonum*, *Balsamorhiza sagittata*, *Achillea millefolium*, *Antennaria rosea*, and *Eriogonum umbellatum*, *Fragaria virginiana*, *Artemisia ludoviciana*, *Hymenoxys hoopesii* (= *Helenium hoopesii*), etc.

**Dynamics:** Healthy sagebrush shrublands are very productive, are often grazed by domestic livestock, and are strongly preferred during the growing season (Padgett et al. 1989). Prolonged livestock use can cause a decrease in the abundance of native bunch grasses and increase in the cover of shrubs and non-native grass species, such as *Poa pratensis*. Research suggests that stand-replacement fires burned every 10–100 years depending on the particular sagebrush species and its associated habitat (Miller 2002, Brown 2000). *Artemisia cana* resprouts vigorously following spring fire, and prescribed burning may increase shrub cover. Conversely, fire in the fall may decrease shrub abundance (Hansen et al. 1995). *Artemisia tridentata* is generally killed by fires and may take over ten years to form occurrences of some 20% cover or more. The condition of most sagebrush steppe has been degraded due to fire suppression and heavy livestock grazing. It is unclear how long restoration will take to restore degraded occurrences.

**Desired Future Condition:** The DFC for this vegetative community is healthy sagebrush defined as diverse age classes with an understory of native grasses and forbs (Paige and Ritter 1999).

Treatments for dense sagebrush (>30%) (Winward 1991) with fire, mechanical or chemical treatments would be to reduce sagebrush canopy cover and improve native grass and forb density and cover; an additional objective in treating sagebrush is to remove encroaching pinyon and juniper trees (Miller and Tausch 2001).

Following wildfire, areas should be aggressively re-seeded to promote native understory grasses and forbs and reduce invasion of cheatgrass/halogeton and noxious weeds. Consider including sagebrush in seeding mixes or planting sagebrush seedlings in high-value wildlife areas following large, high-severity wildfires when natural seed sources would be lacking.

### **L.3.5 PINYON-JUNIPER**

This vegetation grouping for Moab is a combination of 3 SW ReGAP vegetative cover types that occur within the boundaries of the Moab Field Office. These groupings are similar enough in characteristics to serve the purposes of broad vegetation groupings for this DFC.

#### **Corresponding SW ReGAP Landcover Classification:**

- S039 - Colorado Plateau Pinyon-Juniper Woodland
- S052 - Colorado Plateau Pinyon-Juniper Shrubland
- S010 - Colorado Plateau Mixed Bedrock Canyon and Tableland

**Environment:** The woodlands portion of this ecological system occurs on dry mountains and foothills in the Moab region. It is typically found at lower elevations ranging from 4,900-8,000 feet. These woodlands occur on warm, dry sites on mountain slopes, mesas, plateaus, and ridges. Severe climatic events occurring during the growing season, such as frosts and drought, are thought to limit the distribution of pinyon-juniper woodlands to relatively narrow altitudinal belts on mountainsides. Soils supporting this system vary in texture ranging from stony, cobbly, gravelly sandy loams to clay loam or clay.

The shrubland component of this system is typically found on rocky mesa tops and slopes, but these stunted tree shrublands may extend further upslope along the low elevation margins of taller pinyon-juniper woodlands. Sites are drier than Colorado Plateau Pinyon-Juniper Woodland. Substrates are shallow/rocky and shaley soils at lower elevations (3,900-6,500 feet). Sparse examples of the system grade into Colorado Plateau Mixed Bedrock Canyon and Tableland. The vegetation is dominated by dwarfed (usually <3 m tall) *Pinus edulis* and/or *Juniperus osteosperma* trees forming extensive tall shrublands in the region along low-elevation margins of pinyon-juniper woodlands. Other shrubs, if present, may include *Artemisia nova*, *Artemisia tridentata* ssp. *wyomingensis*, *Chrysothamnus viscidiflorus*, or *Coleogyne ramosissima*. Herbaceous layers are sparse to moderately dense and typically composed of xeric graminoids

The mixed bedrock canyon and tableland component of this larger ecological system is found from foothill to subalpine elevations and includes barren and sparsely vegetated landscapes (generally <10% plant cover) of steep cliff faces, narrow canyons, and smaller rock outcrops of various igneous, sedimentary, and metamorphic bedrock types. Also included are unstable scree and talus slopes that typically occur below cliff faces. Widely scattered trees and shrubs may include *Abies concolor*, *Pinus edulis*, *Pinus flexilis*, *Juniperus* spp., *Artemisia tridentata*, *Purshia tridentata*, *Cercocarpus ledifolius*, *Ephedra* spp., *Holodiscus discolor*, and other species often common in adjacent plant communities.

**Vegetation:** *Pinus edulis* and/or *Juniperus osteosperma* dominate the tree canopy. *Juniperus scopulorum* may codominate or replace *Juniperus osteosperma* at higher elevations. Understory layers are variable and may be dominated by shrubs, graminoids, or be absent. Associated species include *Arctostaphylos patula*, *Artemisia tridentata*, *Cercocarpus intricatus*,

*Cercocarpus montanus*, *Coleogyne ramosissima*, *Purshia stansburiana*, *Purshia tridentata*, *Quercus gambelii*, *Bouteloua gracilis*, *Pleuraphis jamesii*, or *Poa fendleriana*.

**Dynamics:** Evidence indicates many pinyon-juniper stands have encroached on native grasslands and shrubland over the past 100 years (Miller and Wigand 1994). The exact mechanics of this encroachment are not fully understood, but is likely driven by a combination of fire exclusion, grazing and the relatively wet climate of the 20<sup>th</sup> century. The historical role of fire (estimated 15–50 years) prevented encroachment of pinyon and juniper into other vegetation communities (Heyerdahl et al. 2004, Miller and Tausch 2001, Bradley et al. 1992, Romme et al. 2002).

Pinyon dominate at higher elevations, and tend to form more closed-canopied stands that exhibit forest like dynamics and species composition, commonly including a significant shrub component of oaks and alder leaf, mountain mahogany and limited grasses. Juniper tends to grow at lower elevations and in more arid areas as its scaled foliage allows it to conserve water more effectively than pinyon pine. Juniper dominated woodlands tend to include open savannas of scattered trees without a significant shrub component, except in areas where big sagebrush has become dominant as a consequence of overgrazing.

Over the past 50 years, anecdotal evidence suggests tree densities and canopy cover have increased, and junipers and pinyon pines have expanded upslope into ponderosa pine forests and downslope into grass and shrub communities. Densities have increased in some areas to the point that larger proportions of pinyon-juniper woodland can now support crown fires. Additionally, pinyon is very susceptible to large scale die-offs from engraver beetles during drought induced stress. Over the past 5 to 6 years millions of acres of pinyon have been lost to this insect across the entire southwest US, including some pinyon stands in the Moab area.

Historical occurrence of pinyon and juniper is difficult to map, but pre-settlement trees are generally located in shallow, rocky soils and tend to have a unique growth form characterized by rounded, spreading canopies; large basal branches; large irregular trunks; and furrowed fibrous bark (Miller and Rose 1999). Historic fire return intervals in these protected sites are greater than 100 years (Romme et al. 2002).

**Desired Future Condition:** Where pinyon and juniper occur historically the DFC are open stands of pinyon and juniper with native grass and shrub understory (Miller and Wigand 1994, FEIS 2004). Where pinyon and juniper did not occur historically, the DFC is the native shrub, grass and forest communities that the pinyon and juniper have invaded.

Follow disturbance or treatments in these communities with seeding in stands which lack native understory vegetation. Seeding will help discourage the establishment of invasive annual grasses.

### **L.3.6 PONDEROSA PINE**

#### **Corresponding SW ReGAP Landcover Classification:**

- S036 - Rocky Mountain Ponderosa Pine Woodland

**Environment:** This ecological system within the region occurs at the lower treeline/ecotone between grassland or shrubland and more mesic coniferous forests typically in warm, dry, exposed sites at elevations ranging from 6,500-8,500 feet. It can occur on all slopes and aspects; however, it commonly occurs on moderately steep to very steep slopes or ridgetops. This ecological system generally occurs on igneous, metamorphic, and sedimentary material derived soils (Youngblood and Mauk 1985). Characteristic soil features include good aeration and drainage, coarse textures, circumneutral to slightly acid pH, an abundance of mineral material, and periods of drought during the growing season. Some occurrences may occur as edaphic climax communities on very skeletal, infertile, and/or excessively drained soils, such as pumice, cinder or lava fields, and scree slopes. Surface textures are highly variable in this ecological system ranging from sand to loam and silt loam. Exposed rock and bare soil consistently occur to some degree in all the associations. Precipitation generally contributes 10-23 in annually to this system, mostly through winter storms and some monsoonal summer rains. Typically a seasonal drought period occurs throughout this system as well. Fire plays an important role in maintaining the characteristics of these open canopy woodlands. However, soil infertility and drought may contribute significantly in some areas as well.

**Vegetation:** *Pinus ponderosa* is the predominant conifer; *Pseudotsuga menziesii*, *Pinus edulis*, and *Juniperus* spp. may be present in the tree canopy. The understory is usually shrubby; with *Artemisia nova*, *Artemisia tridentata*, *Arctostaphylos patula*, *Arctostaphylos uva-ursi*, *Cercocarpus montanus*, *Cercocarpus ledifolius*, *Purshia stansburiana*, *Purshia tridentata*, *Quercus gambelii*, *Symphoricarpos oreophilus*, *Prunus virginiana*, *Amelanchier alnifolia*, and *Rosa* spp. are common species. *Pseudoroegneria spicata* and species of *Hesperostipa*, *Achnatherum*, *Festuca*, *Muhlenbergia*, and *Bouteloua* are some of the common grasses.

**Dynamics:** *Pinus ponderosa* is a drought-resistant, shade-intolerant conifer which usually occurs at lower treeline in the major ranges of the western United States. Historically, ground fires and drought were influential in maintaining open-canopy conditions in these woodlands. With settlement and subsequent fire suppression, occurrences have become denser. Presently, many occurrences contain understories of more shade-tolerant species, such as *Pseudotsuga menziesii* and/or *Abies* spp., as well as younger cohorts of *Pinus ponderosa*. These altered occurrence structures have affected fuel loads and alter fire regimes. Presettlement fire regimes were primarily frequent (5-15 year return intervals), low-intensity ground fires triggered by lightning strikes or deliberately set fires by Native Americans. With fire suppression and increased fuel loads, fire regimes are now less frequent and often become intense crown fires, which can kill mature *Pinus ponderosa* (Reid et al. 1999). Establishment is erratic and believed to be linked to periods of adequate soil moisture and good seed crops as well as fire frequencies, which allow seedlings to reach sapling size. Longer fire-return intervals have resulted in many occurrences having dense subcanopies of overstocked and unhealthy young *Pinus ponderosa* (Reid et al. 1999). Mehl (1992) states the following: "Where fire has been present, occurrences will be climax and contain groups of large, old trees with little understory vegetation or down woody material and few occurring dead trees. The age difference of the groups of trees would be large. Where fire is less frequent there will also be smaller size trees in the understory giving the occurrence some structure with various canopy layers. Dead, down material will be present in varying amounts along with some occurring dead trees. In both cases the large old trees will have irregular open, large branched crowns. The bark will be lighter in color, almost yellow, thick and

some will like have basal fire scars." Grace's warbler, Pygmy nuthatch, and flammulated owl are indicators of healthy ponderosa pine woodlands. All of these birds prefer mature trees in an open woodland setting (Winn 1998, Jones 1998, Levad 1998 as cited in Rondeau 2001).

**Desired Future Condition:** The DFC for Ponderosa pine communities consists of open stands with a native grass and forb understory. Consider mechanical treatments in dense stands. Reduce juniper encroachment through fire (preferred when fuels conditions allow) or mechanical treatments. Following wildfires or other disturbance, consider seeding to reduce invasive weeds and planting ponderosa pine seedlings for forest restoration and rehabilitation.

### **L.3.7 MOUNTAIN SHRUB**

#### **Corresponding SW ReGAP Landcover Classification:**

- S046 - Rocky Mountain Gambel Oak-Mixed Montane Shrubland
- S047 - Rocky Mountain Lower Montane-Foothill Shrubland

**Environment:** The gambel oak-mixed montane shrubland ecological system occurs in the mountains, plateaus and foothills. These shrublands are most commonly found along dry foothills, lower mountain slopes, from approximately 6,500 to 9,500 feet elevation, and are often situated above pinyon-juniper woodlands. Substrates are variable typically poorly developed and include soil types ranging from calcareous, heavy, fine-grained loams to sandy loams, gravelly loams, clay loams, deep alluvial sand, or coarse gravel. Climate is semi-arid and characterized by mostly hot-dry summers with mild to cold winters and annual precipitation of 10 to 27 inches. Precipitation mostly occurs as winter snows but may also consist of some late summer rains. Although this is a shrub-dominated system, some trees may be present. In older occurrences, or occurrences on mesic sites, some of the shrubs may acquire tree-like sizes. Adjacent communities often include woodlands or forests at higher elevations, and *Pinus edulis* and *Juniperus osteosperma* on the lower and adjacent elevations. Shrublands of *Artemisia tridentata* or grasslands of *Festuca* sp., *Stipa* sp., or *Pseudoroegneria* sp. may also be present at the lower elevations.

The lower montane-foothill scrubland ecological system is found in the foothills, canyon slopes and lower mountain slopes on outcrops and canyon slopes. These shrublands occur between 4,900-9,500 feet elevations and are usually associated with exposed sites, rocky substrates, and dry conditions, which limit tree growth. It is common where *Quercus gambelii* is absent and in drier foothills and prairie hills. Scattered trees or inclusions of grassland patches or steppe may be present, but the vegetation is typically dominated by a variety of shrubs. Grasses are represented as species of *Muhlenbergia*, *Bouteloua*, *Hesperostipa*, and *Pseudoroegneria spicata*. Fires play an important role in this system as the dominant shrubs usually have a severe die-back, although some plants will stump sprout. *Cercocarpus montanus* requires a disturbance such as fire to reproduce, either by seed sprout or root crown sprouting. Fire suppression may have allowed an invasion of trees into some of these shrublands, but in many cases sites are too xeric for tree growth.

**Vegetation:** Vegetation types in this system may occur as sparse to dense shrublands composed of moderate to tall shrubs. Occurrences may be multi-layered, with some short shrubby species

occurring in the understory of the dominant overstory species. In many occurrences of this system, the canopy is dominated by the broad-leaved deciduous shrub *Quercus gambelii*, which occasionally reaches small tree size. Occurrences can range from dense thickets with little understory to relatively mesic mixed-shrublands with a rich understory of shrubs, grasses and forbs. These shrubs often have a patchy distribution with grass growing in between. Scattered trees are occasionally present in stands and typically include species of *Pinus* or *Juniperus*. Characteristic shrubs that may co-occur, or be singularly dominant, include *Amelanchier alnifolia*, *Amelanchier utahensis*, *Arctostaphylos patula*, *Artemisia tridentata*, *Cercocarpus montanus*, *Prunus virginiana*, *Purshia stansburiana*, *Rosa* spp., *Symphoricarpos oreophilus*, and *Symphoricarpos rotundifolius*. The herbaceous layer is sparse to moderately dense, ranging from 1-40% cover. Perennial graminoids are the most abundant species, particularly *Bouteloua curtipendula*, *Bouteloua gracilis*, *Aristida* spp., *Carex geyeri*, *Festuca* spp., *Muhlenbergia* spp., and *Stipa* spp. Many forbs and fern species can occur, but none have much cover. Commonly present forbs include *Achillea millefolium*, *Artemisia* spp., *Geranium* spp., *Thalictrum fendleri*, and *Vicia americana*. Ferns include species of *Cheilanthes* and *Woodsia*. Annual grasses and forbs are seasonally present, and weedy annuals are often present, at least seasonally.

**Dynamics:** Fire typically plays an important role in this system, causing die-back of the dominant shrub species in some areas, promoting stump sprouting of the dominant shrubs in other areas, and controlling the invasion of trees into the shrubland system. Natural fires typically result in a system with a mosaic of dense shrub clusters and openings dominated by herbaceous species. In some instances these associations may be seral to the adjacent *Pinus ponderosa*, *Abies concolor*, and *Pseudotsuga menziesii* woodlands and forests. Ream (1964) noted that on many sites in Utah, Gambel oak may be successional and replaced by bigtooth maple (*Acer grandidentatum*).

**Desired Future Condition:** The DFC for these vegetation communities consists of stands with patches of differing age classes and densities. In fuel hazard situations the DFC is greatly reduced vegetation density or a conversion to less-flammable vegetation. When possible, allow fire to play its natural role in a historical fire-return.

Treat large expanses of even-aged, dense, homogenous stands to result in patches of diverse age classes [see Rondeau (2001) for patch size guidance]. To achieve greater habitat diversity and decreased potential for large-scale high-severity fire, reduce invasion of pinyon and juniper and reduce the average age of stands through fire, mechanical or biological (i.e., grazing goats) treatments. Since most of these species sprout following wildfire, consider seeding only to reduce potential for invasive weeds.

### **L.3.8 DOUGLAS FIR - MIXED CONIFER**

This vegetation grouping for Moab is a combination of 6 SW ReGAP vegetative cover types that occur within the boundaries of the Moab Field Office. These groupings are similar enough in characteristics to serve the purposes of broad vegetation groupings for this DFC. In addition, most of the spruce, fir and aspen woodlands on BLM lands within the Moab Field Office boundary occur in the rugged and remote terrain of the Book Cliffs, where these vegetation types occur in a mixed mosaic across a significant elevational gradient. Vegetation and dynamics of

these systems are not all described in detail, with some of this information presented under the environment heading.

**Corresponding SW ReGAP Landcover Classification:**

- S023 - Rocky Mountain Aspen Forest and Woodland
- S028 - Rocky Mountain Subalpine Dry-Mesic Spruce-Fir Forest and Woodland
- S030 - Rocky Mountain Subalpine Mesic Spruce-Fir Forest and Woodland
- S032 - Rocky Mountain Montane Dry-Mesic Mixed Conifer Forest and Woodland
- S034 - Rocky Mountain Montane Mesic Mixed Conifer Forest and Woodland
- S042 - Inter-Mountain Basins Aspen-Mixed Conifer Forest and Woodland

**Environment:** Climate within these systems is temperate with a relatively long growing season, typically cold winters and deep snow. Mean annual precipitation is greater than 15 inches and typically greater than 20 inches, except in semi-arid environments where occurrences are restricted to mesic microsites such as seeps or large snow drifts. Occurrences at high elevations are restricted by cold temperatures and are found on warmer southern aspects. At lower elevations occurrences are restricted by lack of moisture and are found on cooler north aspects and mesic microsites. The soils are typically deep and well developed with rock often absent from the soil. Soil texture ranges from sandy loam to clay loams.

The aspen forest and woodland ecological system occurs primarily in the montane and subalpine zones. Elevations generally range from 5,000-10,000 feet, but occurrences can be found at lower elevations in some regions. Topography is variable, sites range from level to steep slopes. Distribution of this ecological system is primarily limited by adequate soil moisture required to meet its high evapotranspiration demand, and secondarily is limited by the length of the growing season or low temperatures. Occurrences of this system originate and are maintained by stand-replacing disturbances such as avalanches, crown fire, insect outbreak, disease and windthrow, or clearcutting by man or beaver, within the matrix of conifer forests.

The subalpine dry-mesic spruce-fir forest and woodland consists primarily of Engelmann spruce and subalpine fir forests. Elevations range from 5,000-11,000 feet. Sites within this system are cold year-round, and precipitation is predominantly in the form of snow, which may persist until late summer. Snowpacks are deep and late-lying, and summers are cool. Frost is possible almost all summer and may be common in restricted topographic basins and benches. Despite their wide distribution, the tree canopy characteristics are remarkably similar, with *Picea engelmannii* and *Abies lasiocarpa* dominating either mixed or alone. *Pinus contorta* is common in many occurrences and patches of pure *Pinus contorta* are not uncommon, as well as mixed conifer/*Populus tremuloides* stands. Disturbance includes occasional blow-down, insect outbreaks and stand-replacing fire.

The subalpine mesic spruce-fir forest and woodland is a high-elevation system of the Rocky Mountains, dominated by *Picea engelmannii* and *Abies lasiocarpa*. Occurrences are typically found in locations with cold-air drainage or ponding, or where snowpacks linger late into the summer, such as north-facing slopes and high-elevation ravines. They can extend down in

elevation below the subalpine zone in places where cold-air ponding occurs; northerly and easterly aspects predominate. These forests are found on gentle to very steep mountain slopes, high-elevation ridgetops and upper slopes, plateaulike surfaces, basins, alluvial terraces, well-drained benches, and inactive stream terraces. Disturbances include occasional blow-down, insect outbreaks and stand-replacing fire.

The montane dry-mesic mixed conifer forest and woodland is a highly variable ecological system of the montane zone of the Rocky Mountains. These are mixed-conifer forests occurring on all aspects at elevations ranging from 4,000 to 10,500 feet. Rainfall averages less than 30 in per year with summer "monsoons" during the growing season contributing substantial moisture. The composition and structure of overstory is dependent upon the temperature and moisture relationships of the site, and the successional status of the occurrence. This system was undoubtedly characterized by a mixed severity fire regime in its "natural condition", characterized by a high degree of variability in lethality and return interval.

The rocky mountain montane mesic mixed conifer forest and woodlands are mixed-conifer forests, occurring predominantly in cool ravines and on north-facing slopes. Elevations range from 4,000 to 10,500 feet. Occurrences of this system are found on cooler and more mesic sites than Rocky Mountain Montane Dry-Mesic Mixed Conifer Forest and Woodland. Such sites include lower and middle slopes of ravines, along stream terraces, moist, concave topographic positions and north- and east-facing slopes which burn somewhat infrequently. Naturally occurring fires are of variable return intervals, and mostly light, erratic, and infrequent due to the cool, moist conditions.

The inter-mountain basins aspen-mixed conifer forest and woodland ecological system occurs on montane slopes and plateaus at elevations ranging from 5,500 to 9,000 feet. Occurrences are typically on gentle to steep slopes on any aspect, but are often found on clay-rich soils in intermontane valleys. Soils are derived from alluvium, colluvium and residuum from a variety of parent materials, but most typically occur on sedimentary rocks. Distribution of this ecological system is primarily limited by adequate soil moisture required to meet its high evapotranspiration demand (Mueggler 1988). Secondarily, its range is limited by the length of the growing season; or low temperatures (Mueggler 1988). At lower elevations aspen is restricted by lack of moisture and is found on cooler north aspects and mesic microsites. The soils are typically deep and well-developed with rock often absent from the soil. Soil texture ranges from sandy loam to clay loams. Parent materials are variable and may include sedimentary, metamorphic or igneous rocks, but it appears to grow best on limestone, basalt, and calcareous or neutral shales (Mueggler 1988). Most occurrences at present represent a late-seral stage of aspen changing to a pure conifer occurrence. Nearly a hundred years of fire suppression and livestock grazing have converted much of the pure aspen occurrences to the present-day aspen-conifer forest and woodland ecological system.

**Vegetation:** Vegetation in the aspen forest and woodland have a somewhat closed canopy of trees of 15-65 feet tall dominated by the cold deciduous, broad-leaved tree *Populus tremuloides*. Conifers that may be present but never codominant include *Abies concolor*, *Abies lasiocarpa*, *Picea engelmannii*, *Picea pungens*, *Pinus ponderosa*, and *Pseudotsuga menziesii*. Conifer species may contribute up to 15% of the tree canopy before the occurrence is reclassified as a

mixed occurrence. Because of the open growth form of *Populus tremuloides*, enough light can penetrate for lush understory development. Depending on available soil moisture and other factors like disturbance, the understory structure may be complex with multiple shrub and herbaceous layers, or simple with just an herbaceous layer. The herbaceous layer may be dense or sparse, dominated by graminoids or forbs. Common shrubs include *Acer glabrum*, *Amelanchier alnifolia*, *Artemisia tridentata*, *Juniperus communis*, *Prunus virginiana*, *Rosa woodsii*, *Shepherdia canadensis*, *Symphoricarpos oreophilus*, and the dwarf-shrubs *Mahonia repens* and *Vaccinium* spp. The herbaceous layers may be lush and diverse. Common graminoids may include *Bromus carinatus*, *Calamagrostis rubescens*, *Carex siccata* (= *Carex foenea*), *Carex geyeri*, *Carex rossii*, *Elymus glaucus*, *Elymus trachycaulus*, *Festuca thurberi*, and *Hesperostipa comata*. Associated forbs may include *Achillea millefolium*, *Eucephalus engelmannii* (= *Aster engelmannii*), *Delphinium* spp., *Geranium viscosissimum*, *Heracleum sphondylium*, *Ligusticum filicinum*, *Lupinus argenteus*, *Osmorhiza berteroi* (= *Osmorhiza chilensis*), *Pteridium aquilinum*, *Rudbeckia occidentalis*, *Thalictrum fendleri*, *Valeriana occidentalis*, *Wyethia amplexicaulis*, and many others. Exotic grasses such as the perennials *Poa pratensis* and *Bromus inermis* and the annual *Bromus tectorum* are often common in occurrences disturbed by grazing.

Vegetation in the montane dry-mesic mixed conifer forest and woodland is comprised of mixed conifer forests at montane elevation. The four main alliances in this system are found on slightly different, but intermingled, biophysical environments: *Abies concolor* dominates at higher, colder locations; *Picea pungens* represents mesic conditions; *Pseudotsuga menziesii* dominates intermediate zones. As many as seven conifers can be found growing in the same occurrences, with the successful reproduction of the diagnostic species determining the association type. Common conifers include *Pinus ponderosa*, *Pinus flexilis*, *Abies lasiocarpa*, *Abies lasiocarpa*, *Juniperus scopulorum*, and *Picea engelmannii*. *Populus tremuloides* is often present as intermingled individuals in remnant aspen clones, or in adjacent patches. The composition and structure of overstory is dependent upon the temperature and moisture relationships of the site, and the successional status of the occurrence (DeVelice et al. 1986, Muldavin et al. 1996).

A number of cold-deciduous shrub and graminoid species are found in many occurrences (e.g., *Arctostaphylos uvaursi*, *Mahonia repens*, *Paxistima myrsinites*, *Symphoricarpos oreophilus*, *Jamesia americana*, and *Quercus gambelii*). Other important species include *Acer glabrum*, *Acer grandidentatum*, *Amelanchier alnifolia*, *Arctostaphylos patula*, *Holodiscus dumosus*, *Jamesia americana*, *Juniperus communis*, *Physocarpus monogynus*, *Quercus X pauciloba*, *Rubus parviflorus*, and *Vaccinium myrtillus*. Where soil moisture is favorable, the herbaceous layer may be quite diverse, including graminoids *Bromus ciliatus* (= *Bromus canadensis*), *Calamagrostis rubescens*, *Carex geyeri*, *Carex rossii*, *Carex siccata* (= *Carex foenea*), *Festuca occidentalis*, *Koeleria macrantha*, *Muhlenbergia montana*, *Muhlenbergia virescens*, *Poa fendleriana*, *Pseudoroegneria spicata*, and forbs *Achillea millefolium*, *Arnica cordifolia*, *Erigeron eximius*, *Fragaria virginiana*, *Linnaea borealis*, *Luzula parviflora*, *Osmorhiza berteroi*, *Packera cardamine* (= *Senecio cardamine*), *Thalictrum occidentale*, *Thalictrum fendleri*, *Thermopsis rhombifolia*, *Viola adunca*, and species of many other genera, including *Lathyrus*, *Penstemon*, *Lupinus*, *Vicia*, *Arenaria*, *Galium*, and others.

Vegetation in the inter-mountain basins aspen-mixed conifer forest and woodland is open to moderately closed, mixed evergreen needle-leaved and deciduous broad-leaved tree canopy is composed of short to moderately tall trees, and is codominated by *Populus tremuloides* and conifers, including *Pseudotsuga menziesii*, *Abies concolor*, *Abies lasiocarpa*, *Picea engelmannii*, *Picea pungens*, *Pinus contorta*, *Pinus flexilis*, and *Pinus ponderosa*. As the occurrences age, *Populus tremuloides* is slowly reduced until the conifer species becomes dominant (Mueggler 1988). The sparse to moderately dense understory may be structurally complex and includes tall-shrub, short-shrub and herbaceous layers, or simple with just an herbaceous layer. Because of the open growth form of *Populus tremuloides*, more light can penetrate the canopy than in a pure conifer occurrence. Typically the understory is usually denser in younger occurrences that are dominated by *Populus tremuloides*, and in more mesic sites with open canopies. If present the tall-shrub layer may be dominated by *Amelanchier alnifolia*, *Prunus virginiana*, or *Acer grandidentatum*, and short-shrub by *Symphoricarpos oreophilus*, *Juniperus communis*, or *Mahonia repens*. Other common shrubs include *Paxistima myrsinites*, *Rosa woodsii*, *Spiraea betulifolia*, *Symphoricarpos albus*, and in wet areas *Salix scouleriana*. Where dense, the herbaceous layer is often dominated by graminoids such as *Bromus carinatus*, *Calamagrostis rubescens*, *Carex geyeri*, *Elymus glaucus*, *Poa* spp., and *Stipa* spp. More sparse herbaceous layers are generally a more even mixture of forbs like *Achillea millefolium*, *Arnica cordifolia*, *Eucephalus engelmannii* (= *Aster engelmannii*), *Erigeron speciosus*, *Fragaria vesca*, *Galium boreale*, *Geranium viscosissimum*, *Lathyrus* spp., *Lupinus argenteus*, *Mertensia arizonica*, *Mertensia lanceolata*, *Maianthemum stellatum*, *Osmorhiza berteroi* (= *Osmorhiza chilensis*), and *Thalictrum fendleri*. Annuals are typically uncommon. The exotic species *Poa pratensis* and *Taraxacum officinale* are more common in livestock-impacted occurrences (Mueggler 1988).

**Dynamics:** Occurrences of the aspen forest and woodland ecological system often originate, and are likely maintained, by stand-replacing disturbances such as crown fire, disease and windthrow, or clearcutting by man or beaver. The stems of these thinbarked, clonal trees are easily killed by ground fires, but they can quickly and vigorously resprout in densities of up to 30,000 stems per hectare (Knight 1993). The stems are relatively short-lived (100-150 years), and the occurrence will succeed to longer-lived conifer forest if undisturbed. Occurrences are favored by fire in the conifer zone (Mueggler 1988). With adequate disturbance a clone may live many centuries. Although *Populus tremuloides* produces abundant seeds, seedling survival is rare because of the long moist conditions required to establish are rare in the habitats that it occurs in. Superficial soil drying will kill seedlings (Knight 1993).

Within the subalpine dry-mesic spruce-fir forest and woodlands *engelmannii* can be very long-lived, reaching 500 years of age. *Abies lasiocarpa* decreases in importance relative to *Picea engelmannii* with increasing distance from the region of Montana and Idaho where maritime air masses influence the climate. Fire is an important disturbance factor, but fire regimes have a long return interval and so are often stand-replacing. *Picea engelmannii* can rapidly recolonize and dominate burned sites, or can succeed other species such as *Pinus contorta* or *Populus tremuloides*. Due to great longevity, *Pseudotsuga menziesii* may persist in occurrences of this system for long periods without regeneration. Old-growth characteristics in *Picea engelmannii* forests will include treefall and windthrow gaps in the canopy, with large downed logs, rotting woody material, tree seedling establishment on logs or on mineral soils unearthed in root balls, and snags.

Forests in the montane dry-mesic mixed conifer forest and woodland represent the gamut of fire tolerance. Formerly, *Abies concolor* in the Utah High Plateaus were restricted to rather moist or less fire-prone areas by frequent ground fires. These areas experienced mixed fire severities, with patches of crowning in which all trees are killed, intermingled with patches of underburn in which larger *Abies concolor* survived. With fire suppression, *Abies concolor* has vigorously colonized many sites formerly occupied by open *Pinus ponderosa* woodlands. These invasions have dramatically changed the fuel load and potential behavior of fire in these forests. In particular, the potential for high-intensity crown fires on drier sites now codominated by *Pinus ponderosa* and *Abies concolor* has increased. Increased landscape connectivity, in terms of fuel loadings and crown closure, has also increased the potential size of crown fires. *Pseudotsuga menziesii* forests are the only true 'fire-tolerant' occurrences in this ecological system. *Pseudotsuga menziesii* forests were probably subject to a moderate-severity fire regime in presettlement times, with fire-return intervals of 30-100 years. Many of the important tree species in these forests are fire-adapted (*Populus tremuloides*, *Pinus ponderosa*, *Pinus contorta*) (Pfister et al. 1977), and fire-induced reproduction of *Pinus ponderosa* can result in its continued codominance in *Pseudotsuga menziesii* forests (Steele et al. 1981). Seeds of the shrub *Ceanothus velutinus* can remain dormant in forest occurrences for 200 years (Steele et al. 1981) and germinate abundantly after fire, competitively suppressing conifer seedlings. Successional relationships in this system are complex. *Pseudotsuga menziesii* is less shade-tolerant than many northern or montane trees such as *Tsuga heterophylla*, *Abies concolor*, *Picea engelmannii*, and seedlings compete poorly in deep shade. At drier locales, seedlings may be favored by moderate shading, such as by a canopy of *Pinus ponderosa*, which helps to minimize drought stress. In some locations, much of these forests have been logged or burned during European settlement, and present-day occurrences are second-growth forests dating from fire, logging, or other occurrence-replacing disturbances (Mauk and Henderson 1984, Chappell et al. 1997). *Picea pungens* is a slow-growing, long-lived tree which regenerates from seed (Burns and Honkala 1990a). Seedlings are shallow-rooted and require perennially moist soils for establishment and optimal growth. *Picea pungens* is intermediate in shade tolerance, being somewhat more tolerant than *Pinus ponderosa* or *Pseudotsuga menziesii*, and less tolerant than *Abies lasiocarpa* or *Picea engelmannii*. It forms late-seral occurrences in the subhumid regions of the Utah High Plateaus. It is common for these forests to be heavily disturbed by grazing or fire. In general, fire suppression has led to the encroachment of more shade-tolerant, less fire-tolerant species (e.g., climax) into occurrences and an attendant increase in landscape homogeneity and connectivity (from a fuels perspective). This has increased the lethality and potential size of fires.

Within the inter-mountain basins aspen-mixed conifer forest and woodland *Populus tremuloides* is thin-barked and readily killed by fire. It is a fire-adapted species that generally needs a large disturbance to establish and maintain dominance in a forest. These mixed forests are generally seral and, in the absence of stand-replacing disturbance such as fire, will slowly convert to a conifer-dominated forest (Mueggler 1988). The natural fire-return interval is approximately 20 to 50 years for seral occurrences (USFS 1996). Intervals that approach 100 years are typical of late-seral occurrences (USFS 1996). Although the young conifer trees in these occurrences are susceptible to fire, older individuals develop self-pruned lower branches and develop thick corky bark that makes them resistant to ground fires. Most of the occurrences sampled by Mueggler (1988) have had a history of livestock grazing as evidenced by relative abundance of the exotic plants *Taraxacum officinale*, *Poa pratensis*, and other grazing-tolerant plants, and the scarcity of

grazing-susceptible plants (Mueggler 1988). Most occurrences that we see today represent a late-seral stage of aspen changing to a pure conifer occurrence. Nearly a hundred years of fire suppression and livestock grazing have converted much of the pure aspen occurrences to the present-day aspen-conifer forest and woodland ecological system.

**Desired Future Condition:** It will be difficult to provide detailed DFC's for each of the individual components of this grouping. For specific questions and project level activities the Ecological Site Guides should be consulted, along with an understanding of the dynamics of these systems.

However, in general the DFC for vegetation communities within these various groups should consist of mixed conifer stands and an array of age classes, structure, and densities. Tree planting should occur following disturbance to restore or rehabilitate the forest resource to promote forest regeneration. Treatments should result in a landscape containing patches of large old trees.

### ***L.3.9 RIPARIAN / WETLANDS***

#### **Corresponding SW ReGAP Landcover Classification:**

- S093 - Rocky Mountain Lower Montane Riparian Woodland and Shrubland
- S102 - Rocky Mountain Alpine-Montane Wet Meadow

**Environment:** Riparian/wetland systems are found throughout the Rocky Mountain and Colorado Plateau regions within a broad elevation range from approximately 2,950 to 9,100 feet. These systems often occur as a mosaic of multiple communities that are often tree-dominated with a diverse shrub and grass component. Riparian areas are typically dependent on a natural hydrologic regime, especially annual to episodic flooding. Wetland areas typically dependent upon continuous saturation or inundation of soils to support wetland obligate species. Occurrences are found within the flood zone of rivers, on islands, sand or cobble bars, and immediate streambanks. They can form large, wide occurrences on mid-channel islands in larger rivers or narrow bands on small, rocky canyon tributaries and well-drained benches. Wetland areas are typically found in backwater channels and other perennially wet but less scoured sites, such as floodplains swales and irrigation ditches. Both riparian and wetland systems may also occur in upland areas of mesic swales and hillslopes below seeps and springs.

The climate of riparian/wetland systems is continental with typically cold winters and hot summers. Surface water is generally high for variable periods. Soils are typically alluvial deposits of sand, clays, silts and cobbles that are highly stratified with depth due to flood scour and deposition. Highly stratified profiles consist of alternating layers of clay loam and organic material with coarser sand or thin layers of sandy loam over very coarse alluvium. Soils are often fine-textured with organic material over coarser alluvium. Some soils are more developed due to a slightly more stable environment and greater input of organic matter.

Riparian/wetland areas commonly contain specialized vegetation associated with surface or subsurface moisture. Riparian resources include wetland areas which require prolonged saturation of soils and contain certain vegetative species dependent upon saturation. Less than 2

percent of the Moab FO planning area contains riparian/wetland resources, which are commonly located along major rivers, drainages, or spring sites

Moisture for wet meadow community types is acquired from groundwater, stream discharge, overland flow, overbank flow, and on-site precipitation. Salinity and alkalinity are generally low due to the frequent flushing of moisture through the meadow. Depending on the slope, topography, hydrology, soils and substrate, intermittent, ephemeral, or permanent pools may be present. These areas may support species more representative of purely aquatic environments. Standing water may be present during some or all of the growing season, with water tables typically remaining at or near the soil surface. Fluctuations of the water table throughout the growing season are not uncommon, however. On drier sites supporting the less mesic types, the late-season water table may be one meter or more below the surface. Soils typically possess a high proportion of organic matter, but this may vary considerably depending on the frequency and magnitude of alluvial deposition (Kittel et al. 1998). Organic composition of the soil may include a thin layer near the soil surface or accumulations of highly sapric material of up to 120 cm thick. Soils may exhibit gleying and/or mottling throughout the profile. Wet meadow ecological systems provide important water filtration, flow attenuation, and wildlife habitat functions.

**Vegetation:** Dominant trees may include *Acer negundo*, *Populus angustifolia*, *Populus balsamifera*, *Populus deltoides*, *Populus fremontii*, *Salix amygdaloides*, *Salix goodingii*, *Fraxinus velutina*, or *Celtis* sp. Dominant shrubs include *Acer glabrum*, *Alnus incana*, *Betula occidentalis*, *Cornus sericea*, *Crataegus rivularis*, *Forestiera pubescens*, *Prunus virginiana*, *Rhus trilobata*, *Salix monticola*, *Salix drummondiana*, *Salix exigua*, *Salix irrorata*, *Salix lucida*, *Shepherdia argentea*, or *Symphoricarpos* spp. Invasive vegetation is common within riparian areas, consisting of exotic trees (*Elaeagnus angustifolia*, *Tamarix* spp). dominant in many stands, and noxious species (*Acroptilon repens*, *Lythrum salicaria*) Generally, the upland vegetation surrounding this riparian system is different and definable and ranges from grasslands to forests and can include *Quercus gambelii*, *Pseudotsuga menziesii*, *Picea pungens*, *Juniperus scopulorum*, *Atriplex canescens* and *Chrysothamnus nauseosus*.

Grass communities and species are a major component in most riparian and wetland areas. A mix of grasses can normally be found, with wide variability in the number of species, extent or location within the riparian/wetland area. Depending on the degree of inundation or saturation, grasses can include obligate wetland species where sufficient saturation occurs yearlong (*Juncus bufonius*, *Scirpus* spp., *Carex* spp., *Typha* spp.); facultative wetland grasses (*Distichlis spicata*, *Phragmites* spp.); or upland grass species (*Oryzopsis*, spp., *Sporobolus* spp.).

**Dynamics:** This ecological system contains early-, mid- and late-seral riparian plant associations. It also contains non-obligate riparian species. Cottonwood communities are early-, mid- or late-seral, depending on the age class of the trees and the associated species of the occurrence (Kittel et al. 1998). Cottonwoods, however, do not reach a climax stage as defined by Daubenmire (1952). Mature cottonwood occurrences do not regenerate in place, but regenerate by "moving" up and down a river reach. Over time a healthy riparian area supports all stages of cottonwood communities (Kittel et al. 1999b). Riparian ecosystems are extremely susceptible to

fire, containing native woody species which are fire intolerant (*Populus fremontii*), often resulting in catastrophic loss to fire in response to exotic species including tamarisk.

Associations in this ecological system are adapted to soils that may be flooded or saturated throughout the growing season. They may also occur on areas with soils that are only saturated early in the growing season, or intermittently. Typically these associations are tolerant of moderate-intensity ground fires and late-season livestock grazing (Kovalchik 1987). Most appear to be relatively stable types, although in some areas these may be impacted by intensive livestock grazing.

**Desired Future Condition:** The DFC for riparian/wetland areas is to support the appropriate ecological conditions, composition and age-class of native communities to maintain a healthy and properly functioning ecosystem as identified by Utah BLM Standards and Guidelines. Proper management and restoration of native riparian/wetland is a primary goal where systems are degraded. Reduction of flammable tamarisk and other invasive species can be common and widespread to improve native diversity, functioning condition, and reduce fire hazards.

Apply high priority to suppression of wildfires within riparian/wetland areas to maintain diverse native communities and reduce erosion into adjacent waterways (maintain buffer strips). Limit use of fire retardants near waters to reduce contamination of water quality and fisheries resources. Consider active restoration options, when native riparian and wetland communities are unlikely to recover with passive restoration (due to invasive species, stream bank erosion, etc).

Restore native riparian and wetland species through adjustment of management practices and/or implementation of mechanical, chemical, biological and fire treatments. Mechanical treatment as the initial fire treatment would be emphasized where there is a moderate to high potential for riparian and wetland to be burned to a high severity. For prescribed fire, allow low intensity fire to back into riparian and wetland areas through ignition outside of riparian and wetland.

### ***L.3.10 INVASIVES***

#### **Corresponding SW ReGAP Landcover Classification:**

- D04 - Invasive Southwest Riparian Woodland and Shrubland
- D08 - Invasive Annual Grassland

**Environment:** Invasive species can occur in nearly any environment within the Moab Field Office, however the major occurrences are in lower elevations (<6,500 feet). The major native vegetation types that have been displaced by invasives are salt desert scrub, sagebrush and grasslands. Observations indicate they are found to a greater extent in areas that have been disturbed by natural events or management activities. Drought also plays a key role in distribution of these species by limiting competition from native species for moisture.

This category does not include exotic species such as tamarisk or Russian olive, nor does it include other types of listed weeds which occur in smaller patches.

**Vegetation:** Within the distribution of vegetation normally associated with grasslands, salt desert scrub and sagebrush communities, the primary invasive species present include: *Bromus* spp., *Salsola* spp. and *Halogeton glomeratus*.

**Dynamics:** The invasives share the overall system dynamic features of the communities they occur in, and in some cases can be primary system dynamic drivers once established. The invasives take advantage of moisture earlier in the year than most native species, in some instances they alter soil characteristics of a site to favor nutrient uptake, both to the point of becoming dominate in the system they occur within. Fire and other management tools can often invigorate growth rates for these species. The complete role of invasives and their relationship to disturbance is not conclusive, but large scale occurrences with areas of certain types and intensities of management overuse or natural disturbance events, particularly on saline soil types, seems to indicate a strong link.

*Cheat Grass Dynamics:* Cheatgrass or downy brome (*Bromus tectorum* L.) is a winter annual C<sub>3</sub> grass that is self-pollinating (McKone 1985, Allen & Meyer 2002). Cheatgrass normally germinates in the fall, but seeds germinate at other times of year as well (Mack 1981). Seedlings that emerge in the fall develop a rudimentary root and shoot system that remains quiescent during the winter. Cheatgrass begins rapidly growing in late winter and early spring with warmer night and daytime temperatures and reaches full vegetative and reproductive maturity over a period of 6 to 8 weeks (Mack & Pyke 1983, Pierson & Mack 1990). These life history traits, especially rapid growth and corresponding depletion of soil water and N, which results in lower resource availability for perennial neighbors (Gordon et al. 1989, Welker et al. 1991), have contributed to the success of cheatgrass. Cheatgrass has large impacts on plant communities and ecosystems. It has been implicated in increasing fire frequencies and intensities (Klemmedson & Smith 1964, Stewart & Hull 1949, Knick & Rotenberry 1997), which has led to its replacement of shrubs and perennial grasses (DiTomaso 2000). It is the most ubiquitous weed in steppe vegetation in Western North America (Mack 1981). Cheatgrass is known to have negative effects on native species through competition, reducing establishment and growth of native perennial grasses (Harris 1967, Young & Evans 1985, Svejcar 1990, Rafferty and Young 2002). Cheatgrass can change N dynamics in ecosystems (Paschke et al. 2000, Evans et al. 2001) and its dominance can alter the composition of microbial communities (Belnap and Phillips 2001, Al-Qarawi 2002, Kuske et al. 2002), which can result in loss of plant species diversity (van der Heijden et al. 1998). Land managers report that cheatgrass now occurs at elevations where it was not found in the past.

**Desired Future Condition:** Where invasive species are present or in areas determined to be at risk, the DFC is to control this spread and take actions to restore the native vegetation community that has been invaded. Fires in cheatgrass invaded areas or areas with high potential for invasion should be aggressively suppressed and aggressively rehabilitated following wildfire. Wildland fire use would not be appropriate in cheatgrass/halogeton-invaded sites or in areas with high potential for invasion because of the lack of ability to properly rehabilitate.

**L.3.11 DISTURBED AREAS**

**Corresponding SW ReGAP Landcover Classification:**

- D11 - Recently Chained Pinyon-Juniper Areas

**Environment:** These mapped areas consist predominantly of management treatment areas for pinyon-juniper and sagebrush control that have occurred over the past 50 years. They typically occur on flat to gentle terrain. In some cases the treatment has been maintained, in other case the pinyon-juniper or sage has returned to varying degrees of success.

**Vegetation:** In those areas where the treatments were successful, the predominant vegetation consists of various grasses, crested wheat grass in many instances, and various forbs and shrubs. In less successful areas, the vegetation treated for has returned and in some instances the areas have been subject to invasive species spread.

**Dynamics:** Over time many of these treatment areas have not been maintained with proper tools such as fire or herbicide. In some cases livestock were allowed onto the treated areas too early which altered the preferred vegetation composition.

**Desired Future Condition:** The assumption is made that since time and funding were invested to conduct these treatment operations, there would be interest in seeing the treatments maintained. The desired future condition for these treatments should therefore be the same as the rationale for initiating the treatment. In some instances species composition may need to be altered through re-seeding, in other areas recruitment of new woody species may require fire to reduce recruitment to acceptable levels.

**DFC Table: Moab RMP Desired Future Conditions (DFC) - Vegetative Community Analysis Groupings<sup>1</sup>**

<b>Vegetation Groupings from Draft Utah FMP</b>	<b>Land Cover Groupings from Southwest ReGAP Analysis Occurring within Moab FO Boundaries</b>	<b>Final Grand RMP DFC Vegetation Community Groupings and Associated SW ReGAP Cover Types and Utah FMP Vegetation Groupings</b>		<b>Acres</b>
Salt Desert Scrub Pinyon and Juniper Woodland Sagebrush Grassland Blackbrush Mountain Shrub Mixed Conifer Ponderosa Pine Creosote Bursage <sup>2</sup>	D01 - Disturbed, non-specific D02 - Recently burned D03 - Recently mined or quarried D04 - Invasive Southwest Riparian Woodland and Shrubland D06 - Invasive Perennial Grassland D08 - Invasive Annual Grassland D09 - Invasive Annual and Biennial Forbland D10 - Recently Logged Areas D11 - Recently Chained Pinyon-	<b>Salt Desert Scrub</b>	S011 - Inter-Mountain Basins Shale Badland S045 - Inter-Mountain Basins Mat Saltbush Shrubland S065 - Inter-Mountain Basins Mixed Salt Desert Scrub S079 - Inter-Mountain Basins Semi-Desert Shrub Steppe S096 - Inter-Mountain Basins Greasewood Flat	648,817

**DFC Table: Moab RMP Desired Future Conditions (DFC) - Vegetative Community Analysis Groupings<sup>1</sup>**

Vegetation Groupings from Draft Utah FMP	Land Cover Groupings from Southwest ReGAP Analysis Occurring within Moab FO Boundaries	Final Grand RMP DFC Vegetation Community Groupings and Associated SW ReGAP Cover Types and Utah FMP Vegetation Groupings		Acres
Riparian Wetland Aspen <sup>3</sup>	Juniper Areas D14 - Disturbed, Oil Well N21 - Developed, Open Space— Low Intensity N22 - Developed, Medium – High Intensity N80 - Agriculture S002 - Rocky Mountain Alpine Bedrock and Scree S006 - Rocky Mountain Cliff and Canyon S010 - Colorado Plateau Mixed Bedrock Canyon and Tableland S011 - Inter-Mountain Basins Shale Badland S012 - Inter-Mountain Basins Active and Stabilized Dune S023 - Rocky Mountain Aspen Forest and Woodland S028 - Rocky Mountain Subalpine Dry-Mesic Spruce-Fir Forest and Woodland S030 - Rocky Mountain Subalpine Mesic Spruce-Fir Forest and	<b>Pinyon and Juniper Woodland</b>	S039 - Colorado Plateau Pinyon-Juniper Woodland S052 - Colorado Plateau Pinyon-Juniper Shrubland S010 - Colorado Plateau Mixed Bedrock Canyon and Tableland	1,111,114
	<b>Sagebrush</b>	S054 - Inter-Mountain Basins Big Sagebrush Shrubland S056 - Colorado Plateau Mixed Low Sagebrush Shrubland S071 - Inter-Mountain Basins Montane Sagebrush Steppe	273,242	
	<b>Grassland</b>	S090 - Inter-Mountain Basins Semi-desert Grassland	61,087	
	<b>Blackbrush</b>	S059 - Colorado Plateau Blackbrush-Mormon Tea Shrubland	254,509	

**DFC Table: Moab RMP Desired Future Conditions (DFC) - Vegetative Community Analysis Groupings<sup>1</sup>**

Vegetation Groupings from Draft Utah FMP	Land Cover Groupings from Southwest ReGAP Analysis Occurring within Moab FO Boundaries	Final Grand RMP DFC Vegetation Community Groupings and Associated SW ReGAP Cover Types and Utah FMP Vegetation Groupings		Acres
	Woodland S032 - Rocky Mountain Montane Dry- Mesic Mixed Conifer Forest and Woodland S034 - Rocky Mountain Montane Mesic Mixed Conifer Forest and Woodland S036 - Rocky Mountain Ponderosa Pine Woodland S039 - Colorado Plateau Pinyon-Juniper Woodland S042 - Inter-Mountain Basins Aspen-Mixed Conifer Forest and Woodland S045 - Inter-Mountain Basins Mat Saltbush Shrubland S046 - Rocky Mountain Gambel Oak-Mixed Montane Shrubland S047 - Rocky Mountain Lower Montane-Foothill Shrubland S052 - Colorado Plateau Pinyon-Juniper Shrubland	<b>Mixed Conifer</b>	S023 - Rocky Mountain Aspen Forest and Woodland S028 - Rocky Mountain Subalpine Dry-Mesic Spruce-Fir Forest and Woodland S030 - Rocky Mountain Subalpine Mesic Spruce-Fir Forest and Woodland S032 - Rocky Mountain Montane Dry- Mesic Mixed Conifer Forest and Woodland S034 - Rocky Mountain Montane Mesic Mixed Conifer Forest and Woodland S042 - Inter-Mountain Basins Aspen-Mixed Conifer Forest and Woodland	173,169
	S054 - Inter-Mountain Basins Big Sagebrush Shrubland	<b>Ponderosa Pine</b>	S036 - Rocky Mountain Ponderosa Pine Woodland	20,347
	S056 - Colorado Plateau Mixed Low Sagebrush Shrubland S059 - Colorado Plateau Blackbrush-Mormon Tea Shrubland S065 - Inter-Mountain Basins Mixed Salt Desert Scrub	<b>Riparian Wetland</b>	S093 - Rocky Mountain Lower Montane Riparian Woodland and Shrubland S102 - Rocky Mountain Alpine-Montane Wet Meadow	36,000
	S071 - Inter-Mountain Basins Montane Sagebrush Steppe	<b>Disturbed Areas</b>	D11 - Recently Chained Pinyon-Juniper Areas	19,730
	S079 - Inter-Mountain Basins Semi-Desert Shrub Steppe S083 - Rocky Mountain Subalpine Mesic Meadow S085 - Southern Rocky Mountain	<b>Invasives</b>	D04 - Invasive Southwest Riparian Woodland and Shrubland D08 - Invasive Annual Grassland	43,230

**DFC Table: Moab RMP Desired Future Conditions (DFC) - Vegetative Community Analysis Groupings<sup>1</sup>**

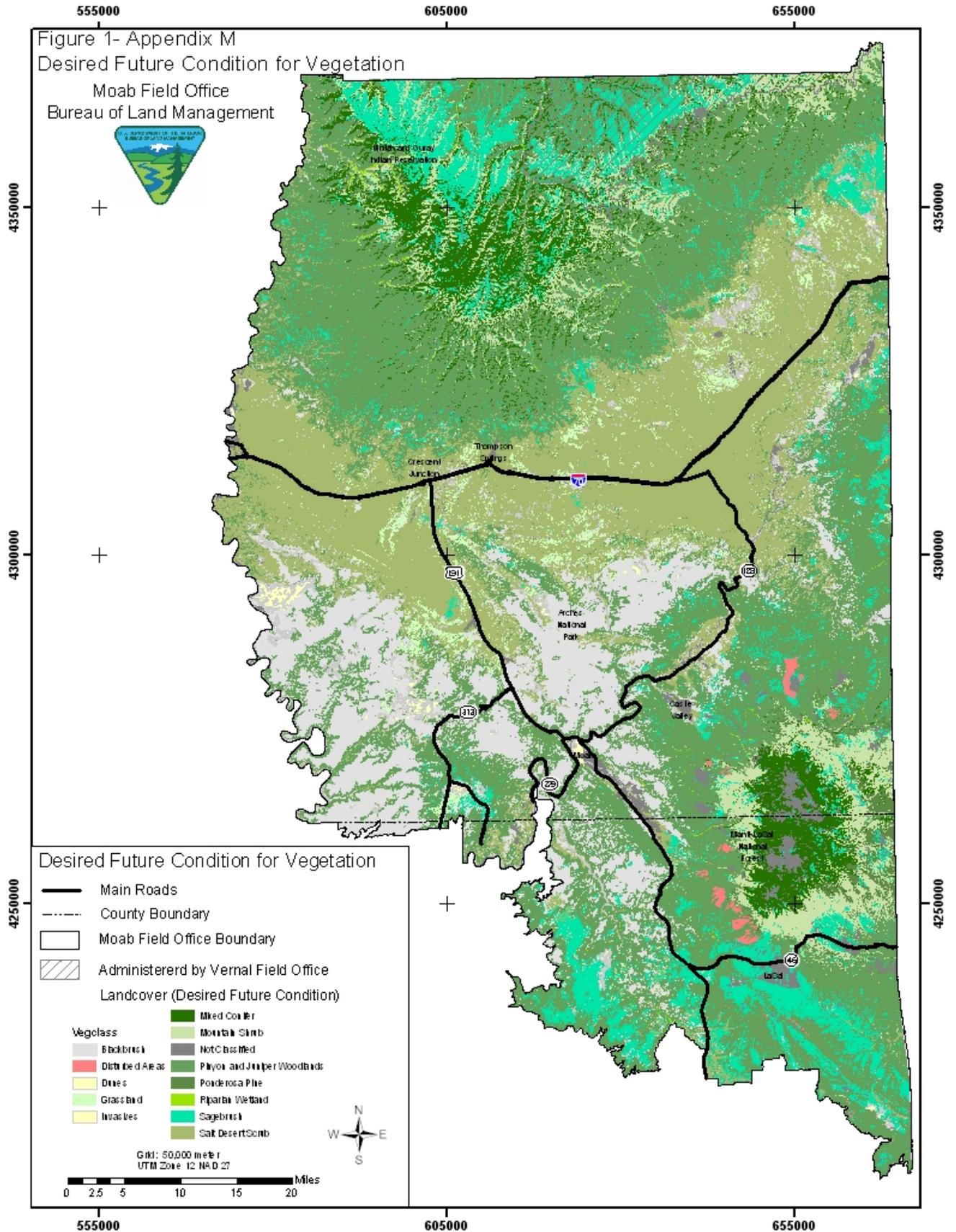
Vegetation Groupings from Draft Utah FMP	Land Cover Groupings from Southwest ReGAP Analysis Occurring within Moab FO Boundaries	Final Grand RMP DFC Vegetation Community Groupings and Associated SW ReGAP Cover Types and Utah FMP Vegetation Groupings		Acres
	Montane-Subalpine Grassland S090 - Inter-Mountain Basins Semi-desert Grassland S093 - Rocky Mountain Lower Montane Riparian Woodland and Shrubland S096 - Inter-Mountain Basins Greasewood Flat S102 - Rocky Mountain Alpine-Montane Wet Meadow S136 - Southern Colorado Plateau Sand Shrubland	<b>Dunes</b>	S012 - Inter-Mountain Basins Active and Stabilized Dune S136 - Southern Colorado Plateau Sand Shrubland	28,022
		<b>Mountain Shrub</b>	S046 - Rocky Mountain Gambel Oak-Mixed Montane Shrubland S047 - Rocky Mountain Lower Montane-Foothill Shrubland	159,292

<sup>1</sup> The following SW ReGAP classification covers will not be used for RMP DFC because they do not occur in sufficient distribution to be considered, or occur on lands administered by another agency.

- |   |  |
|---|--|
| D01 - Disturbed, non-specific               | N21 - Developed, Open Space—Low Intensity                  |
| D02 - Recently burned                       | N22 - Developed, Medium – High Intensity                   |
| D03 - Recently mined or quarried            | N80 - Agriculture  |
| D06 - Invasive Perennial Grassland          | S002 - Rocky Mountain Alpine Bedrock and Scree             |
| D09 - Invasive Annual and Biennial Forbland | S006 - Rocky Mountain Cliff and Canyon                     |
| D10 – Recently logged areas                 | S083 - Rocky Mountain Subalpine Mesic Meadow               |
| D14 - Disturbed, oil well                   | S085 – Southern Rocky Mountain Montane-Subalpine Grassland |

<sup>2</sup> Creosote Bursage does not occur in the Moab Field Office.

<sup>3</sup> Aspen within the Moab Field Office is relatively small aerial extent and is grouped with the mixed conifer community.



## APPENDIX M.

### DROUGHT CLASSIFICATION SYSTEM

Drought intensity categories are based on six key indicators and numerous supplementary indicators. The accompanying drought severity classification table shows the ranges for each indicator for each dryness level. Because the ranges of the various indicators often do not coincide, the final drought category is based on what the majority of the indicators show. The analysts producing the map also weight the indices according to how well they perform in various parts of the country and at different times of the year.

Also, additional indicators are often needed in the West, where winter snowfall has a strong bearing on water supplies.

D0-D4: The Drought Monitor summary map identifies general drought areas, labeling droughts by intensity, with D1 being the least intense and D4 being the most intense. Drought watch areas (D0) are either drying out and possibly heading for drought, or are recovering from drought but not yet back to normal - suffering long-term impacts such as low reservoir levels.

**Table M.1 Drought Severity Classifications**

Category	Description	Possible Impacts	Palmer Drought Index	CPC Soil Moisture Model (Percentiles)
D0	Abnormally Dry	Going into drought: short-term dryness slowing planting, growth of crops or pastures; fire risk above average. Coming out of drought: some lingering water deficits; pastures or crops not fully recovered.	-1.0 to -1.9	21-30
D1	Moderate Drought	Some damage to crops, pastures; fire risk high; streams, reservoirs, or wells low, some water shortages developing or imminent, voluntary water use restrictions requested.	-2.0 to -2.9	11-20
D2	Severe Drought	Crop or pasture losses likely; fire risk very high; water shortages common; water restrictions imposed.	-3.0 to -3.9	D2
D3	Extreme Drought	Major crop/pasture losses; extreme fire danger; widespread water shortages or restrictions.	-4.0 to -4.9	D3
D4	Exceptional Drought	Exceptional and widespread crop/pasture losses; exceptional fire risk; shortages of water in reservoirs, streams, and wells, creating water emergencies.	-5.0 or less	

Additional indices used, mainly during the growing season, include the USDA/NASS Topsoil Moisture, Crop Moisture Index (CMI), and Keetch Byram Drought Index (KBDI). Indices used primarily during the snow season and in the West include the River Basin Snow Water Content, River Basin Average Precipitation, and the Surface Water Supply Index (SWSI).

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# **APPENDIX N.**

## **ADDITIONAL WILDLIFE INFORMATION**

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### **N.1 HABITAT MANAGEMENT PLANS**

#### ***N.1.1 CISCO DESERT HABITAT MANAGEMENT PLAN***

The Cisco Desert Habitat Management Plan, signed in September of 1978, was written particularly for pronghorn, and is primarily concerned with the development of water. An Agreement of Cooperation Between UDWR and BLM Moab was signed in August of 1979, agreeing that 1) BLM and UDWR would inspect and fill water developments, 2) BLM and UDWR would install locks and provide keys on water developments, 3) UDWR would provide BLM population trend data, distribution, and population estimates for the Cisco herd unit, 4) BLM would provide fecal analysis study results to UDWR. The UDWR and the BLM also agreed that a reasonable population goal after completion of phase one would be 350 to 400 pronghorn and after a two year evaluation the BLM and UDWR would jointly agree on reasonable numbers during phases two and three of the plan.

Under this HMP, 242,560 acres of land administered by the BLM were to be improved to provide habitat capable of supporting at least 350 to 400 pronghorn after the completion of phase one and up to 750 adult pronghorn year-round upon completion of projects. These numbers would be attained through habitat management and natural reproductive processes. Eleven specific management objectives were established and were to be implemented in three stages as follows:

Phase One focused on the eastern third of the HMP area:

1. Improve 70,000 acres of pronghorn habitat on the eastern third of the HMP area by developing reliable water sources to provide water for approximately 400 pronghorn.
2. On the eastern third of the HMP area modify or remove fences in areas that do not meet BLM specifications for fencing on pronghorn range.
3. Determine the similarity of diet of domestic livestock, pronghorn and mule deer utilizing the 242,560 acres of the HMP.
4. Establish six seeding study plots in greasewood and shad scale vegetation types within HMP area to determine the suitability of these types of browse and forb introduction.

Phase Two focused on the central third of the HMP area:

1. Improve 86,000 acres of pronghorn habitat on the central third of the HMP area by developing reliable water sources to provide water for approximately 200 pronghorn.
2. Increase the percent browse and forb species on 6,375 acres of grass vegetation from less the 5% to 30% browse and forb on the central third of the HMP area.

Phase Three focused on the western third of the HMP area:

1. Increase 86,000 acres of pronghorn habitat on the western third of the HMP area by developing reliable water sources to provide water for approximately 150 pronghorn.
2. Improve 86,000 acres of pronghorn habitat on the western third of the HMP area by modification of the Nash Wash Allotment fence to allow pronghorn un-restricted passage.

Other objectives:

1. Improve 1000 acres of pronghorn habitat in wash bottoms by changing the greasewood vegetation to a more palatable species type as indicated by study results obtained from objective four accomplishments.
2. Improve pronghorn habitat by excluding livestock grazing and oil and gas exploration activities from May 15<sup>th</sup> through June 20<sup>th</sup> or during extreme snow conditions.
3. Maintain or improve HMP area for pronghorn habitat by insuring the oil and gas, pipeline, fire and other vegetative rehab projects include at least 30% browse and 30% forb species when re-seeding.

These objectives were to be met by constructing water developments, removing fencing along the Colorado-Utah state line, conducting range and vegetative studies, manipulating vegetation, constructing needed pronghorn fences to protect water developments, changing season of use and restricting oil and gas exploration on kidding grounds to reduce disturbance, using seed mixtures that enhance pronghorn forage on rehab areas and ensuring that all livestock concentration locations (feeding, salting, watering, sheep camps) are not within a half mile of pronghorn water developments.

### ***N.1.2 HATCH POINT HABITAT MANAGEMENT PLAN***

The Hatch Point HMP, signed in September of 1976, was intended to benefit 309 pronghorn. A Memorandum of Understanding was signed in 1968 between the BLM and the Utah State Division of Fish and Game (now the UDWR) to transplant 150 pronghorn into this area and allow the population to increase by natural reproduction to whatever the optimum herd size is jointly determined by the BLM and UDWR. Under this HMP, 109,002 acres of land administered by the BLM are to be maintained in good condition and habitat is to be improved where needed. Six specific management objectives were established:

1. a. Maintain the present big sagebrush association at 31% of the total wildlife habitat.  
b. Increase the forb cover within the big sagebrush association in the key areas from less than 1% to 5%.
2. Improve the habitat for pronghorn by eliminating barriers to their movements caused by fencing.
3. Improve pronghorn, sage-grouse and other big game and non-game species habitat by improving year-round water resources on Hatch Point.
4. Improve pronghorn habitat by eliminating livestock grazing on known kidding grounds from May 1<sup>st</sup> through June 30<sup>th</sup>.

5. Improve pronghorn, sage-grouse and other game and non-game species habitat by protecting and establishing riparian and succulent forage areas around existing and proposed water sources.
6. Improve the pronghorn habitat by a change of class of livestock from sheep to cattle on the Hatch Point area. Change of class of livestock from cattle to sheep will be prohibited within this area.

These objectives will be attained through water developments, changes in season of use (November 1<sup>st</sup> through June 1<sup>st</sup>), number of livestock (27% reduction), change in livestock class from sheep to cattle, fencing, seeding and rest/rotation. For the rest/rotation to be implemented, three pastures were developed on the Hatch Point Allotment. One pasture was to be grazed from November 1<sup>st</sup> to March 1<sup>st</sup>, the second from March 1<sup>st</sup> to June 1<sup>st</sup> and the third was to receive a yearlong rest from grazing. Pronghorn kidding areas were to have livestock grazing removed by May 1<sup>st</sup> and if critical sage-grouse habitat was located, livestock grazing would be excluded within a one-mile radius from these areas from April 1<sup>st</sup> through June 15<sup>th</sup>. A total of 69 acres were to be seeded to attain a combination of succulent forbs, grasses and shrubs that would provide spring forage. Fencing was to be a management tool to eliminate livestock grazing from the following projects: a) 10 acres of drainage fenced at the Hatch Point Reservoir; b) 20 acres of drainage fenced at Hatch Point Section 4 Permit Reservoir; c) 3 acres fenced around each Hatch Point catchment.

### ***N.1.3 DOLORES TRIANGLE HABITAT MANAGEMENT PLAN***

The Dolores Triangle HMP, signed in November of 1979, was intended for deer, elk, and bighorn sheep, but also has objectives for raptors, waterfowl, and native trout. Under this plan, 100,686 acres of land administered by the BLM are to be improved and maintained by providing food, cover, water and open space. Eight specific management objectives were established:

1. Improve and maintain 100,686 acres of public land to provide:
  - a. Winter habitat for 3,500 mule deer from November 1<sup>st</sup> through May 1<sup>st</sup>
  - b. Year-round habitat for approximately 350 resident mule deer
2. Maintain approximately 20,000 acres of public land within the Dolores Triangle Planning Unit to provide year-round habitat to support 150 desert bighorn sheep.
3. Improve approximately 25,000 acres of public land within the Dolores Triangle Planning Unit to provide winter habitat to support 250 head of Rocky Mountain Elk from November 1<sup>st</sup> through April 1<sup>st</sup>.
4. Improve approximately 300 acres of public land within the Dolores Triangle Planning Unit to provide shorebird and waterfowl nesting habitat.
5. Improve approximately 10 miles of aquatic and associated riparian habitat in Granite Creek Canyon to increase self-sustaining brook trout populations
6. Improve approximately 20 miles of aquatic and associated riparian habitat in Coates, Ryan and Renegade Creeks to support a self-sustaining warm-water fish population
7. Improve species diversity of wildlife habitats within planning area by cooperating with both UDWR and USFWS in attempts to re-establish wildlife populations within this area.

8. Enhance bald eagle wintering habitat and non-game habitat along river and stream corridors.

Deer and elk winter habitat were to be improved through chaining, herbicides, prescribe fires, vegetative seeding with mixes to improve browses and forage for wildlife, water developments and improvements. These winter ranges were to be protected from grazing by forage reallocation from and oil and gas disturbance. Bighorn sheep would be supported by improving habitat, reallocating forage, and reducing harassment. The bighorn sheep area would be closed to OHV use by a rock barrier. Bald eagle habitat was to be improved through the installation of fencing and enclosures to protect cottonwoods. Raptor surveys would determine location and density of nesting location so that these areas could be protected from surface disturbances. Quarter mile buffers would protect nest sites from February 15<sup>th</sup> through June 1<sup>st</sup> from oil and gas occupancy. Riparian habitat along Granite, Coates, Ryan, and Renegade Creeks would be improved by installing in-stream structures such as drop structures, log, earth and rock dams, deepening and channelization of stream channels, erosion control with rock and soil berms, and seeding. Riparian areas would be fenced to prevent livestock from entering these areas, helping to improve shorebird and waterfowl nesting habitat. Nest structures were to be installed.

#### ***N.1.4 POTASH-CONFLUENCE HABITAT MANAGEMENT PLAN***

The Potash-Confluence HMP, signed in June of 1986, was developed from direction established in the Grand RMP. This HMP provides management guidance primarily for desert bighorn sheep, but also includes guidance for chukar partridge, bald eagles, and peregrine falcon. Under this HMP, 278,000 acres of land administered by the BLM are to be maintained in good condition and habitat is to be improved where needed. Eight specific management objectives were established:

1. Improve 42,500 acres of critical bighorn sheep habitat by preventing major human disturbance during lambing and breeding seasons.
2. Provide additional water sources at a minimum spacing of 1 water development in each 2 square mile area on lambing grounds.
3. Adopt fence standards to adequately restrict livestock while providing for free movement of bighorn sheep.
4. Maintain water developments used by bighorn sheep, chukar partridge and other wildlife by providing funding where needed and ensuring that wildlife escape ramps are placed in all water troughs.
5. Assist in the development of livestock manipulation techniques on Horsethief Point, Spring Canyon Bottom, and Ten-Mile Point allotments to improve or maintain bighorn sheep habitat.
6. Change season of use on the Potash allotment to reduce competition on lambing and breeding grounds.
7. Maintain 64,000 areas of cliff habitat to support 4 breeding pairs of peregrine falcon along the Colorado and Green Rivers to achieve an annual production of 10 peregrines by 1990.
8. Protect and maintain 5,000 acres of riparian habitat to provide wintering habitat for bald eagles and support a diversity of game and non-game species.

Human disturbance in critical habitat would be lessened by using protective stipulations for oil and gas leasing, disallowing oil and gas exploration and occupancy, including seismic exploration, controlling filming activities and solid mineral extraction during lambing and rutting seasons. Water developments were to be installed to alleviate conflicts created by human occupancy (recreational and industrial) and to reduce competition between livestock and bighorn for forage, water and space. Most bighorn water developments were installed in areas inaccessible to both people and cattle. This spatial separation lessens the potential for bighorn and people and cattle interaction. The risk of bighorn contacting diseases, which could be carried by the cattle, is also lessened.

## **N.2 WILDLIFE LAND-USE PLAN AMENDMENTS TO THE 1985 GRAND RMP**

### ***N.2.1 BIGHORN SHEEP AMENDMENT TO THE GRAND RMP***

An RMP amendment (EA #UT-068-89-036) was completed in 1989 involving the improvement of desert bighorn and Rocky Mountain bighorn habitat. The amendment provided for installation of new water facilities and modified the Grand RMP from supporting current estimated bighorn sheep population of 259 and managing bighorn sheep habitat to support prior stable numbers of 1440 desert bighorn sheep. Population goals would be reached by big game releases, reestablishment, and through change of livestock class. Furthermore, the amendment prevents changes in livestock from cattle to domestic sheep to prevent forage competition and disease transmittal to bighorns. Current allotments grazing domestic sheep were not required to change to cattle. Allotments that were effected by this plan amendment include: Ten Mile Point, Big Flat-Ten Mile, Spring Canyon Bottom, Horsethief Point, Arth's Pasture, Potash, Kane Springs, Rattlesnake, Showerbath Springs, Tusher Wash, Lone Cone, Coal Canyon, Floy Canyon, Horse Canyon, Thompson Canyon, Crescent Canyon, Floy Creek, Little Hole, Lost Canyon-Sugar Bench, Agate, Steamboat Mesa, South Beaver Mesa, Dakota Rock, Dolores Point, Taylor (Fisher Valley), Professor Valley, Ida Gulch, Hotel Mesa, Taylor (Highlands) North River and Hatch Point.

This change will allow desert bighorn sheep populations to also attain their prior stable population level providing that favorable habitat and environmental conditions prevail.

### ***N.2.2 LIVESTOCK GRAZING USE ADJUSTMENTS AMENDMENT TO THE GRAND RMP (1995)***

An RMP amendment (EA #UT-068-94-047) was implemented in 1995 which benefited wildlife across much of Moab FO area. The amendment allowed for the removal of cattle from the Bogart, Diamond, Cottonwood, North Sand Flats, South Sand Flats, and Between the Creeks allotments. This action resulted in a retirement of 5,066 BLM AUMs that are now reserved for wildlife, riparian vegetation, watershed and recreational values.

The amendment included the reallocation of cattle grazing privileges in the Cisco, Main Canyon-Middle Canyon, and Arth's pasture allotments to enhance, protect and improve wildlife habitat, riparian vegetation, watershed, and recreation values. These reductions totaled 3,206 AUMs. Main and Middle Canyon were combined and a rest/rotation system implemented, allowing

pastures to be rested every third or fourth year. AUMs remaining for cattle on the Arth's Pasture allotment were to be actively managed using fencing and herding to benefit desert bighorn sheep, by reducing spatial competition, social intolerance, disease transmittal, and competition for forage and water. These reductions in AUMs are summarized in Table 1:

**Table 1: Reductions in Grazing from the 1995 Amendment to the Grand RMP**

Allotment	Permitted BLM AUMs	Reallocation of BLM AUMs	Remaining BLM AUMs	Permitted Season of Use
Cisco	4,149	2,330 (56%)	1,819	10/25-6/20
Main Canyon-Middle Canyon	951	451 (47%)	500	6/01-10/30
Arth's Pasture	808	425 (53%)	353	11/6-5/17
Bogart	206	206 (100%)	0	
North Sand Flats	797	797 (100%)	0	
South Sand Flats	597	597 (100%)	0	
Between the Creeks	260	260 (100%)	0	
<b>TOTAL</b>	<b>7,768</b>	<b>5,066</b>	<b>2,672</b>	

All livestock AUMs in the Horse Pasture-Nash Wash area of the Cisco allotment were reallocated for use by deer and pronghorn. The domestic sheep grazing that was permitted was redistributed throughout the remaining portion of the Cisco Allotment. Approximately 3 miles of fence was constructed on the unfenced portion to exclude livestock from the Horse Pasture area. The Horse Pasture area is an area where large numbers of deer concentrate during the winter months and is considered to be a **crucial** deer winter area and competition for forage and space had existed for decades. Wintering deer would no longer have to compete with cattle and domestic sheep for sagebrush and the early spring season grasses. It was hoped that there would be an increase in the deer population resulting from increased reproductive success rates (fawn: doe ratio) through increased forage availability. Any disturbance which had been caused by the presence of sheep dogs, sheep camps and the domestic sheep herd, which may have interfered with deer movement and their use of pinyon-juniper trees for thermal and escape cover, would no longer occur.

Of the 2,330 reallocated AUMs in the Cisco allotment, 500 are specifically for pronghorn habitat enhancement. The additional 500 AUMs of forage specifically allocated for pronghorn should allow the herd to increase by approximately 400 animals. Approximately 300-400 pronghorn could occupy the Cisco Allotment yearlong, except during the winter months when pronghorn gather into large herds. Possibly 600-800 pronghorn could occupy a portion of the Cisco Allotment for a two to three month period.

This RMP Amendments allows for additional flexibility to modify the grazing season of use for individual allotments within the entire Resources Area.

This RMP Amendments allows for the relinquishment of grazing permits and reallocation of forage previously reserved for livestock to non-livestock purposes such as wildlife habitat,

riparian vegetation, watershed and recreational values. This would result in partial or complete removal of livestock from specific grazing allotments

### **N.2.3 LIVESTOCK GRAZING USE ADJUSTMENTS AMENDMENT TO THE GRAND RMP ON DIAMOND-COTTONWOOD ALLOTMENTS (1996)**

An RMP amendment (EA #UT-068-94-047) was implemented in 1996 which benefited wildlife in the Diamond and Cottonwood Allotments. The amendment allowed for the removal of cattle from the Diamond and Cottonwood allotments, resulting in the retirement of 1,491 BLM AUMs. These AUMs are now reserved for wildlife, riparian vegetation, watershed and recreational values. These reductions in AUMs are summarized in Table 2:

**Table 2: Grazing Adjustments in the Diamond and Cottonwood Allotments**

<b>Allotment</b>	<b>Permitted BLM AUMs</b>	<b>Reallocation of BLM AUMs</b>	<b>Remaining BLM AUMs</b>
Diamond	590	590 (100%)	0
Cottonwood	901	901 (100%)	0
<b>TOTAL</b>	<b>1491</b>	<b>1491</b>	<b>0</b>

## **N.3 BIRD HABITAT CONSERVATION AREAS (BHCA)**

### **N.3.1 CISCO DESERT BIRD HABITAT CONSERVATION AREA**

199,484 Acres: Low desert Shrub

**Species of Concern:** Golden Eagle, Ferruginous Hawk, Burrowing Owl, Long-billed curlew

### **N.3.2 COLORADO & DOLORES RIVERS BIRD HABITAT CONSERVATION AREA**

43,393 Acres: Lowland Riparian

**Species of Concern:** North American Waterfowl, Virginia & Lucy's Warbler, Yellow-breasted Chat, Blue Grosbeak, Yellow-billed Cuckoo, Bald Eagle, Peregrine, Mexican Spotted Owl

### **N.3.3 GREEN RIVER BIRD HABITAT CONSERVATION AREA**

30,110 Acres: Lowland Riparian

**Species of Concern:** North American Waterfowl, Virginia & Lucy's Warbler, Yellow-breasted Chat, Blue Grosbeak, Yellow-billed Cuckoo, Bald Eagle, Peregrine, Mexican Spotted Owl

### **N.3.4 COTTONWOOD & WILLOW CREEKS BIRD HABITAT CONSERVATION AREA**

38,487 Acres: Lowland Riparian

**Species of Concern:** Cordilleran & Olive-sided Flycatchers, Mexican Spotted Owl, Virginia & Lucy's Warbler, Broad-tailed Hummingbird, Goshawk, Fox Sparrow, Red-napped Sapsucker, Western Bluebird

## APPENDIX O.

### BEST MANAGEMENT PRACTICES FOR RAPTORS AND THEIR ASSOCIATED HABITATS IN UTAH, AUGUST 2006

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#### O.1 INTRODUCTION

Raptors, or *Birds of Prey*, are found on public lands throughout Utah. Approximately 31 species of raptors utilize public lands for at least a portion of their life cycle. These include 20 diurnal raptors, including the eagles, hawks, falcons, osprey, turkey vulture and California condor; and 11 mostly nocturnal owl species. At least 16 of the diurnal raptors are known to nest, roost and forage on public lands; while 2 others are probable nesters within the southern part of the state. The California condor is known to utilize public lands for roosting and foraging, but is not currently known to nest within the state. The rough-legged hawk is a winter resident that uses public lands for foraging. All of the owl species nest, roost and forage on public lands in Utah.

Eight of Utah's raptors are considered to be Special Status Species by the BLM, and currently receive enhanced protection, in addition to the regulatory authority provided by the Migratory Bird Treaty Act (MBTA), which covers all raptor species. The bald eagle and Mexican spotted owl are listed as Federally threatened species and are afforded the protection, as well as the Section 7 consultation requirements, of the Endangered Species Act (ESA). The bald eagle is currently being proposed for delisting by the Fish and Wildlife Service. Both the bald eagle and golden eagle are protected by the provisions of the Eagle Protection Act. The California condor is a Federally endangered species, however, the birds found in southern Utah are part of an Experimental Non-essential Population reintroduced to northern Arizona under Section 10(j) of the Endangered Species Act. The BLM is required to treat the condor as a species proposed for listing for Section 7 purposes of the ESA. The northern goshawk is managed by a multi-agency Conservation Agreement. The ferruginous hawk, short-eared owl and burrowing owl are listed as Wildlife Species of Concern by the Utah Division of Wildlife Resources (UDWR, May 12, 2006), and are therefore recognized as BLM state-sensitive species under the Bureau's 6840 Manual. The BLM's 6840 Policy states that "*BLM shall...ensure that actions authorized, funded, or carried out...do not contribute to the need for the species to become listed*".

Future raptor management on BLM lands in Utah will be guided by the use of these Best Management Practices (BMPs), which are BLM-specific recommendations for implementation of the U.S. Fish and Wildlife Service, Utah Field Office's "*Guidelines for Raptor Protection From Human and Land Use Disturbances*" ("*Guidelines*"). The "*Guidelines*" were originally developed by the Fish and Wildlife Service in 1999, and were updated during 2002 to reflect changes brought about by court and policy decisions and to incorporate Executive Order 13186, *Responsibilities of Federal Agencies to Protect Migratory Birds*. The "*Guidelines*" were provided to BLM and other land-managing agencies in an attempt to provide raptor management consistency, while ensuring project compatibility with the biological requirements of raptors, and encouraging an ecosystem approach to habitat management.

These Best Management Practices, or specific elements of the BMP's which pertain to a proposal, should be attached as Conditions of Approval to all BLM use authorizations which have the potential to adversely affect nesting raptors, or would cause occupied nest sites to become unsuitable for nesting in subsequent years.

Raptor management is a dynamic and evolving science, and consequently, as the science evolves, these BMP's will undergo subsequent revision. As more information becomes available through implementation of these raptor BMP's, and as our knowledge of raptor life cycle requirements increases, findings will be incorporated into future revisions of the BMP document. Additionally, BLM and the Department of Energy are initiating a 3-year Raptor Radii study which will test traditional spatial and seasonal nest buffers during actual oil and gas development activities for a select suite of species. Study results would be incorporated into new BMP revisions as well.

To adequately manage raptors and their habitats, and to reduce the likelihood of a raptor species being listed under the Endangered Species Act (ESA), BLM-authorized or proposed management activities and/or land disturbing actions would be subject to the criteria and processes specified within these BMPs. The implementation of raptor spatial and seasonal buffers under the BMPs would be consistent with Table 2 of the "*Guidelines*", included here as Attachment 2. As specified in the "*Guidelines*", modifications of spatial and seasonal buffers for BLM-authorized actions would be permitted, so long as protection of nesting raptors was ensured. State and/or Federally-listed, proposed, and candidate raptor species, as well as BLM state-sensitive raptor species, should be afforded the highest level of protection through this BMP process; however, all raptor species would continue to receive protection under the Migratory Bird Treaty Act. Modification of the buffers for threatened or endangered species would be considered pending results of Section 7 Consultation with USFWS.

As stated in the "*Guidelines*", spatial and seasonal buffers should be considered as the best available recommendations for protecting nesting raptors under a wide range of activities state-wide. However, they are not necessarily site-specific to proposed projects. Land managers should evaluate the type and duration of the proposed activity, the position of topographic and vegetative features, the sensitivity of the affected species, the habituation of breeding pairs to existing activities in the proposed project area, and the local raptor nesting density, when determining site-specific buffers. The BLM would be encouraged to informally coordinate with UDWR and USFWS anytime a site-specific analysis shows that an action may have an adverse impact on nesting raptors. The coordination would determine if the impact could be avoided or must be mitigated, and if so, to determine appropriate and effective mitigation strategies.

Potential modifications of the spatial and seasonal buffers identified in the "*Guidelines*" may provide a viable management option. Modifications would ensure that nest protection would occur, while allowing various management options which may deviate from the suggested buffers within the "*Guidelines*", which, if adequately monitored, could provide valuable information for incorporation into future management actions.

Seasonal raptor buffers from Attachment 2 should be reviewed by local raptor nesting authorities who are knowledgeable of raptor nesting chronologies within their local area. For those nesting

raptors for which local nesting chronologies remain uncertain, the seasonal buffers provided in Attachment 2 should serve as the default. However, for those raptor species whose known nesting chronologies differ from the seasonal buffers provided in Attachment 2, the local seasonal buffers may be utilized as a modification of the "*Guidelines*".

Criteria that would need to be met, prior to implementing modifications to the spatial and seasonal buffers in the "*Guidelines*", would include the following:

1. Completion of a site-specific assessment by a wildlife biologist or other qualified individual. See example (Attachment 1)
2. Written documentation by the BLM Field Office Wildlife Biologist, identifying the proposed modification and affirming that implementation of the proposed modification(s) would not affect nest success or the suitability of the site for future nesting. Modification of the "*Guidelines*" would not be recommended if it is determined that adverse impacts to nesting raptors would occur or that the suitability of the site for future nesting would be compromised.
3. Development of a monitoring and mitigation strategy by a BLM biologist, or other raptor biologist. Impacts of authorized activities would be documented to determine if the modifications were implemented as described in the environmental documentation or Conditions of Approval, and were adequate to protect the nest site. Should adverse impacts be identified during monitoring of an activity, BLM would follow an appropriate course of action, which may include cessation or modification of activities that would avoid, minimize or mitigate the impact, or, with the approval of DWR and F&WS, BLM could allow the activity to continue while requiring monitoring to determine the full impact of the activity on the affected raptor nest. A monitoring report would be completed and forwarded to UDWR for incorporation into the Natural Heritage Program (NHP) raptor database.

In a further effort to provide additional support and expertise to local BLM Field biologists, a network of biologists from various agencies with specific expertise in raptor management has been identified and included as Attachment 3. The personnel identified have extensive backgrounds in raptor management issues and are available, upon request, to assist BLM Field biologists on a case by case basis. Field biologists are encouraged to use this network, via informal conference, with one or more of the individuals identified. This coordination should be clearly distinguished from the consultation process required under Section 7 of the ESA. Individuals on the expert panel should not be expected to provide formal advice, but should serve as a sounding board for discussing potential effects of a proposal, as well as potential mitigation measures on specific projects which may be useful to BLM biologists.

## **O.2 HABITAT ENHANCEMENT**

As recommended in the "*Guidelines*", raptor habitat management and enhancement, both within and outside of buffers, would be an integral part of these BMPs, with the understanding that in order for raptors to maintain high densities and maximum diversity, it is necessary that the habitat upon which they and their prey species depend be managed to promote healthy and productive ecosystems. Habitat loss or fragmentation would be minimized and/or mitigated to the extent practical and may include such measures as; drilling multiple wellheads per pad,

limiting access roads and avoiding loop roads to well pads, effective rehabilitation or restoration of plugged and abandoned well locations and access roads that are no longer required, rehabilitation or restoration of wildland fires to prevent domination by non-native invasive annual species, vegetation treatments and riparian restoration projects to achieve Rangeland Health Standards, etc.

In some cases, artificial nesting structures, located in areas where preferred nesting substrates are limited, but where prey base populations are adequate and human disturbances are limited, may enhance some raptor populations, or may serve as mitigation for impacts occurring in other areas.

### **O.3 PROTECTION OF NEST SITES AND BUFFER ZONES**

As stated in the "*Guidelines*", protection of both occupied and unoccupied nests is important since not all raptor pairs breed every year, nor do they always utilize the same nest within a nesting territory. Individual raptor nests left unused for a number of years are frequently reoccupied, if all the nesting attributes which originally attracted a nesting pair to a location are still present. Nest sites are selected by breeding pairs for the preferred habitat attributes provided by that location.

Raptor nest buffer zones are established for planning purposes because the nest serves as the focal point for a nesting pair of raptors. The buffer should serve as a threshold of potential adverse affect to nest initiation and productivity. Actions proposed within these buffer zones are considered potentially impacting and, therefore, trigger the need for consideration of site-specific recommendations.

Seasonal (temporal) buffer zones are conservation measures intended to schedule potentially impacting activities to periods outside of the nesting season for a particular raptor species. These seasonal limitations are particularly applicable to actions proposed within the spatial buffer zone of a nest for short duration activities such as, pipeline or powerline construction, seismic exploration activity, vegetative treatments, fence or reservoir construction, permitted recreational events, etc., where subsequent human activity would not be expected to occur.

Spatial buffer zones are those physical areas around raptor nest sites where seasonal conservation measures, or surface occupancy restrictions may be applied, depending on the type and duration of activity, distance and visibility of the activity from the nest site, adaptability of the raptor species to disturbance, etc. Surface occupancy restrictions should be utilized for actions which would involve human activities within the buffer zone for a long duration (more than one nesting season) and which would cause an occupied nest site to become unsuitable for nesting in subsequent years.

#### **O.3.1 UNOCCUPIED NESTS**

**All Activities, including All Mineral Leases:** Surface-disturbing activities, occurring outside of the breeding season (seasonal buffer), but within the spatial buffer, would be allowed during a minimum three-year nest monitoring period, as long as the activity would not cause the nest site

to become unsuitable for future nesting, as determined by a wildlife biologist. Facilities and other permanent structures would be allowed, if they meet the above criteria.

Some examples of typical surface disturbing actions, occurring outside of the seasonal buffer, which may not be expected to affect nest production or future nesting suitability, would include; pipelines, powerlines, seismographic exploration, communication sites, an oil or gas well with off-site facilities which does not require routine visitation, recreation events, fence or reservoir construction, vegetative treatments, and other actions with discreet starting and ending times, and for which subsequent human activity or heavy equipment operation within the spatial buffer would not be expected to occur, or could be scheduled outside of the seasonal buffer in subsequent years.

Surface disturbing activities that would be expected to potentially affect nest production or nest site suitability, include; oil and gas facilities requiring regular maintenance, sand and gravel operations, road systems, wind energy projects, mining operations, and other actions requiring continual, random human activity, or heavy equipment operation during subsequent nesting seasons.

A nest site which does not exhibit evidence of use, such as; greenery in the nest, fresh whitewash, obvious nest maintenance or the observed presence of adults or young at the nest, for a period of three consecutive years, (verified through monitoring), would be deemed abandoned and all seasonal and spatial restrictions would cease to apply to that nest. All subsequent authorizations for permanent activities within the spatial buffer of the nest could be permitted. If the nest becomes reoccupied after authorized activities are completed, conservation measures would be considered to reduce potential adverse affects and to comply with the Migratory Bird Treaty Act and the Eagle Protection Act.

The three-year non-use standard varies from the "*Guidelines*" suggested seven-year non-use standard before declaring nest abandonment. This variation is based upon a similar standard which has been applied for over 20 years in two administrative areas within Utah. Empirical evidence would suggest the three-year non-use standard has been effective in conserving raptor species. The three-year standard has been applied without legal challenge or violation of "Take" under the Migratory Bird Treaty Act or the Eagle Protection Act.

Because prey base populations are known to be cyclic, and because raptor nest initiation or nesting success can be affected by drought and other random natural events, care should be taken when applying the 3-year non-activity standard. The 3-year nest occupancy monitoring requirement should be viewed as a minimum time period during those years of optimal raptor nesting conditions. During sub-optimal raptor nesting years, when nesting habitat may be affected by drought, low prey base populations, fire, or other events, the monitoring standard should be increased to allow raptors the opportunity to reoccupy nesting sites when nesting conditions become more favorable.

### **O.3.2 OCCUPIED NESTS**

**All Activities:** Land use activities which would have an adverse impact on an occupied raptor nest, would not be allowed within the spatial or seasonal buffer.

## **O.4 CONSIDERATION OF ALTERNATIVES AND MITIGATION MEASURES**

Alternatives, including denial of the proposal, should be identified, considered and analyzed in a NEPA document anytime an action is proposed within the spatial buffer zone of a raptor nest. Selection of a viable alternative that avoids an impact to nesting raptors should be selected over attempting to mitigate those impacts. If unavoidable impacts are identified, mitigation measures should be applied as necessary to mitigate adverse impacts of resource uses and development on nesting raptors. Monitoring of the effectiveness of the mitigation measures should be mandatory and should be included as a Condition of Approval.

## **O.5 SPECIFIC STRATEGIES TO BE IMPLEMENTED REGARDING OTHER RESOURCE USES**

The following are management strategies designed to reduce or eliminate potential conflicts between raptors and other resource uses. This is a list of examples and is not intended to be an all-inclusive list. In all cases, when an activity on BLM lands is proposed, and a NEPA document developed, the site-specific analysis process identified in Attachment 1 may be implemented to identify and either avoid or mitigate impacts to raptors from the proposal. These strategies apply to both BLM and applicant-generated proposals. The strategies are as follows:

### **O.5.1 CULTURAL RESOURCES**

Excavation and studies of cultural resources in caves and around cliff areas should be delayed until a qualified biologist surveys the area to be disturbed or impacted by the activity for the presence of raptors or nest sites. If nesting raptors are present, the project should be rescheduled to occur outside of the seasonal buffer recommended by the "*Guidelines*".

### **O.5.2 FORESTRY AND HARVEST OF WOODLAND PRODUCTS**

Timber harvest would be subject to NEPA analysis and would be conducted in a manner that would avoid impacts to raptor nests. This could also apply to areas identified for wood gathering and firewood sales.

### **O.5.3 HAZARDOUS FUEL REDUCTION/HABITAT RESTORATION PROJECTS**

Hazardous fuels reduction projects and shrubsteppe restoration projects should be reviewed for possible impacts to nesting raptors. Removal of trees containing either stick nests or nesting cavities, through prescribed fire, or mechanical or manual treatments, should be avoided.

It is important to note that certain raptor species are tied to specific habitat types, and that consideration must be made on a site-specific basis when vegetation manipulation projects are proposed, to determine which raptor species may benefit and which may be negatively affected by the vegetation composition post-treatment.

#### **O.5.4 LIVESTOCK GRAZING**

Manage rangelands and riparian areas in a manner that promotes healthy, productive rangelands and functional riparian systems. Rangeland Health Assessments should be conducted on each grazing allotment, and rangeland guidelines should be implemented where Rangeland Health Standards are not being met, to promote healthy rangelands.

Locations of sheep camps and other temporary intrusions would be located in areas away from raptor nest sites during the nesting season. Placement of salt and mineral blocks would also be located away from nesting areas.

Season of use, kind of livestock, and target utilization levels of key species affect vegetative community attributes (percent cover, composition, etc.) and influence small mammal and avian species diversity and density. While not all raptor species would be affected in the same way, livestock management practices which maintain or enhance vegetative attributes, will preserve prey species density and diversity which will benefit the raptor resource.

#### **O.5.5 OHV USE**

Special Recreation Management Areas (SRMAs) that are developed for OHV use would not be located in areas that have important nesting, roosting, or foraging habitat for raptors.

Off highway vehicle use would be limited to designated roads, trails and managed open areas. Lands categorized as "Open" for OHV use should not be in areas important to raptors for nesting, roosting, and foraging

When proposals for OHV events are received, the area to be impacted, would be surveyed by a qualified wildlife biologist to determine if the area is utilized by raptors. Potential conflicts would be identified and either avoided or mitigated prior to the issuance of any permit.

#### **O.5.6 OIL AND GAS DEVELOPMENT**

The Code of Federal Regulations (CFR), 43 CFR 3101.1-2, allows for well site location and timing to be modified from that requested by the lessee to mitigate conflicts at the proposed site, and states that the location can be moved up to 200 meters and the timing of the actual drilling can be delayed for up to 60 days to mitigate environmental concerns. The regulation also allows BLM to move a location more than 200 meters, or delay operations more than 60 days to protect sensitive resources, with supporting rationale and where lesser restrictions are ineffective. The Site Specific Analysis (Attachment 1) would provide the supporting rationale. Provisions are also present within Sections 3 and 6 of the Standard Lease Form which require compliance with existing laws and would allow the BLM to impose additional restrictions at the permitting phase,

if the restrictions will prevent violation of law, policy or regulation, or avoid undue and unnecessary degradation of lands or resources.

### **O.5.7 REALTY**

Lands proposed for disposal which includes raptor nesting, roosting, or important foraging areas would be analyzed and evaluated for the relative significance of these resources before a decision is made for disposal or retention.

A priority list of important raptor habitat areas, especially for Federally listed or state sensitive raptor species, on state and private lands should be developed and utilized as lands to be acquired by BLM when opportunities arise to exchange or otherwise acquire lands.

Lands and realty authorizations would include appropriate conservation measures to avoid and/or mitigate impacts to raptors.

### **O.5.8 RECREATION**

Development of biking trails near raptor nesting areas would be avoided.

Rock climbing activities would be authorized only in areas where there are no conflicts with cliff nesting raptors.

In high recreation use areas where raptor nest sites have been made unsuitable by existing disturbance or habitat alteration, mitigation should be considered to replace nest sites with artificial nest structures in nearby suitable habitat, if it exists, and consider seasonal protection of nest sites through fencing or other restrictions.

Dispersed recreation would be monitored to identify where this use may be impacting nesting success of raptors.

### **O.5.9 WILD HORSE PROGRAM**

In areas where wild horse numbers are determined to be in excess of the carrying capacity of the range, removal of horses, as described in the various herd management area plans, would continue, to prevent further damage to rangelands.

## **O.6 INVENTORY AND MONITORING**

- Each Field Office should cooperatively manage a raptor database, with UDWR and USFWS, as part of the BLM Corporate database. Raptor data should be collected and compiled utilizing the Utah Raptor Data Collection Standards developed by the Utah State Office, so that personnel from other agencies can access the data. Appropriate protocols for survey and monitoring should be followed, when available. This database should be updated as new inventory and monitoring data becomes available. The data should also be forwarded to

UDWR and the Natural Heritage Program, which has been identified as the central repository for raptor data storage for the State of Utah.

- Use of Seasonal Employees and volunteers, as well as "Challenge Cost Share" projects, should be utilized to augment the inventory and monitoring of raptor nests within a planning area, with the data entered into the above-mentioned databases at the close of each nesting season. Project proponents, such as energy development interests, would be encouraged to participate and help support an annual raptor nest monitoring effort within their areas of interest.
- Active nest sites should be monitored during all authorized activities that may have an impact on the behavior or survival of the raptors at the nest site. A qualified biologist would conduct the monitoring and document the impacts of the activity on the species. A final report of the impacts of the project should be placed in the EA file, with a copy submitted to the NHP. The report would be made available for review and should identify what activities may affect raptor-nesting success, and should be used to recommend appropriate buffer zones for various raptor species.
- As data are gathered, and impact analyses are more accurately documented, "adaptive management" principles should be implemented. Authorization of future activities should take new information into account, better protecting raptors, while potentially allowing more development and fewer restrictions, if data indicates that current restrictions are beyond those necessary to protect nesting raptors, or conversely indicates that current guidance is inadequate for protection of nesting raptors.

**ATTACHMENT 1**

Site Specific Analysis Data Sheet

**Observer(s)** \_\_\_\_\_ **Date** \_\_\_\_\_

**1. Conduct a site visit to the area of the proposed action and complete the raptor nest site data sheet according to BLM data standards.**

2. Area of Interest Documentation (**Bold** items require completion, other information is optional)

**State** \_\_\_\_\_ **Office** \_\_\_\_\_ **Management Unit** \_\_\_\_\_

**Project ID#** \_\_\_\_\_

**Location (Description)**

Legal T \_\_\_\_\_, R \_\_\_\_\_, Sec. \_\_\_\_\_, 1/4, \_\_\_\_\_ 1/4, \_\_\_\_\_ or UTM Coordinates

Latitude \_\_\_\_\_ Longitude \_\_\_\_\_

**Photos Taken** Y( ) N( )

Description of photos:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**Raptor Species** \_\_\_\_\_ **Confirmed** \_\_\_\_\_ **Unconfirmed** \_\_\_\_\_

**Distance From Proposed Disturbance to:** **Nest** \_\_\_\_\_  
**Perch** \_\_\_\_\_  
**Roost** \_\_\_\_\_

**Line of Site Evaluation From:** Nest \_\_\_\_\_  
Perch \_\_\_\_\_  
Roost \_\_\_\_\_

**Extent of Disturbance:** Permanent \_\_\_\_\_ Temporary \_\_\_\_\_  
Distance from Nest/Roost \_\_\_\_\_ Acreage \_\_\_\_\_

Length of Time \_\_\_\_\_ Timing Variations \_\_\_\_\_ Disturbance Frequency \_\_\_\_\_

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**Other Disturbance Factors:** Yes No (If yes, explain what and include distances from nest to disturbances)

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**Approximate Age of Nest:** New \_\_\_\_\_ **Historical:** (Number of Years) \_\_\_\_\_

**Evidence of Use (Describe):**

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**Habitat Values Impacted:**

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**Proportion of Habitat Impacted (Relate in terms of habitat available):**

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**Estimated Noise Levels of Project (db):** \_\_\_\_\_

**Available Alternative(s)** (e.g., location, season, technology):

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**Associated Activities:**

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**Cumulative Effects of Proposal and Other Actions in Habitat Not Associated With the Proposal:**

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**Potential for site Rehabilitation: High\_\_\_\_\_ Low\_\_\_\_\_**

Notes/Comments:

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**Summary of Proposed Modifications:**

Possible modifications to the spatial and seasonal buffers within the FWS "Guidelines" include the following:

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Rationale:

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**Summary of Proposed Mitigation Measures:**

Possible mitigation measures related to the proposal include the following:

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Rationale:

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**Summary of Alternatives Considered:**

Possible alternatives to the proposal include the following:

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**Rationale:**

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**Recommendation to FO Manager Based on Above Findings:**

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\_\_\_\_\_  
Field Office Wildlife Biologist

\_\_\_\_\_  
Date

## ATTACHMENT 2 - NESTING PERIODS AND RECOMMENDED BUFFERS FOR RAPTORS IN UTAH

<b>Attachment 2 - Nesting periods and recommended buffers for raptors in Utah</b>						
Species	Spatial Buffer (miles)	Seasonal Buffer	Incubation, # Days	Brooding, # Days Post-Hatch	Fledging, # Days Post-Hatch	Post-fledge Dependency to Nest, # Days <sup>1</sup>
Bald eagle	1.0	1/1-8/31	34-36	21-28	70-80	14-20
Golden eagle	0.5	1/1-8/31	43-45	30-40	66-75	14-20
N. Goshawk	0.5	3/1-8/15	36-38	20-22	34-41	20-22
N. Harrier	0.5	4/1-8/15	32-38	21-28	42	7
Cooper's hawk	0.5	3/15-8/31	32-36	14	27-34	10
Ferruginous hawk	0.5	3/1-8/1	32-33	21	38-48	7-10
Red-tailed hawk	0.5	3/15-8/15	30-35	35	45-46	14-18
Sharp-shinned hawk	0.5	3/15-8/31	32-35	15	24-27	12-16
Swainson's hawk	0.5	3/1-8/31	33-36	20	36-40	14
Turkey vulture	0.5	5/1-8/15	38-41	14	63-88	10-12
California condor	1.0	NN yet	56-58	5-8 weeks	5-6 months	2 months
Peregrine falcon	1.0	2/1-8/31	33-35	14-21	35-49	21
Prairie falcon	0.25	4/1-8/31	29-33	28	35-42	7-14
Merlin	0.5	4/1-8/31	28-32	7	30-35	7-19
American kestrel	NN <sup>2</sup>	4/1-8/15	26-32	8-10	27-30	12
Osprey	0.5	4/1-8/31	37-38	30-35	48-59	45-50
Boreal owl	0.25	2/1-7/31	25-32	20-24	28-36	12-14
Burrowing owl	0.25	3/1-8/31	27-30	20-22	40-45	21-28
Flammulated owl	0.25	4/1-9/30	21-22	12	22-25	7-14
Great horned owl	0.25	12/1-9/31	30-35	21-28	40-50	7-14
Long-eared owl	0.25	2/1-8/15	26-28	20-26	30-40	7-14
N. saw-whet owl	0.25	3/1-8/31	26-28	20-22	27-34	7-14
Short-eared owl	0.25	3/1-8/1	24-29	12-18	24-27	7-14
Mex. Spotted owl	0.5	3/1-8/31	28-32	14-21	34-36	10-12
N. Pygmy owl	0.25	4/1-8/1	27-31	10-14	28-30	7-14
W. Screech owl	0.25	3/1-8/15	21-30	10-14	30-32	7-14
Common Barn-owl	NN <sup>2</sup>	2/1-9/15	30-34	20-22	56-62	7-14

<sup>1</sup> Length of post-fledge dependency period to parents is longer than reported in this table. Reported dependency periods reflect the amount of time the young are still dependent on the nest site; i.e. they return to the nest for feeding. <sup>2</sup> Due to apparent high population densities and ability to adapt to human activity, a spatial buffer is not currently considered necessary for maintenance of American kestrel or Common barn-owl populations. Actions resulting in direct mortality of individual bird or take of known nest sites is unlawful

**ATTACHMENT 3.****UTAH RAPTOR MANAGEMENT EXPERTS FROM VARIOUS AGENCIES**

The following list of personnel from various agencies in Utah, are recognized experts in the field of raptor ecology or have extensive field experience in managing raptor resources with competing land uses. The list is provided to inform BLM field biologists and managers of this network of specialized expertise that may be able to assist, as time permits, with specific raptor management issues. Individuals in this Utah Raptor Network, also have well established contacts with an informal extended network of highly qualified raptor ecologists outside the state (i.e. USGS, State Wildlife Agencies, and Universities etc.) which could provide an additional regional perspective.

It should be pointed out that this list is not intended to replace or interfere with established lines of communication but rather supplement these lines of communication.

Utah BLM	David Mills	<a href="mailto:david_mills@blm.gov">david_mills@blm.gov</a>	435-896-1571
Utah BLM	Steve Madsen	<a href="mailto:steve_c_madsen@blm.gov">steve_c_madsen@blm.gov</a>	801-539-4058
Utah DWR	Dr. Jim Parrish	<a href="mailto:jimparrish@utah.gov">jimparrish@utah.gov</a>	801-538-4788
Utah DWR (NERO)	Brian Maxfield	<a href="mailto:brianmaxfield@utah.gov">brianmaxfield@utah.gov</a>	435-790-5355
USFWS	Laura Romin	<a href="mailto:laura_romin@usfws.gov">laura_romin@usfws.gov</a>	801-975-3330
USFWS	Diana Whittington	<a href="mailto:diana_whittington@usfws.gov">diana_whittington@usfws.gov</a>	801-975-3330
USFS	Chris Colt	<a href="mailto:ccolt@fs.fed.us">ccolt@fs.fed.us</a>	801-896-1062
HawkWatch Intl	Jeff Smith	<a href="mailto:jsmith@hawkwatch.org">jsmith@hawkwatch.org</a>	801-484-6808

## **ATTACHMENT 4**

### **References Cited**

Code of Federal Regulations; 43 CFR 3101.1-2, Leasing Regulations.

Endangered Species Act (ESA); 16 U.S.C. 1513-1543

Migratory Bird Treaty Act (MBTA); 16 U.S.C. 703-712

Romin, Laura A. and James A. Muck, 2002, "Utah Field Office Guidelines For Raptor Protection From Human And Land Use Disturbances." U.S. Department of Interior, U.S. Fish and Wildlife Service, Utah Field Office, Salt Lake City, Utah.

Standards for Rangeland Health and Guidelines for Grazing Management; 1997. U.S. Department of Interior, Bureau of Land Management.

U.S. Department of the Interior, Bureau of Land Management; 6840 Manual.

## **APPENDIX P.**

### **IDENTIFICATION OF WILDERNESS CHARACTERISTICS ON NON-WSA LANDS MANAGED BY MOAB BLM**

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#### **P1. BACKGROUND**

The BLM's manual for wilderness inventory, "Wilderness Inventory and Study Procedures Handbook" (H-1630-1), was rescinded on September 29, 2003 by Bureau of Land Management (BLM) Instruction Memorandum 2003-274, "BLM Implementation of the Settlement of Utah v. Norton Regarding Wilderness Study". On October 23, 2003, Instruction Memorandum 2003-275, Change 1, "Consideration of Wilderness Characteristics in Land Use Plans," was issued and became the sole guidance for the consideration of non-WSA lands with wilderness characteristics in the land use planning process until the revised Land Use Planning Handbook was published in 2005. Instruction Memorandum 2003-275, Change 1 states that "the BLM may consider information on wilderness characteristics, along with information on other uses and values, when preparing land use plans." The guidance also states that the consideration of non-WSA lands with wilderness characteristics in the land use planning process has the potential for three distinct outcomes:

- 1) to give priority to other uses over the protection of wilderness characteristics;
- 2) to give priority to other uses but applying management restrictions to protect some or all of the wilderness characteristics; or
- 3) to give priority to the protection of wilderness characteristics.

The current BLM Land Use Planning Handbook (H-1601-1, 2005) states that land use plans must:

Identify decisions to protect or preserve wilderness characteristics (naturalness, outstanding opportunities for solitude, and outstanding opportunities for primitive and unconfined recreation). Include goals and objectives to protect the resource and management actions necessary to achieve these goals and objectives. For authorized activities, include conditions of use that would avoid or minimize impacts to wilderness characteristics.

The Land Use Planning Handbook also authorizes the BLM to consider wilderness proposals from the public during the land use planning process.

Prior to scoping for the Moab RMP, the BLM had received new information from the Southern Utah Wilderness Alliance (SUWA) concerning several areas, using guidelines from the now rescinded "Wilderness Inventory and Study Procedures Handbook". In response to this information, Moab BLM's Interdisciplinary Team reviewed the new information in conjunction with other available information, and made findings regarding the existence of non-WSA lands with wilderness characteristics. For three areas (Mexico Point, Hideout Canyon, Hells Hole), BLM concluded that there was a reasonable probability that these areas contained at least 5000

acres of non-WSA lands possessing wilderness characteristics. The areas were not reviewed in total – just the portions of the areas potentially affected by the actions proposed at the time of the interdisciplinary review. For two other areas, BLM found that the relatively small portions potentially affected by the specific actions proposed at the time of the interdisciplinary review lacked wilderness characteristics. The remainder of these areas were not considered.

During scoping for the Moab RMP Revision, SUWA provided information to Moab BLM concerning that organization's wilderness proposals. In a document received December 30, 2003, SUWA identified all the areas encompassed in the proposed Redrock Wilderness Act as possessing wilderness characteristics, with the promise that additional information would be provided for areas not already established by BLM as wilderness study areas (WSAs) or as wilderness inventory areas (WIAs) with wilderness characteristics (*1999 Utah Wilderness Inventory*). In the December 30, 2003 communication, no information other than a list of the names of the proposed areas was provided. This list remains the only information on these areas received by BLM from SUWA specific to wilderness characteristics. However, SUWA did provide Moab BLM with proposals for creation of Areas of Critical Environmental Concern (ACECs), in which SUWA suggested wilderness characteristics as one of the values needing protection. All of the areas in the Moab Field Office that were identified by SUWA as being in the proposed America's Redrock Wilderness Act were included in these ACEC proposals.

### **P.2.2. OVERVIEW OF WILDERNESS CHARACTERISTICS IDENTIFICATION PROCESS SUBSEQUENT TO RECEIVING SCOPING COMMENTS ON THE RMP REVISION**

Moab BLM used an interdisciplinary team to review all the SUWA-proposed wilderness areas that had not been already established as WSAs or inventoried in the *1999 Utah Wilderness Inventory*. All five of the areas that had previously been reviewed in part were now reviewed in total.

In addition to reviewing digital aerial photos from 2006, BLM used other GIS information including county road data (previously verified as part of travel plan formulation), county intrusion data, and BLM files for such resource uses as range improvements and community pits. The review identified impacted areas, as well as those areas that appeared relatively free of impacts on naturalness. Moab BLM also made field trips to many of the areas. For these areas, the GIS review was used to confirm the field data.

IM 275-Change 1, unlike the revoked *Wilderness Inventory and Study Procedures Handbook*, does not mention size as an essential wilderness characteristic. However, Moab BLM took into consideration the language of the 1964 Wilderness Act, and concluded that a size criterion is an important indicator of whether or not outstanding opportunities for solitude and/or primitive recreation exist. Areas of less than 5,000 acres are generally not large enough to provide for these opportunities. Also, because the size criterion had been used for all previous wilderness inventories, applying it here allowed for consistency in both application and findings. BLM used the same criteria for determining Wilderness Characteristics as in the 1979 wilderness inventory. The 5,000-acre value was helpful to BLM in making preliminary judgments but it was not considered a limiting factor.

The size criterion of 5,000 acres was applied only to "stand-alone" units; that is, units not contiguous with other federal lands previously determined to possess wilderness characteristics (including designated wilderness, WSAs, WIAs with wilderness characteristics, and National Park Service and U.S. Forest Service lands that are administratively endorsed for wilderness). Units that are contiguous to federal lands with wilderness characteristics as identified above were evaluated for naturalness alone. Opportunities for solitude and primitive recreation were assumed to be present in association with the larger contiguous area.

The acreage described in the following tables, when added to acreage within Wilderness Study Areas, encompasses the totality of acreage included in external wilderness proposals as of September 30, 2003.

Table P1 presents the lands inventoried in the *1999 Utah Wilderness Inventory (revised 2003)*, and BLM findings regarding wilderness characteristics.

**Table P1. Non-WSA Lands Inventoried in the *1999 Wilderness Inventory (revised 2003)*,  
Total Acreage, and Acreage with and without Wilderness Characteristics**

Name (areas marked with an asterisk are contiguous with a WSA of the same name)	Total Acreage of Inventoried Unit	Acreage with Wilderness Characteristics (WC)	Total BLM <sup>1</sup> Acres not Brought Forward (NWC)	Acres Lacking Naturalness <sup>2</sup>	Acres Not Practicable to Manage for Wilderness Characteristics. <sup>3</sup>
Beaver Creek	33,357	25,722	7,635	5,539	2,096
*Behind the Rocks	7,961	3,381	4,580	4,578	2
*Coal Canyon	15,229	13,951	1,278	1,269	9
*Desolation Canyon	10,690	10,498	192	0	192
Fisher Towers	17,095	16,668	427	414	13
*Floy Canyon	12,228	9,983	2,245	0	2,245
*Flume Canyon	5,344	3,520	1,824	500	1,281
Goldbar	12,876	6,106	6,770	6,602	168
Gooseneck	5,540	805	4,735	4,735	0
Granite Creek	5,328	4,528	800	800	0
Harts Point (MFO)	5404	1,465	3,939	3,939	0
Hatch Wash	24,096	10,983	13,113	12570	543
Hunter Canyon	4,492	4,465	27	27	0
Labyrinth Canyon	68,717	24,832	43,885	43,885	0
*Lost Spring Canyon	12,661	11,456	1,205	1,160	45
Mary Jane Canyon	25,158	24,748	410	410	0
*Mill Creek Canyon	6,684	3,388	3,296	3,296	0

<sup>1</sup> Although the 1999 inventory evaluated State lands for wilderness character, BLM has no authority to manage such areas for wilderness characteristics. Therefore, no State lands are being carried forward into the DEIS.

<sup>2</sup> Acreage found lacking naturalness either as part of the 1999 inventory findings, or by post-inventory field checks and reported in the 2003 revision document.

<sup>3</sup> Most of this acreage consists of public lands found to possess naturalness, but cut off from the larger unit (usually a WSA) by State lands, resulting in a lack of size as a stand-alone unit sufficient to provide these opportunities.

**Table P1. Non-WSA Lands Inventoried in the 1999 Wilderness Inventory (revised 2003),  
Total Acreage, and Acreage with and without Wilderness Characteristics**

Name (areas marked with an asterisk are contiguous with a WSA of the same name)	Total Acreage of Inventoried Unit	Acreage with Wilderness Characteristics (WC)	Total BLM <sup>1</sup> Acres not Brought Forward (NWC)	Acres Lacking Naturalness <sup>2</sup>	Acres Not Practicable to Manage for Wilderness Characteristics. <sup>3</sup>
*Negro Bill Canyon	13,724	2,324	11,400	11,400	0
Shafer Canyon	3,045	1,842	1,203	1,203	0
*Spruce Canyon	2,213	1,131	1,082	0	1,082
*Westwater Canyon	2,328	2,328	0	0	0
Westwater Creek	9,100	7,188	1,912	1,912	0
<b>Totals</b>	<b>303,270</b>	<b>191,312</b>	<b>111,958</b>	<b>104,239</b>	<b>7676</b>

Table P2 displays all other non-WSA lands currently proposed for wilderness, and findings by the BLM Interdisciplinary review team.

**Table P.2 Other Non-WSA Lands Proposed for Wilderness; Total Acreage, and Acreage with and without Wilderness Characteristics**

External Proposal Area (Name)	Total Acres <sup>4</sup>	Acres possessing Wilderness Characteristics (WC) <sup>5</sup>	Acres not having Wilderness Characteristics (NWC)	Comments
Arches Adjacent	11,650	6,396	5,254	Adjacent to NPS/AE or WIA with WC
Beaver Creek	9,294	0	9,294	Adjacent to WIA with WC
Behind the Rocks	286	262	24	Adjacent to WIA with WC or WSA
Big Triangle	20,542	5200	15,342	Stand-alone unit
Coyote Wash	28,069	0	28,069	Heavily impacted by past mining activities, especially uranium.
Dead Horse Cliffs	2,346	797	1549	Adjacent to WIA with WC and NPS unit
Diamond Canyon	15,467	7,681	7,783	Adjacent to WIA with WC and WSA
Dome Plateau	25,818	14,207	11,611	Adjacent to WIA with WC or WSA or NPS unit;

<sup>4</sup> Public lands managed by Moab Field Office. Excludes acreage encompassed by State lands, Wilderness Study Areas, and lands inventoried in 1999 and found by BLM to lack wilderness character.

<sup>5</sup> Acres judged by BLM as likely to possess wilderness characteristics.

**Table P.2 Other Non-WSA Lands Proposed for Wilderness; Total Acreage, and Acreage with and without Wilderness Characteristics**

External Proposal Area (Name)	Total Acres <sup>4</sup>	Acres possessing Wilderness Characteristics (WC) <sup>5</sup>	Acres not having Wilderness Characteristics (NWC)	Comments
Duma Point	14,698	0	14,698	Stand-alone unit; heavily impacted by roads, past mining activities, and OHV routes.
Fisher Towers	1,740	567	1173	Adjacent to WIA with WC
Goldbar Canyon	435	331	104	Adjacent to WIA with WC
Gooseneck	53	38	15	Adjacent to WIA with WC
Hatch/Lockhart/Hart	46,729	2,670	44,059	Shared boundary with BLM Monticello Field Office
Hells Hole	2,540	2,538	2	Stand-alone unit; proposal shared by 4 BLM offices
Hideout Canyon	12,269	11,607	662	Stand-alone unit; RPD completed addressing entire unit
Horsethief Point	14,172	8,358	5,814	Adjacent to NPS unit with AE
Labyrinth Canyon	21,189	529	20660	Adjacent to WIA with WC
Mary Jane Canyon	86	31	55	Adjacent to WIA with WC
Mexico Point	13,597	12,837	760	Stand-alone unit; RPD completed addressing entire unit
Mill Creek Canyon	1,028	0	1,028	
Morning Glory	96	6	90	Adjacent to WIA with WC or WSA
Porcupine Rim	67	3	64	Adjacent to WIA with WC or WSA
Renegade Point	6,635	0	6,635	Stand-alone unit
Survey Point	10	0	10	
Westwater	4,509	758	3751	
Yellow Bird	2,212	357	1855	Adjacent to WIA with WC or NPS unit
Totals	255,537	75,173	180,361	

A complete record of findings regarding non-WSA lands with wilderness characteristics can be found in the Administrative Record accompanying the Moab RMP Revision.

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## **APPENDIX Q.**

### **STANDARDS AND GUIDES FOR GRAZING MANAGEMENT**

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The BLM has developed the following Fundamentals of Rangeland Health and their companion rules-Standards for Rangeland Health and Guidelines for Grazing Management for BLM in Utah ([BLM-UT-GI-97-001-4000] U.S. Department of Interior, Bureau of Land Management, Utah State Office 1997).

#### **Q.1. FUNDAMENTALS OF RANGELAND HEALTH**

As provided by regulations, developed by the Secretary of the Interior on February 22, 1995, the following conditions must exist on BLM lands:

1. Watersheds are in, or making significant progress toward, properly functioning physical condition, including their upland, riparian –wetland, and aquatic components; soil and plant conditions support infiltration, soil moisture storage, and the release of water that are in balance with climate and landform and maintain or improve water quality, and timing and duration of flow.
2. Ecological processes, including the hydrologic cycle nutrient cycle, and energy flow, are maintained, or there is significant progress toward their attainment, in order to support healthy biotic populations and communities.
3. Water quality complies with State water quality standards and achieves, or is making significant progress towards achieving established BLM management objectives such as meeting wildlife needs.
4. Habitats; are, or are making significant progress toward being, restored or maintained for Federal threatened and endangered Species, Federal proposed, Category 1 and 2 Federal candidate and other special status Species.

In 1997, the BLM in Utah developed rules to carry out the Fundamentals of Rangeland health. These are called Standards for Rangeland health and Guidelines for grazing management.

**Standards** spell out conditions to be achieved on BLM Lands in Utah, and **Guidelines** describe practices that will be applied in order to achieve the Standards.

## **Q.2. STANDARDS FOR RANGELAND HEALTH**

### **STANDARD 1. UPLAND SOILS EXHIBIT PERMEABILITY AND INFILTRATION RATES THAT SUSTAIN OR IMPROVE SITE PRODUCTIVITY, CONSIDERING THE SOIL TYPE, CLIMATE, AND LANDFORM.**

*As indicated by:*

1. Sufficient cover and litter to protect the soil surface from excessive water and
2. wind erosion, promote infiltration, detain surface flow, and retard soil moisture loss by evaporation.
3. The absence of indicators of excessive erosion such as rills, soil pedestals, and actively eroding gullies.
4. The appropriate amount, type, and distribution of vegetation reflecting the presence of (1) the Desired Plant Community IDPCI, where identified in a land use plan, or (2) where the PVC is not identified, a community that equally sustains the desired level of productivity and properly functioning ecological conditions.

### **STANDARD 2. RIPARIAN AND WETLAND AREAS ARE IN PROPERLY FUNCTIONING CONDITION. STREAM CHANNEL MORPHOLOGY AND FUNCTIONS ARE APPROPRIATE TO SOIL TYPE, CLIMATE AND LANDFORM.**

*As indicated by:*

1. Stream bank vegetation consisting of or showing a trend toward species with root masses capable of withstanding high stream flow events. Vegetative cover adequate to protect stream banks and dissipate stream flow energy associated with high-water flows. protect against accelerated erosion. capture sediment. and provide for groundwater recharge.
2. Vegetation reflecting: Desired Plant Community. maintenance of riparian and wetland soil moisture characteristics, diverse age structure and composition. high vigor. large woody debris when site potential allows. and providing food. cover and other habitat needs for dependent animal species.
3. Revegetating point bars: lateral stream movement associated with natural sinuosity: channel width. depth, pool frequency and roughness appropriate to landscape position.
4. Active floodplain.

### **STANDARD 3. DESIRED SPECIES, INCLUDING NATIVE, THREATENED.**

*As indicated by:*

1. Frequency, diversity, density, age classes, and productivity of desired native species necessary to ensure reproductive capability and survival.
2. Habitats connected at a level to enhance species survival.
3. Native species reoccupy habitat niches and voids caused by disturbances unless management objectives call for introduction or maintenance of nonnative species.

4. Appropriate amount, type, and distribution of vegetation reflecting the presence of (1) the Desired Plant Community DPC, where identified in a land use plan conforming to these Standards, or (2) where the DPC is identified a community that equally sustains the desired level of productivity and properly functioning ecologic processes.

**STANDARD 4. BLM WILL APPLY AND COMPLY WITH WATER QUALITY STANDARDS ESTABLISHED BY THE STATE OF UTAH (R.317-2) AND THE FEDERAL CLEAN WATER AND SAFE DRINKING WATER ACTS. ACTIVITIES ON BLM LANDS WILL FULLY SUPPORT THE DESIGNATED BENEFICIAL USES DESCRIBED IN THE UTAH WATER QUALITY STANDARDS (R.317-2) FOR SURFACE AND GROUNDWATER. 1**

*As indicated by:*

1. Measurement of nutrient loads, total dissolved solids, chemical constituents, fecal coliform, water temperature and other water quality parameters.
2. Macro-invertebrate communities that indicate water quality meets aquatic objectives.

Because BLM Lands provide forage for grazing of wildlife, wild horses and burros, and domestic livestock, the following rules have been developed to assure that such grazing is consistent with the Standards listed here.

1. BLM will continue to coordinate monitoring water quality activities with other Federal, State and technical agencies.

**Q.3. GUIDELINES FOR GRAZING MANAGEMENT**

1. Grazing management practices will be implemented that:
  - a. Maintain sufficient residual vegetation and litter on both upland and riparian sites to protect the soil from wind and water erosion and support ecological functions;
  - b. Promote attainment or maintenance of proper functioning condition riparian/wetland areas, appropriate stream channel morphology, desired soil permeability and permeability and infiltration, and appropriate soil conditions and kinds and amounts of plants and animals to support the hydrologic cycle, nutrient cycle, and energy flow.
  - c. Meet the physiological requirements of desired plants and facilitate reproduction and maintenance of desired plants to the extent natural conditions allow;
  - d. Maintain viable and diverse populations of plants and animals appropriate for the site,
  - e. Provide or improve within the limits of site potentials, habitat for Threatened or Endangered Species;
  - f. Avoid grazing management conflicts with other species that have the potential of becoming protected or special status species;
  - g. Encourage innovation, experimentation and the ultimate development of alternatives to improve rangeland management practices;
  - h. Give priority to rangeland improvement projects and land treatments that offer the best opportunity for achieving the Standards.

2. Any spring or seep developments will be designed and constructed to protect ecological process and functions and improve livestock, wild horse and wildlife distribution.
3. New rangeland projects for grazing will be constructed in a manner consistent with the Standards. Considering economic circumstances and site limitations, existing rangeland projects and facilities that conflict with the achievement or maintenance of the Standards will be relocated and/or modified.
4. Livestock salt blocks and other nutritional supplements will be located away from riparian/wetland areas or other permanently located, or other natural water sources. It is recommended that the locations of these supplements be moved every year.
5. The use and perpetuation of native species will be emphasized. However, when restoring or rehabilitating disturbed or degraded rangelands noninvasive, nonnative plant species are appropriate for use where native species (a) are not available, (b) are not economically feasible, (c) can not achieve ecological objectives as well as nonnative species, and/or (d) cannot compete with already established native species
6. When rangeland manipulations are necessary, the best management practices, including biological processes, fire and intensive grazing, will be utilized prior to the use of chemical or mechanical manipulations.
7. When establishing grazing practices and rangeland improvements, the quality of the outdoor recreation experience is to be considered. Aesthetic and scenic values, water, campsites and opportunities for solitude are among those considerations.
8. Feeding of hay and other harvested forage (which does not refer to miscellaneous salt, protein, and other supplements) for the purpose of substituting for inadequate natural forage will not be conducted on BLM lands other than in (a) emergency situations where no other resource exists and animal survival is in jeopardy, or (b) situations where the Authorized Officer determines such a practice will assist in meeting a Standard or attaining a management objective.
9. In order to eliminate, minimize, or limit the spread of noxious weeds, (a) only hay cubes, hay pellets, or certified weed-free hay will be fed on BLM lands, and (b) reasonable adjustments in grazing methods, methods of transport, and animal husbandry practices will be applied.
10. To avoid contamination of water sources and in advertent damage to non-target species, aerial application of pesticides will not be allowed within 100 feet of a riparian wetland area unless the product is registered for such use by the EPA.
11. On rangelands where a standard is not being met, and conditions are moving toward meeting the standard, grazing may be allowed to continue. On lands where a standard is not being met, conditions are not improving toward meeting the standard or other management objectives, and livestock grazing is deemed responsible, administrative action with regard to livestock will be taken by the Authorized Officer pursuant to CUR 4180.2(c).
12. Where it can be determined that more than one kind of grazing animal is responsible for failure to achieve a Standard, and adjustments in management are required. those adjustments will be made to each kind of animal, based on interagency cooperation as needed. in proportion to their degree of responsibility.
13. Rangelands that have been burned, reseeded or otherwise treated to alter vegetative composition will be closed to livestock grazing as follows: (I) burned rangelands, whether by wildfire or prescribed burning, will be ungrazed for a minimum of one complete growing

season following the burn; and (2) rangelands that have been reseeded or otherwise chemically or mechanically treated will be ungrazed for a minimum of two complete growing seasons.

14. Conversions in kind of livestock (such as from sheep to cattle) will be analyzed in light of Rangeland Health Standards. Where such conversions are not adverse to achieving a Standard, or they are not in conflict with BLM land use plans, the conversion will be allowed.

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## **APPENDIX R.**

# **STANDARDS FOR PUBLIC LAND HEALTH AND GUIDELINES FOR RECREATION MANAGEMENT FOR BLM LANDS IN UTAH**

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### **R.1. INTRODUCTION**

The mission of the BLM is to sustain the health, diversity, and productivity of the public lands for the use and enjoyment of present and future generations. The resources of these lands include timber, minerals, soils, riparian areas, water, air, and vegetation, historical and archaeological sites, wildlife habitats, threatened and endangered species habitats, and wilderness. Recreational uses of public land is a highly regarded social value of our society. Recognizing that social and economic factors must be considered in achieving healthy public lands, the Utah BLM, will consult with citizens, interest groups and local governments, to conduct planning, and to establish partnerships with stakeholders to manage and to pursue funding sources. Public lands will be managed so that various services, activities, and all renewable resources of the land are environmentally sustainable and non-renewable resources are recovered in ways that ensure the long-term health of the land.

Standards for Rangeland [ecological] Health of BLM Lands in Utah, and grazing management guidelines to meet these standards, were adopted in May 1997. The following guidelines for recreational use of the public lands are intended to assist in meeting not only the Rangeland [ecological] Health Standards but also to minimize harm to public land values as listed above. A premise of these guidelines is that health of the land and quality of the recreation experience are inseparable.

It is the intent of the following guidelines to encourage and allow for outdoor recreational opportunities, to enhance the quality of the outdoor experience, and to serve diverse recreational interests while minimizing conflicts between various kinds of users. However, recreation on public land is a limited and precious resource whose long-term use is dependent on the users' responsible and ethical behavior.

Field managers are encouraged to establish partnerships with stakeholders affected by guideline implementation. Communication protocols will be implemented to inform and involve those affected stakeholders.

### **R.2. RECREATION MANAGEMENT GUIDELINES**

#### **RANGELAND HEALTH STANDARD 1. UPLAND SOILS EXHIBIT PERMEABILITY AND INFILTRATION RATES THAT SUSTAIN OR IMPROVE SITE PRODUCTIVITY, CONSIDERING THE SOIL TYPE, CLIMATE, AND LAND FORM.**

1. Designate areas for intensive recreational use or cross-country motorized travel where disturbance of soil and vegetation is acceptable, either because impacts are insignificant

and/or temporary or because the value of intensive use of the land outweighs whatever ecological changes may occur. Decisions on such designation should take into account conflicts with other users as well as adverse effects on archaeological or historical sites, threatened or endangered species habitat, wildlife habitat, or social values such as beauty, solitude, and quiet.

2. In all other areas, travel routes and other disturbances should be kept to the minimum necessary to provide access and visitor facilities appropriate to the area. Through blocking, signing, and public education, unneeded travel routes should be eliminated and rehabilitated and unplanned development of new ones discouraged.
3. It may be necessary to manage some areas to be entirely free of planned travel routes.

**RANGELAND HEALTH STANDARD 2. RIPARIAN AND WETLAND AREAS ARE IN PROPERLY FUNCTIONING CONDITION. STREAM CHANNEL MORPHOLOGY AND FUNCTIONS ARE APPROPRIATE TO SOIL TYPE, CLIMATE AND LAND FORM.**

1. Where feasible, and consistent with user safety, developed travel routes should be located/relocated away from sensitive riparian and wetland areas.
2. Camping in riparian areas should be avoided and must be managed, monitored, and modified as conditions dictate to reduce vegetation disturbance and sedimentation.
3. Stream crossings will be limited to the number dictated by the topography, geology, and soil type. Design any necessary stream crossings to minimize sedimentation, soil erosion, and compaction.

**RANGELAND HEALTH STANDARD 3. DESIRED SPECIES, INCLUDING NATIVE, THREATENED, ENDANGERED, AND SPECIAL STATUS SPECIES, ARE MAINTAINED AT A LEVEL APPROPRIATE FOR THE SITE AND SPECIES INVOLVED.**

1. Protect against the establishment and/or spread of noxious or other weeds from intensive recreation, including the use of riding and pack animals, hiking, motorized, or other mechanized vehicles.
  - a. Conduct an educational campaign to inform recreational users about the damage caused by noxious weeds and how their spread can be minimized.
  - b. Where appropriate, apply restrictions, e.g. don't permit surface disturbing activities.
2. Protect wildlife and/or habitat by:
  - a. Preserving connectivity and avoiding fragmentation.
  - b. Controlling recreational activities that would interfere with critical wildlife stages such as nesting, reproduction, or seasonal concentration areas.
  - c. Avoiding creation of artificial attractions such as the feeding of wild animals or improper disposal of garbage.

3. Where necessary, control recreational use by changing location or kind of activity, season, intensity, distribution, and/or duration in order to protect plant and animal communities, especially those containing threatened, endangered or candidate species.

**RANGELAND HEALTH STANDARD 4. BLM WILL APPLY AND COMPLY WITH WATER QUALITY STANDARDS ESTABLISHED BY THE STATE OF UTAH (R. 317-2) AND THE FEDERAL CLEAN WATER AND SAFE DRINKING WATER ACTS. ACTIVITIES ON BLM LANDS WILL FULLY SUPPORT THE DESIGNATED BENEFICIAL USES DESCRIBED IN THE UTAH WATER QUALITY STANDARDS (R. 317-2) FOR SURFACE AND GROUNDWATER.**

1. Manage recreational uses in coordination with other uses on public lands to comply with applicable water quality standards by:
  - a. Identifying areas where recreational activities may seriously impair water quality.
  - b. Establishing thresholds for numbers, types, and duration of visitor use, and when those thresholds are reached, by developing facilities and/or possibly limiting or relocating use.
2. Monitor and control disposal of human or domesticated animal waste, trash, and other pollutants to prevent serious impairment of water quality.

### **R.3. IMPLEMENTING THE RECREATION GUIDELINES**

The Recreation Guidelines integrate the recreation program with the standards for rangeland health, and broadly define the procedures that would be applied to achieve the standards for rangeland health within the recreation program. Implementing the Recreation Guidelines means defining a more specific management approach and recommending actual practices that could be followed to implement the Guidelines. The Guidelines in this document are designed as Atools@ to assist managers in implementing recreation management decisions and actions. At this stage, the environmental effects of implementing the guidelines are too broad, speculative, or conjectural to lend themselves to meaningful environmental analysis under the National Environmental Policy Act (NEPA). Furthermore, implementing actions will be subject to further NEPA review and analysis. Therefore, the adoption of the guidelines is categorically excluded from NEPA analysis (516 DM, Chapter 6, Appendix 5, 5.4, categorical exclusions).

As consistent with existing policies, guidance, and budgetary constraints, it is recommended that the BLM do the following:

- Recognize that in some cases various levels of regulations and limits on users are necessary. Restrictions and limitations on public uses should be as small as possible without compromising the primary goal.
- Use on-the-ground presence as a tool to protect public lands.
- Where long-term damage by recreational uses is observed or anticipated, limit or control activities through specialized management tools such as designated campsites, permits, area closures, and limitations on number of users and duration of use. Revise recreation management plans and management framework plans when they prove to be either overly restrictive or inadequate to maintain public land health.

- Coordinate with federal and state agencies, county and local governments, and tribal nations in recreation planning and managing traffic, search and rescue operations, trash control and removal and public safety.
- Consider and, where appropriate, implement management methods to protect the resource as well as maintain the quality of experience of the various user groups. These could include limitation of numbers, types, timing and duration of uses.
- Encourage the location of public land recreational activities near population centers and highway corridors by placement of appropriate visitor use infrastructure. Provide restrooms and other facilities adequate for anticipated uses at designated campgrounds, trail heads, and other areas where there is a concentration of recreational users.

#### **R.4. BUILDING A STEWARDSHIP ETHIC FOR PUBLIC LAND USE**

A critical step in achieving and maintaining public land health and enjoyment of the public land is that the users of the public land practice responsible stewardship ethics. All users, from recreationists to commodity producers, should understand, practice and promote behavior that does not damage the environment. Below are recommended strategies to instill principles of public land user ethics:

- Use information and interpretative services as major tools to protect public land health as well as significant natural, cultural, and recreational resources. Where feasible, improve public knowledge by locating kiosks, interpretive signs, and visitor information facilities at visitor contact points. Provide guidebooks and pamphlets for users.
- Incorporate information about public land values and user ethics into the terms and conditions of permits and land use authorizations.
- Increase efforts to educate public land visitors and users about an ethic of responsible use through programs such as Tread Lightly, Leave No Trace, Project Archaeology, the International Mountain Bike Association's ARules of the Trail,<sup>®</sup> and Public Lands Watch program.
- Communicate to the members of the public their individual rights and responsibilities in the use and preservation of public lands, including the recognition of the rights and responsibilities of others.
- Initiate and maintain collaborative partnerships among government agencies, local governments, business communities, volunteers, user groups, stakeholders, educational institutions, individuals, and the private sector to achieve Rangeland Health Standards and implement associated guidelines.
- Encourage the development of a concise educational program to be implemented at the initial point of contact with the public and public land users. The program should promote public land values, knowledge of rights and responsibilities, environmental awareness, and communication between the BLM and the public. It should inform the public about changing management practices and policies. In addition, the educational program should demonstrate the connection between the health of the public land and the benefits users and local communities receive from those lands.

- Encourage the private sector to conduct responsible marketing of activities available on public lands while avoiding use of products and services in ways that may harm public lands.
- Educate the public in proper human and solid waste disposal techniques.

## R.5. GLOSSARY

**Guidelines, Recreation:** Recreation management tools, methods, and techniques designed to provide activities, experiences, and benefits for the recreating public while maintaining or achieving healthy public lands as defined by the standards. The recreation guidelines contained in this document are directed toward maintaining or achieving public land health.

**Mechanized Vehicle:** Any motorized or non-motorized vehicle capable of, or designed for, travel on or immediately over land. An example of a mechanized, but not motorized vehicle is a mountain bike. All motorized vehicles are mechanized.

**Motorized Vehicle:** Synonymous with off-road and off-highway vehicle. Examples of this type of vehicle include all-terrain vehicles (ATV), sport utility vehicles (SUV), motorboats, and snowmobiles.

**Non-Motorized Use:** Recreational human and animal foot traffic. Examples include horses, llamas, and other domestic animals. Wheel chairs designed for indoor use as a medical appliance are not considered mechanized.

**Protect:** To take actions to guard against or minimize injury or loss.

**Riparian:** Of, on, or relating to the bank of a natural course of water.

**Special Status Species/Sensitive Species:** Those species designated by a State Director, usually in cooperation with the State agency responsible for managing the species as sensitive.

**Standards for Public Land Health:** A description of conditions needed to sustain public land health; the standards relate to all uses of the public lands in Utah.

**Threatened and Endangered Species:** those species officially listed as threatened or endangered by the Secretary of the Interior under the provisions of the Endangered Species Act.

**Visitor Use Infrastructure:** Amenities such as roads, parking areas, and facilities, to protect the resource and support the recreation user in his/her pursuit of activities, experiences, and benefits.

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## APPENDIX S.

### WILDLIFE IMPACTS BY RFD AREA

**Table S.1. Alternative A -- Estimated Surface Disturbance (in acres) for Oil and Gas Well Development, by Vegetation (Wildlife Habitat) Type**

RFD Areas	Total Acres of Disturbance	Conifer and Mountain Shrub	Desert Scrub	Invasive Species / Weeds	Pinyon-Juniper	Sagebrush/ Perennial Grassland
Book Cliffs	1563	265	190	26	954	123
Greater Cisco	2941	8	2347	110	360	65
Roan Cliffs	30	7	0	0	21	1
Salt Wash	189	0	158	1	26	0
Big Flat - Hatch Point	697	0	228	2	373	76
Lisbon Valley	840	6	31	5	531	250
Eastern Paradox	512	3	234	5	234	27
Entire MPA	6772	267	2829	150	2801	488

Note that the acreages do not add up to the "Total Acres of Disturbance" in any category. Recall that Agricultural, Disturbed, Developed, Riparian/Wetlands, and Water categories were removed from this analysis; they represent a small percentage of the total lands that are not relevant to this analysis.

Note also that values for most vegetation types under the three RFD areas do not add up to the total value listed under "Entire MPA" – this is due to rounding errors during calculations.

**Table S.2. Alternative B -- Estimated Surface Disturbance (in acres) for Oil and Gas Well Development, by Vegetation (Wildlife Habitat) Type**

RFD Areas	Total Acres of Disturbance	Conifer and Mountain Shrub	Desert Scrub	Invasive Species / Weeds	Pinyon-Juniper	Sagebrush/ Perennial Grassland
Book Cliffs	995	169	121	16	607	78
Greater Cisco	1373	4	1096	51	168	30
Roan Cliffs	11	3	0	0	8	0
Salt Wash	159	0	133	1	22	0
Big Flat - Hatch Point	292	0	96	1	156	32
Lisbon Valley	813	6	30	5	513	242
Eastern Paradox	320	2	146	3	146	17
Entire MPA	3963	157	1656	47	1639	285

Note that the acreages do not add up to the "Total Acres of Disturbance" in any category. Recall that Agricultural, Disturbed, Developed, Riparian/Wetlands, and Water categories were removed from this analysis; they represent a small percentage of the total lands that are not relevant to this analysis.

Note also that values for most vegetation types under the seven RFD areas do not add up to the total value listed under "Entire MPA" – this is due to rounding errors during calculations.

**Table S.3. Alternative C -- Estimated Surface Disturbance (in acres) for Oil and Gas Well Development, by Vegetation (Wildlife Habitat) Type**

RFD Areas	Total Acres of Disturbance	Conifer and Mountain Shrub	Desert Scrub	Invasive Species / Weeds	Pinyon-Juniper	Sagebrush/ Perennial Grassland
Book Cliffs	1556	264	189	26	950	122
Greater Cisco	2962	8	2364	110	362	65
Roan Cliffs	27	6	0	0	19	1
Salt Wash	171	0	143	1	24	0
Big Flat - Hatch Point	508	0	166	2	272	58
Lisbon Valley	836	6	30	5	528	249
Eastern Paradox	423	3	193	4	193	2
<b>Entire MPA</b>	<b>6483</b>	256	2708	76	2682	467

Note that the acreages do not add up to the "Total Acres of Disturbance" in any category. Recall that Agricultural, Disturbed, Developed, Riparian/Wetlands, and Water categories were removed from this analysis; they represent a small percentage of the total lands that are not relevant to this analysis.

Note also that values for most vegetation types under the seven RFD areas do not add up to the total value listed under "Entire MPA" – this is due to rounding errors during calculations.

**Table S.4. Alternative D -- Estimated Surface Disturbance (in acres) for Oil and Gas Well Development, by Vegetation (Wildlife Habitat) Type**

RFD Areas	Total Acres of Disturbance	Conifer and Mountain Shrub	Desert Scrub	Invasive Species / Weeds	Pinyon-Juniper	Sagebrush/ Perennial Grassland
Book Cliffs	1575	267	192	26	961	124
Greater Cisco	2962	8	2364	110	362	65
Roan Cliffs	29	7	0	0	21	1
Salt Wash	186	0	155	1	26	0
Big Flat - Hatch Point	665	0	218	2	356	72
Lisbon Valley	836	76	267	9	403	74
Eastern Paradox	486	3	222	5	222	26
<b>Entire MPA</b>	<b>6739</b>	266	2815	79	2788	485

**Table S.5. Alternative A – Acreage of Each Vegetation Cover Type, by Salable Minerals Category**

Vegetation Type	Standard Stipulations	Timing and/or Controlled Surface Use	No Surface Occupancy	Closed to Leasing
Total Acres*	1,467,768	0	0	353,606
Conifer/ Mountain shrub	57,974	0	0	13,967
Desert shrub (saltbush, blackbrush)	613,154	0	0	147,717
Pinyon-juniper	607,166	0	0	146,275
Riparian	17,235	0	0	4,152
Sagebrush and grassland	105,679	0	0	25,460

\* Note that the acreages do not add up to the “Total Acres” in any category. Recall that Agricultural, Disturbed, Developed, Riparian/Wetlands, and Water categories were removed from this analysis; they represent a small percentage of the total lands that are not relevant to this analysis.

**Table S.6. Alternative B – Acreage of Each Vegetation Cover Type, by Salable Minerals Category**

Vegetation Type	Standard Stipulations	Timing and/or Controlled Surface Use	No Surface Occupancy	Closed to Leasing
Total Acres*	355,750	468,130	598,390	399,104
Conifer/ Mountain shrub	14,051	18,490	23,635	15,764
Desert shrub	148,613	195,559	249,975	166,724
Pinyon-juniper	147,162	193,650	247,534	165,096
Riparian	4,177	5,497	7,026	4,686
Sagebrush and grassland	25,614	33,705	43,084	28,735

\* Note that the acreages do not add up to the “Total Acres” in any category. Recall that Agricultural, Disturbed, Developed, Riparian/Wetlands, and Water categories were removed from this analysis; they represent a small percentage of the total lands that are not relevant to this analysis.

**Table S.7. Alternative C – Acreage of Each Vegetation Cover Type, by Salable Minerals Category**

<b>Vegetation Type</b>	<b>Standard Stipulations</b>	<b>Timing and/or Controlled Surface Use</b>	<b>No Surface Occupancy</b>	<b>Closed to Leasing</b>
Total Acres*	549,226	672,909	220,423	378,816
Conifer/ Mountain shrub	21,693	26,579	8,706	14,963
Desert shrub	229,437	281,105	92,081	158,249
Pinyon-juniper	227,196	278,360	91,182	156,703
Riparian	6,449	7,901	2,588	4,448
Sagebrush and grassland	39,544	48,449	15,870	27,275

\* Note that the acreages do not add up to the "Total Acres" in any category. Recall that Agricultural, Disturbed, Developed, Riparian/Wetlands, and Water categories were removed from this analysis; they represent a small percentage of the total lands that are not relevant to this analysis.

**Table S.8. Alternative D – Acreage of Each Vegetation Cover Type, by Salable Minerals Category**

<b>Vegetation Type</b>	<b>Standard Stipulations</b>	<b>Timing and/or Controlled Surface Use</b>	<b>No Surface Occupancy</b>	<b>Closed to Leasing</b>
Total Acres*	962,733	393,469	111,662	353,510
Conifer/ Mountain shrub	38,026	15,541	4,410	13,963
Desert shrub	402,178	164,370	46,646	147,677
Pinyon-juniper	398,250	162,765	46,191	146,235
Riparian	11,305	4,620	1,311	4,151
Sagebrush and grassland	69,317	28,330	8,040	25,453

\* Note that the acreages do not add up to the "Total Acres" in any category. Recall that Agricultural, Disturbed, Developed, Riparian/Wetlands, and Water categories were removed from this analysis; they represent a small percentage of the total lands that are not relevant to this analysis.

## APPENDIX T.

### UTAH STATE UNIVERSITY STUDY RESULTS

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#### T.1 UTAH PUBLIC LANDS STUDY – KEY SOCIAL SURVEY FINDINGS FOR GRAND AND SAN JUAN COUNTIES

A statewide social survey was conducted by Utah State University in 2007 to assess the ways in which Utah residents use and value public land resources, and their views about public land management. Random samples of residential households were selected in each of the state's 29 counties. Sampled households were contacted by mail, and a randomly-selected adult from the household was asked to participate in the survey. Self-completion questionnaires were distributed to potential survey participants using a multiple-wave survey administration procedure. The discussion that follows is focused on key survey results obtained for Grand County (n = 146 survey responses) and for San Juan County (n = 124 survey responses).

#### T.2 ECONOMIC LINKAGES TO PUBLIC LANDS

One major focus of the survey questionnaire involved assessment of the various ways in which Utahans' may engage in economic activities that are linked directly or indirectly to public land resources in the state.

##### T.2.1 PERMIT-BASED ECONOMIC ACTIVITIES

As indicated in Table 1, only a minority of survey respondents in either Grand or San Juan Counties reported that a portion of their household income is directly linked to activities that involve permitted uses of lands or resources administered by the U.S. Forest Service, the Bureau of Land Management (BLM), other federal agencies, or the State of Utah. In both counties permit-based economic activities on public lands were more commonly linked to lands administered by the BLM than lands administered by other agencies. In addition, the percentage of respondents indicating that some portion of their household incomes is derived from such permit-based activities was uniformly higher for each of the agency categories in San Juan County than was the case in Grand County.

**Table 1. Percent of Survey Respondents Reporting that a Portion of Household Income is Directly Linked to Permitted Use of Public Lands or Resources**

Agency	Grand County	San Juan County
Forest Service	4.1	13.9
BLM	11.0	18.9
Other federal agency	8.2	7.4
State of Utah	6.2	11.5
Number of cases	146	124

As indicated in Table 2, the percentage of respondents reporting these types of permit-based economic linkages to public lands who indicated that 25% or more of their total household income is derived from those activities was highest among Grand County respondents who reported use of BLM, other federal agency, and State-administered lands, and highest among San Juan County respondents who reported use of lands administered by federal agencies other than the Forest Service or BLM, or of lands administered by the State of Utah.

**Table 2. Percent of Survey Respondents Reporting Permit-based Economic Activities on Public Lands who Indicated that 25% or More of Their Household Income is Derived From Those Activities**

Agency	Grand County	San Juan County
Forest Service	16.7	23.5
BLM	50.0	29.2
Other Federal Agency	53.8	55.6
State of Utah	45.5	42.9

**T.2.2 HOUSEHOLD PARTICIPATION IN SELECTED COMMERCIAL ACTIVITIES**

The next series of questions asked respondents to indicate whether they or members of their households participate in any of a number of commercial activities that, while commonly associated with public land use, can involve the use of either public or private lands. Results summarized in Table 3 indicate that for any of these activities only a minority of survey respondents in either Grand County or San Juan County reported participation. Among Grand County respondents, the activities reported most frequently were operation of an outfitting or guiding business (9.7% of respondents), other miscellaneous commercial activities (5.2%), and mining of coal, uranium or other minerals (4.9%). In San Juan County participation was reported most frequently for livestock grazing and related work (20.2% of respondents), commercial firewood cutting (17.6%), logging and other timber-related work (11.8%), mining of coal, uranium or other minerals (10.1%), and oil and gas exploration or development (9.2%). On balance, these response patterns indicate that there is a substantially higher level of engagement in nearly all of these types of resource-based commercial activities among residents of San Juan County than is the case in Grand County.

**Table 3. Percentage of Survey Respondents Reporting that They or Members of Their Households Participate in Selected Resource-based Commercial Activities, on Either Public or Private Lands**

Economic Activity	Grand County	San Juan County
Livestock Grazing and Related Work	2.8	20.2
Commercial Firewood Cutting	1.4	17.6

**Table 3. Percentage of Survey Respondents Reporting that They or Members of Their Households Participate in Selected Resource-based Commercial Activities, on Either Public or Private Lands**

<b>Economic Activity</b>	<b>Grand County</b>	<b>San Juan County</b>
Logging, Post and Pole Cutting or other Timber-related Work	1.4	11.8
Mining of Coal, Uranium or Other Solid Minerals	4.9	8.5
Mining of Sand, Gravel, or Other Construction Materials	2.8	10.1
Oil and Gas Exploration and Development	2.8	9.2
Operating an Outfitting or Guiding Business	9.7	6.8
Film Making/Commercial Photography	3.5	5.9
Other Commercial Activities	5.2	3.5

### **T.2.3 HOUSEHOLD INVOLVEMENT IN BUSINESSES LINKED TO RECREATION/TOURISM**

Survey respondents were also asked whether they or any member of their household operates or works at a business linked to recreation or tourism activity that is influenced by the presence of public lands and resources. Over one-third (38.5%) of Grand County respondents and over one-fourth (26.7%) of San Juan County respondents said “yes” to this question. When asked to assess how important activities and uses linked to public lands are to the success of this business, nearly two thirds (63.6%) of Grand County respondents and over one-half (53.1%) of San Juan County respondents who reported involvement in such businesses said that the influence of public lands is “extremely important.”

### **T.2.4 HOUSEHOLD INVOLVEMENT IN BUSINESSES LINKED TO COMMODITY PRODUCTION**

A similar question asked about the involvement of survey participants and members of their households in business that provide services and supplies to farming or ranching operations, logging firms, or other commercial enterprises that use or process natural resources located on public lands. The percentage of respondents reporting participation by a household member in such businesses was considerably lower in Grand County (6.9%) than in San Juan County (15.7%).

### **T.2.5 OWNERSHIP OF PROPERTY OR ASSETS WITH VALUES INFLUENCED BY NEARBY PUBLIC LANDS**

When asked whether they own land, buildings, or other assets that they believe have a monetary value that is significantly influenced by the presence and condition of nearby public lands, 55.2% of Grand County respondents and 40% of San Juan County respondents said “yes.” Those who did perceive the existence of such a relationship were then asked to identify specific types of assets that they own and that they believe have a value influenced by the close proximity of public lands. Respondents in both counties most frequently cited their residential property, (48.6% in Grand County, 27.4% in San Juan County). The only other types of asset identified by more than 10% of respondents in either county were undeveloped non-agricultural land (12.1% of respondents in San Juan County) and agricultural land (12.7% of respondents in San Juan County).

### **T.3 PERCEIVED IMPORTANCE OF PUBLIC LANDS FOR OVERALL QUALITY OF LIFE**

Survey participants were also asked to report how important they think fifteen different types of public land resources and resource uses are for the overall quality of life experienced by people living in their communities. Table 4 summarizes response patterns to this series of questions for Grand and San Juan Counties, with a focus on the percentage of respondents from each county who indicated that they consider a particular type of resource use to be “very important” for local quality of life.

In Grand County six of the fifteen types of public land resource use presented in this question were considered “very important” by fewer than one-half of respondents (grazing of livestock, energy resource development, sand/gravel or other construction-related mineral development, timber production, opportunities to hunt, and opportunities to fish).

**Table 4. Percentage of Survey Respondents Indicating that Selected Public Land Resource Uses are “Very Important” to the Overall Quality of Life in their Community**

<b>Resource Use</b>	<b>Grand County</b>	<b>San Juan County</b>
Grazing of livestock on public lands	34.6	74.4
Water resources used to irrigate crops and pastures	64.0	89.8
Water resources used to supply homes and businesses	83.6	94.1
Water resources that provide important fish/wildlife habitat	82.0	76.9
Energy resources such as oil, gas, coal or uranium	48.2	72.0

**Table 4. Percentage of Survey Respondents Indicating that Selected Public Land Resource Uses are “Very Important” to the Overall Quality of Life in their Community**

<b>Resource Use</b>	<b>Grand County</b>	<b>San Juan County</b>
Sand, gravel or other minerals used in building and construction industries	28.8	53.0
Forested areas that provide timber used by logging operations and lumber mills	21.3	33.0
Areas where trees or other vegetation provide important wildlife habitat	73.9	74.4
Areas that attract tourism and recreational activity	78.8	61.0
Opportunities to enjoy off-road vehicles, snowmobiling, or other motorized recreation	62.1	70.3
Opportunities to enjoy hiking, backpacking, cross-country skiing, horseback riding, or other types of non-motorized recreation	74.3	65.3
Opportunities to hunt for wild game	41.3	66.6
Opportunities to fish in area lakes, streams and rivers	47.9	58.5
Undeveloped landscapes where motorized access and resource development are restricted	56.9	30.7
Areas managed to maintain biodiversity and protect habitat for sensitive or important plants or wildlife	54.4	28.1

At the same time, over three-fourths of Grand County respondents considered water resources used to supply homes and businesses, water resources used to supply fish and wildlife habitat, and the presence of areas that attract tourism and recreation activity to be “very important” to the local quality of life.

In San Juan County only three of these resource uses were considered “very important” by fewer than one-half of respondents (timber production, undeveloped landscapes where motorized access and resource development are restricted, and areas managed to maintain biodiversity and to protect habitat). Conversely, three resource uses -- water resources used to irrigate crops and pastures, water resources used to supply homes and businesses, and water resources used to provide important fish and wildlife habitat -- were considered “very important” to the local quality of life by more than three-fourths of San Juan County respondents.

#### **T.4 RECREATIONAL USES OF PUBLIC LANDS**

Survey participants were also asked to report whether they had participated in any of a broad range of outdoor recreation activities and other non-commodity use activities on Utah public lands during the prior twelve months. Results from this series of questions are reported in Table 5 and Table 6. These findings clearly indicate that there is widespread participation in many of these public land activities among residents of both Grand County and San Juan County.

Table 5 reports the extent of reported participation in thirty different outdoor recreation activities. Among survey participants living in Grand County, more than one-half reported participation in camping, picnicking, day hiking, wildlife viewing, visiting historical sites, 4-wheel driving, and driving for pleasure/sightseeing on public lands during the preceding twelve months. In San Juan County over half of respondents reported that they had participated in camping, picnicking, day hiking, wildlife viewing, hunting, fishing, visiting historical sites, , ATV riding, 4-wheel driving, and driving for pleasure/sightseeing.

Responses to a question focusing on participation in a variety of non-commodity use activities on public lands are summarized in Table 6. Among this list of activities, Grand County respondents were most likely to report that they participate in collection of rocks for home landscaping and collecting fossils, rocks or other minerals from public land areas. In San Juan County, respondents most frequently reported that they collect firewood for home use, collect rocks for home landscaping, and gather pinyon nuts from public lands.

Respondents were also asked to identify the one or two activities from the lists presented in these questions that they participate in most often, and to provide detail on where they engage in those activities. Among Grand County respondents the first of these activities listed by respondents most often involved day hiking (27.8% of responses) or camping (18.8% of responses). In San Juan County the first listed activity most often involved ATV riding (21.2% of responses), camping (13.6%), day hiking (12.7%) or hunting (11.9%). When asked to indicate where they participate in the first-listed of their “most frequently pursued” activities, 81.8% of Grand County respondents and 97.5% of San Juan County residents identified a location within the county where they live.

**Table 5. Percentage of Survey Respondents Reporting Participation in Selected Recreation Activities on Utah Public Lands During the Past Twelve Months**

<b>Activity</b>	<b>Grand County</b>	<b>San Juan County</b>
Camping	67.4	72.7
Picnicking	77.1	84.4
Backpacking	30.4	29.6
Day hiking	72.4	70.0
Bird watching	35.8	37.2
Wildlife viewing	67.4	80.2
Nature photography	42.3	41.2
Canoeing/kayaking	23.5	10.8
River rafting	33.1	9.1
Motor boating	19.4	20.4
Jet skiing	5.9	8.2
Swimming	39.0	36.3
Rock climbing	18.4	21.4
Mountain climbing	22.2	22.8
Hang gliding	0.0	0.0
Mountain bike riding	33.3	17.7
Hunting	25.0	55.1
Fishing	43.3	50.4
Horseback riding	15.6	33.0
Orienteering/geo-caching	7.5	15.7
Rock hounding	39.3	33.6
Visiting historical sites	62.9	68.9
Resort skiing/snowboarding	7.5	3.7
Backcountry skiing/snowboarding	19.1	4.6
Snowshoeing	9.6	4.5
Snowmobiling	7.4	8.9
ATV riding	29.5	65.0
Dirt bike riding	16.5	20.4
4-wheel driving/jeeping	51.1	60.2
Sightseeing/pleasure driving	83.2	87.9

**Table 6. Percentage of Survey Respondents Reporting Participation in Selected Non-commodity use Activities on Utah Public Lands During the Past Twelve Months**

<b>Activity</b>	<b>Grand County</b>	<b>San Juan County</b>
Collecting firewood for home use	25.9	4.75
Cutting Christmas trees	19.9	29.4
Collecting material for craft projects	22.0	29.1
Collecting rocks for home landscaping	42.7	46.6
Collecting plants for home landscaping	12.1	20.0
Gathering wild mushrooms	7.9	4.5
Gathering pinyon nuts	13.6	47.5
Gathering berries, herbs or wild foods	15.0	13.4
Collecting fossils, rocks or minerals	34.7	28.0

## **T.5 ATTITUDES AND PREFERENCES REGARDING PUBLIC LAND MANAGEMENT**

Two similar sets of survey questions focused on respondents' attitudes and preferences regarding the extent to which various natural resource use activities or management practices should be reduced or increased by those responsible for managing public lands in Utah. Response patterns to these questions are summarized in Table 7 and Table 8.

The data presented in Table 7 indicate that Grand County respondents were considerably more likely to prefer an increase rather than a decrease in protection of important fish and wildlife habitat, protection of endangered species, use of controlled burns to improve ecological conditions, thinning of forested areas to reduce wildfire risk, designation of wild and scenic rivers, and development of water storage and delivery systems on Utah public lands. They were also more likely to prefer a reduction in timber harvest levels and in livestock grazing levels. On the other hand, attitudes were more evenly split between preferences for reducing and preferences for increasing mineral exploration/extraction and for designation of wilderness areas.

Among San Juan County residents respondents were more likely to prefer an increase rather than a decrease in mineral exploration/extraction, timber harvest, oil and gas development, protection of fish and wildlife habitat, use of controlled burns to improve ecological conditions, livestock grazing, and development of water storage and delivery systems. They also expressed a strong preference for a reduction in the designation of wilderness areas, and were more likely to prefer a reduction as opposed to an increase in designation of wild and scenic rivers.

Results summarized in Table 8 indicate that Grand County respondents were more likely to prefer an increase rather than a reduction in permitting of commercial guiding or outfitter services, provision of road access to recreation areas, provision of hunting opportunities, development of trails for non-motorized recreation, regulations that restrict motorized vehicles to designated trails, and regulations to limit noise and emissions from snowmobiles and ATVs.

More evenly mixed attitudes were evident with respect to development of trails for off-highway motorized recreation, and for development of visitor facilities to increase tourism. In San Juan County, respondents were far more likely to prefer an increase rather than a decrease in provision of road access to recreation areas, provision of hunting opportunities, development of trails for off-highway motorized recreation, and development of trails for non-motorized recreation.

**Table 7. Survey Respondents' Attitudes Regarding the Extent to Which Various Activities Occurring on Utah Public Land Should be Reduced or Increased\***

Type of Use/ Activity	Grand County		San Juan	
	Reduce (%)	Increase (%)	Reduce (%)	Increase (%)
Mineral exploration/extraction	28.5	37.2	17.2	58.7
Timber harvest	37.4	15.2	15.8	47.4
Designation of wilderness areas	34.3	33.6	63.9	15.1
Exploration for/development of oil and gas resources	33.8	41.2	15.5	53.5
Protection of important fish and wildlife habitat	6.6	61.4	13.7	41.9
Protection of endangered species	17.4	50.7	30.8	26.5
Use of controlled burns to improve ecological conditions	13.8	48.7	13.4	46.4
Thinning of forested areas to reduce wildfire risk	15.1	52.3	5.3	60.2
Livestock grazing	36.2	23.9	13.8	39.6
Designation of wild and scenic rivers	18.4	40.4	32.1	17.5
Developing water storage and delivery systems to meet needs of nearby communities	11.9	63.5	1.7	86.4

\* Original response categories were "major reduction" and "moderate reduction" (combined to create "reduce") and "major increase" and "minor increase" (combined to create "increase"). "Stay about the same" responses not reported here.

**Table 8. Survey Respondents’ Attitudes Regarding the Extent to Which the Emphasis Placed on Various Activities Occurring on Utah Public Land Should be Reduced or Increased by Public Land Managers\***

Type of Use/ Activity	Grand County		San Juan	
	Reduce (%)	Increase (%)	Reduce (%)	Increase (%)
Permitting of commercial guiding or outfitter services	12.8	21.2	22.5	21.6
Providing road access to recreation areas	19.7	33.1	11.7	61.7
Providing hunting opportunities	17.9	27.2	10.2	50.8
Developing trails for off-highway motorized recreation	28.4	34.1	15.3	61.0
Developing trails for hiking, biking, and other non-motorized recreation	7.1	53.9	12.0	46.1
Regulations that require motorized vehicles to stay on designated trails	10.6	62.0	26.3	37.3
Regulations that limit levels of noise and emissions from snowmobiles and ATVs	10.1	59.0	33.3	26.5
Developing visitor facilities to increase tourism	21.4	35.0	20.9	32.2

\* Original response categories were “major reduction” and “moderate reduction” (combined to create “reduce”) and “major increase” and “minor increase” (combined to create “increase”). “Stay about the same” responses not reported here.

## **APPENDIX U.**

### **CHANGES BETWEEN MOAB DRAFT RMP/EIS AND MOAB PROPOSED RMP/FINAL EIS**

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This Appendix presents the changes that the BLM has made between the Draft RMP/Draft EIS and Proposed RMP/Final EIS. The BLM has prepared this Appendix to document if changes between the Draft RMP/Draft EIS and the Proposed RMP/Final EIS resulted in a significant change in circumstances or conditions, or if the Proposed RMP/Final EIS contains different information from that which was presented to the public in the Draft RMP/Draft EIS. Finally, the BLM wanted to confirm that all changes made to the Proposed RMP/Final EIS fall within the range of alternatives presented and analyzed in the Draft RMP/Draft EIS.

The regulation controlling whether or not a supplement is required is found at 40 CFR 1502.9(c), which provides:

*Agencies:*

- (1) Shall prepare supplements to either draft or final environmental impact statements if:
  - (i) The agency makes substantial changes in the proposed action that are relevant to environmental concerns; or*
  - (ii) There are significant new circumstances or information relevant to environmental concerns and bearing on the proposed action or its impact.**
- (2) May also prepare supplements when the agency determines that the purposes of the Act will be furthered by doing so.*
- (3) Shall adopt procedures for introducing a supplement into its formal administrative record, if such a record exists.*
- (4) Shall prepare, circulate, and file a supplement to a statement in the same fashion (exclusive of scoping) as a draft and final statement unless alternative procedures are approved by the Council.*

All changes to the Moab Field Office Draft RMP/Draft EIS were made in response to public comment and/or internal review. The majority of the changes were editorial changes made to add clarity to the document. In some cases, alternatives presented in the Draft RMP/Draft EIS were modified in the Proposed RMP to reflect technical corrections and data updates. In other cases, such as in Chapter 3, incorporation of updated information was necessary to refine the analysis in Chapter 4 that was incomplete or needed augmentation.

None of the changes detailed in Appendix U meet the regulatory definition for significance in 40 CFR 1508.27(a) and (b). These regulations require an agency preparing a NEPA document to review the changes for significant new circumstances or information relevant to environmental concerns and bearing on the Proposed Plan or its impacts, using context and intensity as the trigger for significance. BLM has reviewed each substantive change through this regulatory standard and has determined that none of the changes, individually or collectively, require a supplement to this Final EIS.

**Table 1. List of Changes Between Draft RMP/EIS and Proposed RMP/Final EIS Moab Field Office Resource Management Plan**

Description of Changes	Location in DRMP/EIS	Approximate Location in PRMP/FEIS
<b>Table of Contents</b>		
Expand Table of Contents to include listed resources in Table 2.1.	p. iv	~p. iv
<b>Executive Summary</b>		
Correct number of segments and number of rivers recommended as suitable in Wild and Scenic Rivers summary in Executive Summary.	ES-5	~ES-5
Correct mileage in Table ES2 (Designated Routes by Alternative).	ES-6	~ES-6
Correct number of segments and number of rivers recommended as suitable in Wild and Scenic Rivers Table ES4.	ES-6	~ES-6
<b>Changes Made Throughout Document</b>		
Change "deer and elk habitat" to deer and/or elk habitat.	Throughout document	Throughout document
Change "trail" to "route" when referring to motorized travel.	Throughout document	Throughout document
Change "critical" wildlife habitat to "crucial" wildlife habitat where habitat is not for Threatened, Endangered, or Candidate species.	Throughout document	Throughout document
Reword bald eagle references, as bald eagle is now delisted. Bald eagles remain Federally protected under the Migratory Bird Treaty Act and the Bald and Golden Eagle Protection Act (based on U.S. Fish and Wildlife comment).	Throughout document	Throughout document
<b>Chapter 1</b>		
Add "water rights" to valid existing rights.	p. 1-13	~p. 1-13
Update title and date of MOU with U.S. Forest Service regarding oil and gas leasing.	p. 1-16	~p. 1-16
Update references to 2007 Vegetation EIS.	p. 1-17	~p. 1-17
Add section in Chapter 1 summarizing changes to document, including information on UDWR wildlife habitats, and why they differ between 1985 and the present.	p. 1-17	~p. 1-18 to 1-21

**Table 1. List of Changes Between Draft RMP/EIS and Proposed RMP/Final EIS Moab  
Field Office Resource Management Plan**

Description of Changes	Location in DRMP/EIS	Approximate Location in PRMP/FEIS
<b>Chapter 2</b> (Changes between the preferred alternative of the DRMP/EIS and the proposed alternative of the PRMP/FEIS)		
<b>Summary of Alternatives:</b> Clarification of types of status for special status species (based on USFWS comment).	p. 2-5	~p. 2-5
<b>Summary of Alternatives:</b> Italicize and asterisk implementation level decisions throughout Chapter 2.	p. 2-6	~p. 2-6
<b>Air Quality:</b> Add five air quality objectives clarifying the BLM's responsibilities, based on coordination of Utah Division of Air Quality.	p. 2-7	~p. 2-7
<b>Cultural Resources:</b> Add decision regarding development of implementation -level cultural management plans within the Labyrinth, Colorado Riverway and South Moab SRMAs.	p. 2-7	~p. 2-8
<b>Cultural Resources:</b> Clarify the definition of a "new route" for the Class III cultural resources inventory requirement.	p. 2-7	~p. 2-7
<b>Cultural Resources:</b> Delete decision concerning placing of sheep camps near eligible cultural sites because the decision is not needed.	p. 2-7	Deleted from p. 2-7
<b>Cultural Resources:</b> Delete decision on cultural resource allocation percentages (scientific, conservation, traditional, public use etc. This deletion is in response to comment from the Hopi Tribe.	p. 2-8	Deleted from p. 2-8
<b>Cultural Resources:</b> Delete decision prioritizing National Register nominations as this decision is unnecessary because all are important.	p. 2-8	Deleted from p. 2-8
<b>Cultural Resources:</b> Delete "scientific" from description of cultural restoration because this term is too restrictive.	p. 2-8	Term deleted from p. 2-8
<b>Lands and Realty:</b> Clarify the decision to merge two utility corridors rather than to eliminate a corridor.	p. 2-11	~p. 2-11
<b>Lands and Realty:</b> Reword decision recognizing working with the State of Utah on Land Tenure Adjustments with wording that more strongly states the priority of SITLA exchanges (based on State of Utah comment).	p. 2-11	~p. 2-11
<b>Lands and Realty:</b> Add decision on providing reasonable access to SITLA lands (Utah v. Andrus). This addition is based on State of Utah comment.	p. 2-11	~p. 2-11
<b>Livestock Grazing:</b> Add Pear Park to the list of allotments not available for livestock grazing in the Proposed Plan (in response to the State of Utah's comment). This allotment has been unavailable for grazing since the time of the 1985 Grand RMP. UDWR wishes to continue its unavailable status to benefit wildlife habitat in the Bookcliffs.	p. 2-12	~p. 2-13

**Table 1. List of Changes Between Draft RMP/EIS and Proposed RMP/Final EIS Moab  
Field Office Resource Management Plan**

Description of Changes	Location in DRMP/EIS	Approximate Location in PRMP/FEIS
<b>Livestock Grazing:</b> Add Ida Gulch to the list of allotments not available for livestock grazing in the Proposed Plan (based on USFWS comment). Over ninety-two percent of this allotment is within Jones cycladenia habitat (a threatened plant).	p. 2-12	~p. 2-13
<b>Livestock Grazing:</b> Clarify the difference between the two grazing allotments named "Spring Creek". These two allotments have been given differing names and described as such.	p. 2-12	~p. 2-13
<b>Livestock Grazing:</b> Delete Day Canyon from the "Grazing in Riparian Areas" list because Day Canyon is currently not grazed. Day Canyon's grazing status remains not grazed under the Proposed Plan.	p. 2-13	Deleted from p. 2-13
<b>Minerals:</b> Add language for implementation for Air Quality control measures from Utah Division of Air Quality (see Appendix V)	p. 2-15	~p. 2-15
<b>Non-WSA Lands with Wilderness Characteristics:</b> Correct minor acreage discrepancies for non-WSA lands with wilderness characteristics in Alternative B.	p. 2-16	~p. 2-16
<b>Recreation:</b> Add decision to manage the newly-federally designated Fisher Towers Trail as a National Recreation Trail.	p. 2-17	~p. 2-17
<b>Recreation:</b> Clarify language regarding types of SRMAs and Focus Area boundaries.	p. 2-18	~p. 2-18
<b>Recreation:</b> Clarify language regarding boating management along the "Daily" section of the Colorado River (Colorado River SRMA). Private use restrictions could be considered if unacceptable resource damage occurs.	p. 2-22	~p. 2-22
<b>Recreation:</b> Change "including guides" to "excluding guides" for determining maximum group size number for permits on the Dolores River (Dolores River Canyons SRMA). This was a typographical error.	p. 2-22	~p. 2-22
<b>Recreation:</b> Clarify authority for potential user fee in the White Wash Sand Dunes Open OHV area (Labyrinth Rims/Gemini Bridges SRMA).	p. 2-25	~p. 2-25
<b>Recreation:</b> Change "including guides" to "excluding guides" for determining maximum group size number for permits on Westwater Canyon (Two Rivers SRMA). This was a typographical error.	p. 2-28	~p. 2-28
<b>Recreation:</b> Clarify definition of "group" for determining group size for Special Recreation Permits.	p. 2-30	~p. 2-30
<b>Riparian:</b> Delete "limit livestock use in Cisco Allotment to 1,149 AUMs" from Riparian section. Forage allocation decisions are made during the permit renewal process.	p. 2-31	Deleted from p. 2-31
<b>Riparian:</b> Correct the inclusion of Bogart and Beaver Creek from streams where livestock grazing would not be authorized in the all action alternatives to be consistent with the Proposed Plan decisions under Livestock Grazing.	p. 2-31	Deleted from p. 2-31

**Table 1. List of Changes Between Draft RMP/EIS and Proposed RMP/Final EIS Moab  
Field Office Resource Management Plan**

Description of Changes	Location in DRMP/EIS	Approximate Location in PRMP/FEIS
<b>Riparian:</b> Under grazing actions within the Proposed Plan, delete Day Canyon from priority list for riparian evaluation because Day Canyon is not currently grazed.	p. 2-31	Deleted from p. 2-31
<b>Soil and Water:</b> Add exception language to the soils decision to allow no new OHV routes in saline soils. New motorcycle routes would be considered in saline soils within the Utah Rims SRMA and the Dee Pass Motorized Focus Area.	p. 2-32	~p. 2-32
<b>Special Designations – Areas of Critical Environmental Concern:</b> Delete decision on voluntary relinquishment of grazing within the Ten Mile Wash ACEC, which is designated in the Proposed Plan. Livestock relinquishment is managed under current policy.	p. 2-37	Deleted from p. 2-37
<b>Special Designations – Wild and Scenic Rivers:</b> Add objectives on Wild and Scenic Rivers regarding working with cooperating agencies for future recommendations to Congress.	p. 2-39	~p. 2-40
<b>Special Designations – Wild and Scenic Rivers:</b> Language added to clarify management of the Salt Wash segment until a suitability determination is made by Arches National Park.	p. 2-40	~p. 2-44
<b>Special Designations – Wild and Scenic Rivers:</b> For each suitable Wild and Scenic River segment, insert oil and gas leasing category, OHV designation, and VRM class for that segment of river to display management easily.	p. 2-40 to 2-42	~p. 2-40 to 2-45
<b>Special Designations – Wild and Scenic Rivers:</b> In the Proposed Plan, change classification of Segment 2 of the Colorado River from “Recreational” to “Scenic” to be consistent with the decision made by the Monticello Field Office for the opposite side of the river.	p. 2-40	~p. 2-41
<b>Special Designations – Wild and Scenic Rivers:</b> In the Proposed Plan, change classification of Segment 1 of the Green River from “Scenic” to “Wild” and change segment 2 of the Green River from “Scenic” to “Recreational” to be consistent with the decision made by the Price Field Office for the opposite side of the river	p. 2-41	~p. 2-42
<b>Special Designations – Wilderness and Wilderness Study Areas:</b> Reword language to clarify the decision to require a plan amendment should Congress release a WSA.	p. 2-43	~p. 2-45
<b>Special Designations – Wilderness and Wilderness Study Areas:</b> Delete 1.4 miles of inventoried route within the Westwater WSA for the Proposed Plan.	p. 2-44	Deleted from p. 2-45
<b>Special Status Species:</b> Add reference to Conservation Measures from the Biological Opinion for the Utah BLM Land use Plan Amendments and Fire Management Plans	p. 2-44	~p. 2-46
<b>Special Status Species:</b> Clarify that mitigation of unavoidable habitat loss for Special Status Species is necessary when required by policy or law.	p. 2-44	~p. 2-46

**Table 1. List of Changes Between Draft RMP/EIS and Proposed RMP/Final EIS Moab  
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Description of Changes	Location in DRMP/EIS	Approximate Location in PRMP/FEIS
<b>Special Status Species:</b> Add and/or clarify management actions to protect the California Condor and Jones <i>Cycladenia</i> .	p. 2- 46	~p. 2-48
<b>Special Status Species:</b> Change lek buffer in the Proposed Plan from 0.5 miles to 2.0 miles for greater sage grouse. Changes in analysis also made in Chapter 4.	p. 2-46	~p. 2-48
<b>Special Status Species:</b> Change lek buffer in the Proposed Plan from 0.6 miles to 2.0 miles for Gunnison sage grouse. Changes in analysis also made in Chapter 4.	p. 2-46	~p. 2-48
<b>Special Status Species:</b> Add that sagebrush habitat reclamation is a recommendation from BLM, not a requirement.	p. 2-46, 2-51	~p. 2-48
<b>Special Status Species:</b> Remove reclamation ratios for Gunnison and Greater Sage-grouse to be in conformance with current policy.. Change avoidance area of leks from 6 miles to 4 miles. Changes in analysis also made in Chapter 4.	p. 2-47	~p. 2-49
<b>Special Status Species:</b> Correct Gunnison prairie dog colony buffer: number should be 660 feet, not 1,300 feet.	p. 2-48	~p. 2-50
<b>Travel Management:</b> In the Travel Management section, add wording stating that 1) designated routes would be available regardless of other management actions, 2) public disclosure regarding new closures and restrictions, and 3) the availability of managed open areas for SRP use.	p. 2-48	~p. 2-50
<b>Travel Management:</b> Add decision to all alternatives citing regulations to be followed in implementation and preparation of travel management plans.	p. 2-48	~p. 2-50
<b>Travel Management:</b> Adjust acreage of open area in the White Wash Sand Dunes (adding approximately 20 acres) to allow for additional dispersed camping in this area. Remove less than 10 acres to provide buffer for private land owner.	p. 2-48	~p. 2-50
<b>Travel Management:</b> Correct miles of motorcycle route in each of the alternatives, including the Proposed Plan. Add Mel's Loop motorcycle route (approximately 20 miles) to the Proposed Plan.	p. 2-48	~p. 2-50
<b>Travel Management:</b> Clarify language regarding adding routes to the mountain bike only route system. Add that NEPA analysis would be done to determine if routes unavailable for motorized travel would be converted to bike routes.	p. 2-49	~p. 2-51
<b>Vegetation:</b> Update reference to Vegetation EIS	p. 2-50	~p. 2-52
<b>Vegetation:</b> Remove ratios for mitigation in accordance with current policy.	p. 2-51	~p. 2-53
<b>Wildlife and Fisheries:</b> Replace decision on off-site mitigation to be consistent with current policy.	p. 2-53	~p. 2-55
<b>Wildlife and Fisheries:</b> Add clarification about accommodation of minor UDWR crucial habitat adjustments through plan maintenance.	p. 2-53	~p. 2-55

**Table 1. List of Changes Between Draft RMP/EIS and Proposed RMP/Final EIS Moab  
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Description of Changes	Location in DRMP/EIS	Approximate Location in PRMP/FEIS
<b>Impacts Summary Table – Cultural Resources:</b> Clarify language that acreage within the SRMA would result in a reduction in long term impacts.	p. 2-60	~p. 2-62
<b>Impacts Summary Table – Minerals Resources:</b> Clarify language to clearly label the types of stipulations being discussed.	p. 2-65	~p. 2-57
<b>Impacts Summary Table – Non-WSA Lands with Wilderness Characteristics:</b> Clarify the values of "wilderness characteristics".	p. 2-67	~p. 2-69
<b>Impacts Summary Table – Socioeconomics:</b> Add and update information on severance and property taxes. Add information on impacts of Lands and Realty. Correct acreage of ACECs excluded from oil and gas development; correct conclusions regarding Alt B (Wild and Scenic Rivers) on socioeconomics. Include travel management decisions and their effect on socioeconomics.	p. 2-79	~p. 2-81
<b>Impacts Summary Table – Special Designations - Areas of Critical Environmental Concern:</b> The potential impacts to all ACECs not included in the Proposed Plan is changed to state that the relevant and important values would largely be protected by other proposed management actions.	p. 2-83	~p. 2-84
<b>Impacts Summary Table – Special Designations - Areas of Critical Environmental Concern:</b> Correct white-tailed prairie dog buffer (660 feet, not 600 feet).	p. 2-84	~p. 2-86
<b>Impacts Summary Table – Special Status Species:</b> Correct reference to another alternative.	p. 2-95, 2-96	~p. 2-99
<b>Alternatives Considered but Eliminated from Analysis:</b> Add "Livestock Grazing Adjustments Alternative" in response to public comment.	p. 2-107	~p. 2-109
<b>Alternatives Considered but Eliminated from Analysis:</b> Add "No Leasing Alternative" in response to public comment.	p. 2-107	~p. 2-109
<b>Chapter 3</b>		
<b>Air Quality:</b> Updated air quality section.	throughout section	throughout section
<b>Air Quality:</b> Add information on global climate change to Chapter 3.	p. 3-2	~p. 3-2
<b>Air Quality:</b> Add and update ozone data from the Island in the Sky District of Canyonlands National Park to Chapter 3.	p. 3-5: Table 3.2	~p. 3-6
<b>Cultural Resources:</b> Add information from the Analysis of Management Situation regarding adverse impacts to cultural resources from a variety of actions.	p. 3-19	~p. 3-20
<b>Lands and Realty:</b> Add information on SITLA lands to Chapter 3.	p. 3-28	~p. 3-30
<b>Lands and Realty:</b> Add "fulfillment of State of Utah selections" to disposal criteria in Chapter 3.	p. 3-29	~p. 3-31

**Table 1. List of Changes Between Draft RMP/EIS and Proposed RMP/Final EIS Moab  
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Description of Changes	Location in DRMP/EIS	Approximate Location in PRMP/FEIS
<b>Non-WSA Lands with Wilderness Characteristics:</b> Add information on road set-backs along boundaries of non-WSA lands with wilderness characteristics. Road set-backs were specified in drawing boundaries of non-WSA lands with wilderness characteristics. Added clarification regarding 5,000-acre guideline.	p. 3-65	~p. 3-69
<b>Paleontological Resources:</b> Add statement that increased access can result in increased theft of paleontological resources.	p. 3-69	~p. 3-73
<b>Recreation:</b> Add source of information regarding recreation user conflicts listed in Chapter 3.	p. 3-86	~p. 3-90
<b>Socioeconomics:</b> Add Utah State University social survey results for Grand County to social and economic description of Grand County in Chapter 3.	p. 3-98	~p. 3-102
<b>Socioeconomics:</b> Add information on Grand County jobs in the recreation job sector to Social and Economic description of Grand County in Chapter 3.	p. 3-105	~p. 3-110
<b>Socioeconomics:</b> Update oil and gas production figures in Chapter 3 to include the years 2000 to 2007. Change name of figure to reflect update. Add reference to source of information.	p. 3-113	~p. 3-118
<b>Soil and Water:</b> Correct factual information on watersheds in Chapter 3.	p. 3-117	~p. 3-122 – p. 127
<b>Soil and Water:</b> Expand Municipal Watershed heading to include “Sole Source Aquifers”.	p. 3-117	~p. 3-122
<b>Soil and Water:</b> Correct listing of water systems by municipality.	p. 3-117	~p. 3-122
<b>Soil and Water:</b> Expand descriptions of types of soils in the planning area.	p. 3-119, 3-120	~p. 3-124
<b>Soil and Water:</b> Expand descriptions of surface water in the planning area.	p. 3-121, 3-122	~p. 3-122
<b>Special Designation – Areas of Critical Environmental Concern:</b> Remove erroneous reference to the presence of the clay reed mustard in the Bookcliffs Potential ACEC.	p. 3-125	Deleted from p. 3-130
<b>Special Designation – Areas of Critical Environmental Concern:</b> Correct sensitive species plant list in Colorado River Potential ACEC.	p. 3-127	~p. 3-132
<b>Special Designation – Areas of Critical Environmental Concern:</b> Reword the paragraph on the relevance of the Cottonwood-Diamond Potential ACEC for clarity of understanding.	p. 3-128	~p. 3-133
<b>Special Status Species –</b> Added information on the California Condor		~p. 3-149 and ~3-151
<b>Wildlife and Fisheries:</b> Update UDWR Wildlife Management Goals and Current Estimates for Mule Deer, Rocky Mountain Elk, Bighorn Sheep, and Pronghorn, using current UDWR data (Tables 3.53, 3.56, 3.57, 3.59 and 3.60).	p. 3-170, 3-171, 3-172, 3-175, 3- 176	~p. 3-175, 3- 176, 3-177, 3-180, 3-181

**Table 1. List of Changes Between Draft RMP/EIS and Proposed RMP/Final EIS Moab  
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Description of Changes	Location in DRMP/EIS	Approximate Location in PRMP/FEIS
<b>Chapter 4</b>		
<b>Throughout Chapter 4:</b> Add miles of route designated or not designated for motorized travel due to identified resource conflicts, by alternative, and by resource.	Cultural: 4-37, 4-41, 4-46, Table 4.14 Recreation: 4-234, 4-235, 4- 236 Riparian: 4-245, 4-246 Soils: 4-294, 4-295 Wildlife: 4-472, 4-473	Cultural: ~p.4-37, 4- 41. 4-46 Table 4.14 Recreation: ~4-235, 4- 236, 4-237 Riparian: ~4-247, 4- 248 Soils: ~4-299, 4- 300 Wildlife: ~4-478, 4- 479
<b>Throughout Chapter 4:</b> Change wording to reflect that limited new OHV routes would be allowed on saline soils rather than no routes.	p. 4-139, 4-298, 4-421	~p. 4-139, 4- 303, 4-426
<b>Assumptions and Methodology for Minerals Development Impacts:</b> Change analytical assumption in Chapter 4 to state that non-BLM lands could be indirectly or cumulatively impacted by BLM decisions.	p. 4-3	~p. 4-3
<b>Assumptions and Methodology for Minerals Development Impacts:</b> Move text explaining Table 4.2 to correct location (following Table 4.2 rather than following Table 4.3).	p. 4-5, 4-7	~p. 4-5, 4-6
<b>Air Quality:</b> Updated air quality analysis	throughout section	throughout section
<b>Air Quality:</b> Add impacts to global warming.	p. 4-10	~p. 4-10
<b>Cultural Resources:</b> Add statement that Sec. 106 cultural consultation will be completed prior to ROD signature, in that BLM forwarded a "No Adverse Effects" determination to SHPO.	p. 4-29	~p. 4-29
<b>Cultural Resources:</b> Clarify development of cultural analysis model by professional BLM Archaeologist.	p. 4-30	~p. 4-30
<b>Cultural Resources:</b> Delete reference to a Lands and Realty impact from the Cultural section; utility corridors are being merged, not eliminated.	p. 4-34	Deleted from p. 4-34
<b>Lands and Realty:</b> Clarify that access to State Lands is an exception for reasonable access on lands otherwise excluded from new rights of way.	p. 4-64	~p. 4-64
<b>Lands and Realty:</b> Clarify wording regarding the merging of two utility corridors, rather than the elimination of the corridor currently in the No Action Alternative.	p. 4-65	~p. 4-65

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Description of Changes	Location in DRMP/EIS	Approximate Location in PRMP/FEIS
<b>Livestock Grazing:</b> Correct AUMs and acreage not available for grazing under the Proposed Plan (with addition of Ida Gulch and Pear Park).	p. 4-77	~p. 4-77
<b>Minerals:</b> Clarify wording in impacts of non-WSA Lands with Wilderness Characteristics on Minerals to state that there would be no additional closures of BLM lands to salable and leasable minerals in Alternative A (No Action).	p. 4-93	~p. 4-93
<b>Non-WSA Lands with Wilderness Characteristics:</b> Change “non-motorized” to “non-mechanized” for vehicular use in the Bookcliffs SRMA.	p. 4-135	~p. 4-135
<b>Non-WSA Lands with Wilderness Characteristics:</b> Delete phrase “pending future suitability studies” to clarify sentence regarding the impacts of Wild and Scenic Rivers on non-WSA lands with wilderness characteristics under Alternative A.	p. 4-140	Deleted from p. 4-140
<b>Non-WSA Lands with Wilderness Characteristics:</b> Correct reference to another alternative (change C to B).	p. 4-143	~p. 4-143
<b>Non-WSA Lands with Wilderness Characteristics:</b> Correct acreage of area that is limited to designated routes in the Lost Spring Canyon WC Area.	p. 4-147: Table 4.54	~p.4-147: Table 4.54
<b>Non-WSA Lands with Wilderness Characteristics:</b> Change “existing” to “designated” in discussion of OHV use in non-WSA lands with wilderness characteristics. Clarified and augmented analysis on non-WSA lands with wilderness characteristics.	p. 4-149 to 4-151	~p. 4-149 to 4-151
<b>Non-WSA Lands with Wilderness Characteristics:</b> Make corrections in VRM acreage in Alternative B in non-WSA lands with wilderness characteristics.	p. 4-164: Table 4.58	~p. 4-164: Table 4.58
<b>Recreation:</b> Adjust acreage not available for grazing under impacts of livestock grazing on recreation	p. 4-199	~p. 4-199
<b>Recreation:</b> Correct Cameo Cliffs SRMA acres under Alternative A.	p. 4-204: Table 4.69	~p. 4-204: Table 4.69
<b>Recreation:</b> Clarify daily launch limit in Westwater Canyon (within the Two Rivers SRMA).	p. 4-207: Table 4.69	~p. 4-207: Table 4.69
<b>Recreation:</b> Add impacts of soil and riparian decisions on motorized users.	p. 4-229	~p. 4-230
<b>Riparian:</b> Correct percentages of riparian lands unavailable for grazing and subsequent interpretive text.	p. 4-242, 4-243	~p. 4-243, 4-244
<b>Riparian:</b> Correct riparian calculations in acres of riparian area by OHV designation. Also correct subsequent text.	p. 4-242, 4-254	~p. 4-243, 4-244
<b>Riparian/Soils/Vegetation/Wildlife:</b> Add text referencing Appendix G for additional research on the impacts of OHV use on a variety of resources.	p. 4-244, 4-267, 4-292, 4-428, 4- 471	~p. 4-245, 4- 270, 4-298, 4-4-433, 4- 477

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Description of Changes	Location in DRMP/EIS	Approximate Location in PRMP/FEIS
<b>Socioeconomics:</b> Add impacts of exclusion areas in Alternative B and the Proposed Plan to socioeconomics.	p. 4-259	~p.4-261
<b>Socioeconomics:</b> Correct information about copper mine in Lisbon Valley.	p. 4-261	~p. 4-263
<b>Socioeconomics:</b> Add severance tax impacts and fiscal impacts to SITLA lands from BLM decisions restricting mineral development, by alternative. Add footnote to table defining “open” to oil and gas development.	p. 4-262	~p. 4-264 to 4-267
<b>Socioeconomics:</b> Add social impacts of restrictions on dispersed camping. Add “Travel Management” to Recreation in list of resources affecting socioeconomics.	p. 4-267	~p. 4-270
<b>Soil and Water:</b> Change “open” to “available” and “closed” to “unavailable” in Table 4.80 explaining the impacts of livestock grazing to soils.	p. 4-283	~p. 4-287
<b>Special Designations – Areas of Critical Environmental Concern:</b> Clarify that prairie-dog habitat is important for other sensitive species	p. 4-314	~p. 4-319
<b>Special Designations – Areas of Critical Environmental Concern:</b> Clarify that oil and gas development includes ancillary facilities such as roads and pipelines.	p. 4-315	~p. 4-319
<b>Special Designations – Areas of Critical Environmental Concern:</b> Correct the buffer for white tailed prairie dog colonies: change 600 ft. to 660 ft.	p. 4-316	~p. 4-320
<b>Special Designations – Wilderness and Wilderness Study Areas:</b> Correct listing of WSA acreages in Table 4.103.	p. 4-350	~p. 4-356
<b>Special Designations – Wilderness and Wilderness Study Areas:</b> Delete 1.4 miles of designated route in Westwater Canyon WSA in Table 4.105 for the Proposed Plan.	p. 4-351	~p. 4-356
<b>Special Status Species:</b> Add scientific names to special status plant species in Table 4.106, as requested by the USFWS.	p. 4-355	~p. 4-360
<b>Special Status Species:</b> Add information regarding impacts from utilities and communication infrastructure to special status species.	p. 4-365	~p. 4-370
<b>Special Status Species:</b> Add that allotments unavailable for grazing provide a positive impact to special status species.	p. 4-367	~p. 4-372
<b>Special Status Species:</b> Correct acreage excluded from grazing on Special Status Species habitat types.	p. 4-367	~p. 4-367
<b>Special Status Species:</b> Add more detail on additional impacts from mineral exploration activities to special status species.	p. 4-370 to 4-372	~p. 4-375 to 4-378
<b>Special Status Species:</b> Correct information on Mexican Spotted Owl habitat types.	p. 4-375	~p. 4-380

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Description of Changes	Location in DRMP/EIS	Approximate Location in PRMP/FEIS
<b>Special Status Species:</b> Added information on the California Condor.		~p. 4-365, ~4-361, and ~4.636
<b>Special Status Species:</b> Correct acreages and name of special species plant in Table 4.116.	p. 4-376	~p. 4-381
<b>Special Status Species:</b> Based on consultation with the USFWS, add impacts to SSS from Cultural Resources and Paleontological Resources. Also, add more detail regarding the impacts to SSS from all management actions in the Proposed Plan.	Throughout Chapter 4	Throughout Chapter 4
<b>Travel Management:</b> Correct footnote notations on Table 4.126.	p. 4-409	~p. 4-414
<b>Travel Management:</b> Add impacts to motorized users from bicycle only restriction in Bartlett slickrock bicycle Focus Area.	p. 4-409	~p. 4-415
<b>Travel Management:</b> Correct motorcycle route inventory mileage in Alternative A.	p. 4-410	~p. 4-415
<b>Vegetation:</b> Correction to acreages unavailable for grazing in Proposed Plan.	p. 4-423	~p. 4-423
<b>Wildlife and Fisheries:</b> Add wildlife associations to habitat types in Tables 4.138 and 4.139.	p. 4-442, 4-447	~p. 4-447 to 4-448; ~p. 4-452
<b>Wildlife and Fisheries:</b> Correct allotments unavailable for grazing in Proposed Plan and their impacts on wildlife.	Throughout section	Throughout section
<b>Irreversible and Irretrievable Impacts:</b> Clarify and augment irreversible and irretrievable impacts, by resource. List those resources with no irreversible and irretrievable impacts.	p. 4-496	~p. 4-500
<b>Cumulative Impacts:</b> Add reasonably foreseeable non-BLM and BLM actions to those decisions affecting cumulative impact analysis.	p. 4-500	~p. 4-506
<b>Cumulative Impacts:</b> Clarify and augment cumulative impacts; add the incremental contribution of the alternatives to the overall cumulative impacts.	p. 4-500 to end of section	~p. 4-506 to end of section
<b>References</b>		
<b>Add new references on air quality and add reference to Programmatic EIS for Vegetation Treatments.</b>	Throughout	Throughout
<b>Add the following references:</b> U.S. Geological Survey (USGS), 2007. Environmental Effects of Off-Highway Vehicles on Bureau of Land Management Lands: A Literature Synthesis, Annotated Bibliographies, Extensive Bibliographies and Internet Resources. University of Utah, 2008. The Structure and Economic Impact of Utah's Oil and Gas Exploration Industry Phase III – Grand County. Bureau of Economic and Business Research.	p. X-20	~p. X-20

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Description of Changes	Location in DRMP/EIS	Approximate Location in PRMP/FEIS
<b>Add the following reference:</b> UDOGM. 2008. Data Research Center [online database]. Utah Division of Oil Gas and Mining. Available at <a href="http://oilgas.ogm.utah.gov/Data_Center/DataCenter.cfm#production">http://oilgas.ogm.utah.gov/Data_Center/DataCenter.cfm#production</a>	p. X-20	~p. X-20
UDWR, 2007. Aerial Survey Counts (Pronghorn). Utah Division of Wildlife Resources. Salt Lake City. UDWR, 2007. Utah Bighorn Sheep State-wide Management Plan. Utah Division of Wildlife Resources. Salt Lake City. UDWR, 2008. 2008 Antlerless Deer Permit Summary and Recommendations. Utah Division of Wildlife Resources. Salt Lake City. UDWR, 2008. 2008 Antlerless Elk Permit Summary and Recommendations. Utah Division of Wildlife Resources. Salt Lake City.	p. X-21	~p. X-20
<b>Appendices</b>		
<b>Appendix A – Land Tenure Adjustment and Withdrawal Criteria:</b> Simplify Disposal Criteria #9 by deleting reference to a specific acreage limitation (based on State of Utah comment).	p. A-1	~p. A-1
<b>Appendix C – Stipulations and Environmental Best Practices Application to Oil and Gas Leasing and Other Surface Disturbing Activities:</b> Add “and Federally Protected” to title of section dealing with Special Status Species in (based on USFWS comment).	p. C-31	~p. C-31
<b>Appendix C – Stipulations and Environmental Best Practices Application to Oil and Gas Leasing and Other Surface Disturbing Activities:</b> Replace “Special Status Species” with “Federally Protected Species” (based on USFWS comment).	p. C-33, C-35	~p. C-33, C-35
<b>Appendix C – Stipulations and Environmental Best Practices Application to Oil and Gas Leasing and Other Surface Disturbing Activities:</b> Add standard terms and conditions to protect the California Condor and Jones <i>Cycladenia</i> in Table C.4.		~p. C-34
<b>Appendix D – Lands Identified for Disposal in Revised Moab RMP:</b> Delete Parcel R-11 as land identified for disposal at the request of UDWR and The Nature Conservancy.	p. D-3	Deleted from p. D-3
<b>Appendix G – Travel Plan Development:</b> Correct information in Table 4 on motorcycle route mileage in Alternatives C and D.	p. G-5	~p. G-3
<b>Appendix G – Travel Plan Development:</b> Add discussion of relevant research on impacts of OHV use on BLM lands based on recent U.S. Geological Survey publication that summarizes the environmental effect of OHVs on BLM lands.	p. G-24	~p.G-21 to G-23
<b>Appendix G – Travel Plan Development:</b> Add Table 10 summarizing designated or not designated route mileage due to resource conflicts identified.	p. G-26	~p. G-25 to G-26

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Description of Changes	Location in DRMP/EIS	Approximate Location in PRMP/FEIS
<b>Appendix G – Travel Plan Development:</b> Add road definitions from State of Utah Highway Code which defines A, B and D roads.	p. G-32	~p. G-33
<b>Relevance and Importance Evaluations of Area of Critical Environmental Concern (ACEC) Nominations:</b> Correct number of ACEC nominations (37 nominations vs. 35).	p. I-1, I-6, I-22	~p. I-1, I-6, I-22
<b>Appendix I – Relevance and Importance Evaluations of Area of Critical Environmental Concern (ACEC) Nominations:</b> Delete the phrase “Two threatened plants do not occur in the area” in the Bookcliffs Potential ACEC.	p. I-8	Deleted from p. I-8
<b>Appendix I – Relevance and Importance Evaluations of Area of Critical Environmental Concern (ACEC) Nominations:</b> Add the “Highway 313” ACEC nomination received during the public comment period, including description, size, relevance criteria, importance criteria, and finding.	p. I-14	~p. I-15
<b>Appendix I – Relevance and Importance Evaluations of Area of Critical Environmental Concern (ACEC) Nominations:</b> Add the “Upper Labyrinth” ACEC nomination received during the public comment period, including description, size, relevance criteria, importance criteria, and finding.	p. I-18	~p. I-19
<b>Appendix I – Relevance and Importance Evaluations of Area of Critical Environmental Concern (ACEC) Nominations:</b> Add the Highway 313 and Upper Labyrinth ACEC nominations to the list at the end of Appendix I.	p. I-23	~p. I-25 to I-26
<b>Appendix I – Relevance and Importance Evaluations of Area of Critical Environmental Concern (ACEC) Nominations:</b> Add “List of Threats to Potential ACECs”.	p. I-24	~p. I-26 to I-27
<b>Appendix I – Relevance and Importance Evaluations of Area of Critical Environmental Concern (ACEC) Nominations:</b> Add “Rationale for Designating or Not Designating Potential ACECs”.	p. I-24	~p. I-28 to I-30
<b>Appendix J – Wild and Scenic Rivers Study Process:</b> Insert sections on suitability of the Green River for Wild and Scenic River status from the Price FO analysis.	p. J-81	~p. J-83 to J-87
<b>Appendix K – Conservation Measures for T&amp; E Species:</b> Replace Appendix K with updated Conservation Measures from the U.S. Fish and Wildlife Service. Added conservation measures from Utah Fire Management Plan.	Appendix K	Appendix K
<b>Appendix T – Utah State University Study Results:</b> Add new Appendix (T), summarizing results of Utah State University social survey of Grand County.	Appendix T	Appendix T
<b>Appendix V – State of Utah Air Quality Mitigation Measures:</b> Add new appendix	Appendix V	Appendix V

**Table 1. List of Changes Between Draft RMP/EIS and Proposed RMP/Final EIS Moab  
Field Office Resource Management Plan**

Description of Changes	Location in DRMP/EIS	Approximate Location in PRMP/FEIS
<b>Glossary</b>		
Add AML (Abandoned Mine Lands) to the List of Acronyms.	List of Acronyms	List of Acronyms
Add definition for “route”	X-39	~p. X-39
Add definition for “wilderness characteristics” to Glossary.	X-41	~p. X-42
Add definition for “undertaking” to Glossary.	X-42	~p. X-41
<b>Maps</b>		
<b>Map 2-3 – Lands Identified for Disposal:</b> Remove parcel R-11.	Map 2-3	Map 2-3
<b>Map 2-4 – Grazing Allotments in the Moab Field Office:</b> Correct confusion concerning two allotments named “Spring Creek”.	Map 2-4	Map 2-4
<b>Map 2-4-C – Areas Not Available for Livestock Grazing - Alternative C (Proposed):</b> Add Pear Park and Ida Gulch to map of allotments not available for livestock grazing in Alternative C.	Map 2-4-C	Map 2-4-C
<b>Maps 2-5 – Oil and Gas Leasing Stipulations:</b> Remove area in Arches National Park as erroneously shown as available for leasing.	Maps 2-5-B, C and D	Maps 2-5-B, C and D
<b>Map 2-9-C – Recreation Focus Areas - Alternative C (Proposed):</b> Adjust acreage of White Wash Sand Dunes Open OHV Area on map of Recreation Focus Areas.	Map 2-9-C	Map 2-9-C
<b>Map 2-10-C – Off Highway Vehicle Categories - Alternative C:</b> Adjust acreage of area open to cross country OHV on map of OHV designations.	Map 2-10-C	Map 2-10-C
<b>Map 2-11-A – Inventoried Routes - Alternative A (No Action):</b> Add map for Alternative A showing inventoried routes.	Map 2-11-A	Map 2-11-A
<b>Maps 2-11 – Designated Routes:</b> Remove all roads in Arches National Park; add two routes on Colorado border to the maps of designated routes, by alternative.	Maps 2-11-B, C and D	Maps 2-11-B, C and D
<b>Maps 2-11-E – Designated Motorcycle Routes:</b> 1) add Alternatives A and B maps for motorcycle routes; 2) add Slickrock Trail to Alternative C; 3) distinguish which motorcycle routes are also available for ATV’s in Alternative C; 4) add Thompson-Colorado BLM Alternative C route to Alt C map; 5) add Mel’s Loop to the proposed alternative (Alternative C).	Map 2-11E-A, B, and C	Map 2-11E-A, B, and C
<b>Maps 2-24-B – Areas with Wilderness Characteristics:</b> Add names to non-WSA lands with wilderness characteristics; adjust acreage in Alternative B, clarify title of map.	Map 2-24-B	Map 2-24-B
<b>Maps 2-24-C – Areas with Wilderness Characteristics:</b> Add names of non-WSA lands with wilderness characteristics, clarify title of map.	Map 2-24-C	Map 2-24-C
<b>Maps 2-27 – Deer and/or Elk Habitat:</b> Change names of maps and legend from “Deer and Elk Habitat” to “Deer and/or Elk Habitat”.	Map 2-27 A, B, and C/D	Map 2-27 A, B, and C/D

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State of Utah

JON M. HUNTSMAN, JR.  
Governor

GARY R. HERBERT  
Lieutenant Governor

June 6, 2008

Selma Sierra  
State Director  
BLM Utah State Office  
P.O. Box 45155  
Salt Lake City, Utah 84145-0155

Dear Director Sierra:

This letter addresses air quality mitigation strategies for the six proposed Resource Management Plans being updated within the State of Utah. The state appreciates BLM's interest in this important issue.

It is the policy of the State of Utah to protect public health and the environment from the harmful effects of air pollution, to ensure that the air in Utah meets standards established under federal and state law, and to maintain an environment that is conducive to continued economic vitality and growth.

The Department of Interior monitors ozone at National Parks in the intermountain west, including: Mesa Verde National Park in Colorado, Grand Canyon National Park in Arizona, Great Basin National Park in Nevada, and Canyonlands National Park in Utah. These sites reflect conditions in areas that have not been subject to intensive development and are therefore generally indicative of background conditions. Monitoring data at these locations demonstrates a gradual upward trend in ozone levels, raising questions about ozone levels region-wide. The state believes additional information is needed regarding current conditions and the potential impacts from increasing development activity, including oil and gas activity. This information should inform future BLM decision making, but managers should not defer management actions in anticipation of better information.

Fortunately, ozone related impacts can be reduced if certain mitigation measures are required on new oil and gas related emission sources. In fact, several neighboring states currently encourage application of just such measures. BLM should include interim nitrogen oxide control measures provided by the state as a required condition of lease approval. These control measures are consistent with control measures suggested by neighboring states and jurisdictions. The state recognizes that performance standards will continue to evolve and supports technological flexibility, provided control measures are at least as effective as those in place elsewhere within the region at the time of site-specific authorization. Performance standards representing the current regional standard can be found in the *Four Corners Air*

*Quality Task Force Report of Mitigation Options, DRAFT: Version 7, June 22, 2007. These standards are 2 g/bhp-hr for engines less than 300 HP and 1 g/bhp-hr for engines over 300 HP.*

The State of Utah will continue to work with the BLM and others through efforts such as the Four Corners Task Force to address these issues. The state appreciates your cooperation in working to protect air quality related values. If you have any questions about our position, please contact me at (801) 537-9802.

Sincerely,

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Cheryl Heying  
Director  
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