3.0 Affected Environment and Environmental Consequences

3.0 AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

3.1 Introduction

Chapter 3 is organized by resource area. Resource areas include the following: water quality; soils; vegetation; wildlife; threatened and endangered species; aquatic biology; recreation; land use; public facilities, utilities, and services; environmental justice; cultural resources; sacred sites; Indian Trust Assets (ITAs); and transportation and access. Climate, air quality, geology, topography, water resources and hydrology, socioeconomics, and visual resources are not discussed because no impacts were identified. Two topics are covered for each of the resource areas discussed: the affected environment and the environmental consequences.

The **affected environment** is addressed first and describes the current conditions for each resource within the Ririe Reservoir RMP study area. This is not a comprehensive discussion of every resource within the RMP study area, but focuses on those aspects that would be affected by the alternatives.

The effects of the alternatives are described next in the **environmental consequences** section for each of these resources. Impacts are discussed relative to actions within five broad assessment categories as described in Chapter 2:

- Native vegetation protection and enhancement
- Erosion control
- Native fish and wildlife protection and enhancement
- Improved or restricted access including shoreline access and seasonal site or road closures
- Improved or new facilities or construction including recreation sites, parking, camping, non-motorized trails, piers and moorage, day use and visitor structures, and miscellaneous items such as realty actions

The types of impacts expected to result from implementation of any actions within the five assessment categories are discussed so that the nature of the impacts are known. Then, under the alternatives subheadings, the specific impacts for each alternative are discussed in terms of the actions that would occur and specific information about the impact. Only impacts that cannot be fully avoided through the application of BMPs are described. BMPs, which are considered to be an integral part of the alternatives, are described in Chapter 5.

The depth of analysis corresponds to the scope and magnitude of the potential environmental impact. This chapter compares the effects of the three alternatives described in Chapter 2:

- Alternative A—No Action Alternative: Continuation of Existing Management Practices
- Alternative B—Preferred Alternative: Recreation Development Compatible with Increased Natural Resource Protection Emphasis
- Alternative C: Recreation Development/Maintain Natural Resource Emphasis

Alternatives B and C are the action alternatives. Alternative A, the No Action Alternative, describes the most likely actions to occur in the future if the RMP were not implemented. Environmental consequences are discussed for each of the alternatives with impacts of the action alternatives compared to those of the No Action Alternative. Mitigation measures and residual impacts remaining after implementation of mitigation measures are described for Alternative B only. Mitigation measures are actions to reduce identified impacts. No other projects or actions that would cause cumulative impacts on the RMP study area were identified. Therefore, cumulative impacts are not discussed. A brief comparison of impacts of the alternatives by resource area is provided in Table 3.1-1.

Several recreation improvements are listed for each of the alternatives. Such improvements include trails, boat launching facilities, interpretive signage, and parking facilities. Building these facilities depends on developing cost-share agreements with managing partners. Therefore, the level of development described for each alternative would be allowed to occur, but may not actually occur. For the purpose of the alternatives impact analysis, it is assumed that all of the facilities would be built. At a minimum, the existing facilities would be upgraded to current Federal accessibility standards whenever possible. Actions within the alternatives that are not related to recreation, such as noxious weed control, do not require managing partners and non-Federal cost share and would be implemented by Reclamation as described.

Table 3.1-1. Impacts of Alternatives Comparison Summary

Resource Area	Alternative A—No Action	Alternative B—Preferred	Alternative C
Water Quality and Contaminants	Sediment reduction is expected to occur through the TMDL process. Not expanding recreation sites to meet needs may result in water quality degradation from overuse of riparian areas and lack of sanitation facilities.	Greater sediment reduction may occur through TMDL process than for Alternative A. Minor adverse water quality and contaminant impacts would occur: • Increased potential of bacteria from swimming areas • Greater numbers of watercraft on the reservoir resulting in increased unburned fuel Water quality and contaminant impacts described above should be minimized by implementing BMPs.	Fewer measures to enhance water quality are included, and recreation is expanded Water quality may not be as favorable as under Alternative B, but would be improved over Alternative A.
Soils	Current soil loss levels from erosion would continue or accelerate as human use increases.	Streamside soil loss would be reduced through increased native vegetation, closing of ad hoc trails, and Reclamation's lead involvement in the TMDL process. Erosion from new non-motorized trails near Ririe Reservoir could be substantial until vegetation is established on disturbed lands.	Soil erosion would be reduced somewhat as compared to the No Action Alternative, but erosion may be greater than Alternative B because of fewer vegetation enhancement and protection measures. Erosion from non-motorized trails would be the same as Alternative B.
Vegetation	Native vegetation communities may decline, because no additional measures would be adopted for protection and enhancement or control of noxious weeds. Some incidental loss would occur as a result of shoreline erosion and ad hoc parking and trails.	Vegetation would be enhanced through noxious weed control and protection and enhancement of riparian communities for their habitat values. About 34 to 37 acres of native vegetation, including 2 acres of herbaceous riparian vegetation, would be impacted by expanding recreation sites and non-motorized trails.	No aggressive measures to control noxious weeds would be implemented. An additional 20.4 acres of native vegetation may be impacted by recreation improvements than the impact of Alternative B.

Table 3.1-1. Impacts of Alternatives Comparison Summary

Resource Area	Alternative A—No Action	Alternative B—Preferred	Alternative C
Wildlife	If native vegetation communities and noxious weed control are not addressed, wildlife habitat values may decline. Existing recreation facilities would not be upgraded to meet increasing demand and new recreation sites and trails would not be constructed. At some point, capacity would be exceeded and the rate of growth in recreation use of the recreation sites and the reservoir would probably be reduced, thereby limiting future indirect impacts on wildlife. It is not known if these limits would be reached during the 10-year time frame of this RMP.	Increased human use of the reservoir and recreation sites would result in an increase in wildlife disturbance compared to the No Action Alternative. Native vegetation communities would be enhanced and noxious weed control increased which would improve wildlife habitat values. Subject to approval from Bonneville County, the Pipe Creek Road would be closed during the winter. This action would substantially increase the area of Tex Creek that is available for use by elk compared to the No Action Alternative. If the County does not agree to close the road, current impacts on elk would continue.	Habitat loss would occur where recreation sites are expanded because of habitat loss and higher levels of use compared to Alternative B. Allowing the development of a power line to Blacktail could impact wildlife habitat because of the development on private land that a power line would facilitate. The Pipe Creek Road would not be closed in winter and impacts on elk would continue.
Threatened and Endangered Species	The effects of current boating activities on the nesting bald eagles are not known. Future use of the reservoir is expected to increase. No access restrictions or monitoring of potential effects are included in Alternative A. Therefore, implementation of Alternative A may impact the nesting pair of bald eagles by reducing productivity or causing nest abandonment but would not affect the continued survival of the bald eagle.	Surveys would be conducted for Ute ladies' tresses independent of any future developments. Impacts on Ute ladies'-tresses would be avoided through changes in facility plans. The conclusion of the biological assessment contained in this document states that there will be no effect on threatened and endangered species from the implementation of Alternative B. A 3 year monitoring program is being conducted to determine if the continuation of existing recreation may affect the production of the Willow Creek eagle nest. If the study finds that there is an adverse affect on the nest area usage or production then Reclamation will initiate consultations with the FWS.	Same as Alternative B.

Table 3.1-1. Impacts of Alternatives Comparison Summary

Resource Area	Alternative A—No Action	Alternative B—Preferred	Alternative C
Aquatic Biology	No changes in operation or facilities are proposed that would impact or benefit the fishery resource of the study area compared to existing conditions.	Erosion control measures and native vegetation protection and enhancement in riparian areas would benefit stream and reservoir fisheries. New roads and non-motorized trails constructed in compliance with BMP guidelines, and closure of existing ad hoc trails and parking, may reduce sediment input and improve fisheries over the long term.	Fisheries resource benefits would be the same as described for Alternative B.
Recreation	Overall visitor satisfaction would likely be low as overcrowded conditions persist. Reclamation would continue work to upgrade facilities to be accessible.	Expansion and development of new facilities would increase the opportunities available to visitors without exceeding the recreation carrying capacity of the area. Closing the Pipe Creek Road in Tex Creek during the winter would have an adverse impact on snowmobiling opportunities along the road. However, many opportunities exist on adjacent USFS lands and snow conditions on Tex Creek are often not adequate for snowmobiling.	The actual developed acreage of some recreation areas would be expanded as compared to Alternative B. A new fishing pier, concession facility, and winter access for ice fishing would be allowed at Juniper Park. Visitors would also have recreational use of the Ririe Outlet Channel (no grazing), and additional day use facilities on the east side of Willow Creek below the dam.
Land Use	No direct or indirect land use impacts are expected to result from this alternative.	Minor positive impacts could indirectly result from quality of life enhancements and directly from erosion control measures.	Recreation development would be maximized, and providing electricity in Blacktail could result in indirect adverse land use impacts.

Table 3.1-1. Impacts of Alternatives Comparison Summary

Resource Area	Alternative A—No Action	Alternative B—Preferred	Alternative C
Public Facilities, Utilities, and Services	Without facility expansion and access improvements, overcrowding could result in user conflicts and accidents that could become a law enforcement issue.	Moderate impacts on utilities and public facilities and services would likely result from recreation improvements. These new and expanded accommodations would result in a proportionate increased demands on water supplies, wastewater treatment, and electricity. The increased visitation facilitated by these improvements would generate a proportional increase in solid waste production and contribute to the need for more police and fire services.	Impacts are generally the same as described for Alternative B. Converting the Visitor's Center into a small store could increase consumption of electricity and water, and increase wastewater production. These concessionaire opportunities would also have a minor positive socioeconomic benefit by expanding employment; however, jobs and income generated are expected to be relatively minor.
Environmental Justice	All three alternatives fully comply with Executive Order 12898 thus no adverse impacts to minority or low income populations would result from any alternative.	Alternative B would likely result in beneficial impacts to these populations through enhancement of low-cost recreation opportunities and improved access.	The beneficial impacts would be the same as described for Alternative B.
Cultural Resources	Identification, protection, and management of cultural resources would continue to occur on a project-specific, ad hoc basis, in a reactive instead of proactive mode.	Construction activities may directly impact significant sites by disturbing artifact deposits, and post-construction impacts would result from more intensive public use and improved public access. Public education would acquaint visitors with the importance of cultural resources and the need to protect them, potentially reducing site looting, illicit digging, and vandalism (the opposite effect could occur by calling attention to such sites). Erosion control measures would have positive effects on cultural resources by arresting or halting potential physical deterioration of such resources.	The impacts would be the same or greater as those described for Alternative B because a larger area would be developed for recreation use.

Table 3.1-1. Impacts of Alternatives Comparison Summary

Resource Area	Alternative A—No Action	Alternative B—Preferred	Alternative C
Sacred Sites	The integrity of sacred sites located near Reclamation facilities could be compromised by actual physical disturbances as well as visual or auditory intrusions resulting in changes in character, feeling, and association of the site. In such cases, their "sacredness" and esteem would be diminished.	Agencies are directed to avoid adverse impacts whenever possible. Reclamation would consult with Tribes to seek means to avoid adverse impacts	Impacts are similar to those described for Alternative B.
Indian Trust Assets	The Tribes right to hunt and fish are not impacted.	Same as alternative A.	Same as alternative A.
Transportation and Access	The existing transportation and access system would stay the same in all areas.	Improvements to site parking and access are generally beneficial. However, improvements and additions to facilities draw more users. Individually the impact of these improvements may not be substantial, but cumulatively, they can adversely impact both the physical condition and the operational ability of the roads and facilities they serve.	Impacts or similar to those described for Alternative B.

3.2 Water Quality

3.2.1 Affected Environment

The erosion potential of the fine soils in the Ririe Reservoir watershed is high; as a result, sediment is the primary pollutant of concern in the reservoir and throughout much of the Willow Creek drainage. Upstream of Ririe Dam, turbidity is high during the late winter and spring runoff and generally remains so until midsummer (IDFG 1996).

Ririe Reservoir and many of the creeks within the boundaries of Tex Creek have been determined to be water quality limited because of high sediment loads. This means that they do not support their designated beneficial uses or exceed water quality standards (Idaho Department of Environmental Quality [IDEQ 1998]). As a result, these water bodies have been listed in the Draft 1998 303(d) List (IDEQ 1998 submitted to EPA January 7, 1999), and are required to have a Total Maximum Daily Load (TMDL) submitted to EPA in 2002. Table 3.2-l lists the water bodies in the vicinity of Ririe Reservoir that are included in the Draft 1998 303(d) List.

Table 3.2-1. Draft 1998 303(d) Listed Water Body Segments in the Vicinity of Ririe Reservoir

Water Body	Boundary	Miles of Listed Stream
Willow Creek	Ririe Dam to the Hydrologic Unit Code (HUC) boundary	5.38
Ririe Reservoir	N/A	N/A
Willow Creek	Grays Lake Outlet to Ririe Reservoir	16.79
Willow Creek	Headwaters to Sellars Creek	19.09
Meadow Creek	Headwaters to Ririe Reservoir	10.58
Tex Creek	Headwaters to Indian Fork	8.34

Source: IDEQ 1998

According to Idaho Department of Health and Welfare rules, these waters "are to be protected for beneficial uses, which includes all recreational use in and on the water and the protection and propagation of fish, shellfish, and wildlife, wherever attainable." In August 1997, as part of the IDEQ Beneficial Use Reconnaissance Project, Ririe Reservoir water quality was measured at two stations. One station was located at the mouth of Willow Creek and the other in the Ririe Reservoir forebay (the pool just above the dam). Data from that particular sampling effort indicated intermediate nutrient availability and biological productivity (borderline mesotrophic/meso-eutrophic) and a stratified reservoir consistent with the trophic status determination reported in the Classification of Idaho's Freshwater Lakes (Milligan et al. 1983). Shallow chlorophyll a and total phosphorus concentrations measured during this particular event were higher in the Willow Creek mouth than in the forebay. A fecal coliform sample collected in the

forebay resulted in less than 10 colonies per 100 mL. This level is considered low and is far below the Idaho water quality criteria for primary and secondary contact recreation.

Cartier Slough gets its water from surface and groundwater flows associated with the Henrys Fork of the Snake River. No specific water quality data are available for Cartier Slough; however, the water would be expected to be of similar quality as that in the Henrys Fork. The Henrys Fork in this reach is not listed in the Draft 1998 303(d) List of impaired water bodies.

The Ririe Reservoir Outlet Channel is dry for most of the year and does not support aquatic life. Therefore, high sediment loads in the channel would have no impacts.

3.2.2 Environmental Consequences

The following sections discuss water quality effects that result from erosion and other sources. The effects of soil erosion on water quality include high sediment concentrations in the water column resulting in high turbidities and loss of fish habitat and benthic productivity. Sediment is also a means of transporting phosphorus to the water column that can result in the growth of aquatic plants and algae.

Assessment Categories

Native Vegetation Protection and Enhancement

Possibly faster or improved reestablishment of native plant communities on former farmed lands under Alternative B would benefit water quality in the long term by providing a more permanent vegetative cover that reduces erosion. In the short term, erosion rates would increase over current levels on a localized scale as the conversion proceeds.

Increased efforts to protect native vegetation on all Reclamation lands under Alternative B would reduce site-specific erosion and water quality degradation. Alternative B would also improve riparian habitat on Teton Mitigation Lands and at Cartier Slough under Alternative B. These actions would also reduce ongoing erosion and water quality degradation.

Erosion Control

Efforts to monitor and address erosion problems on all Reclamation lands would increase under Alternatives B and C. Minimizing erosion on Reclamation lands would include erosion control structures, sediment basins, native shrub plantings, riparian vegetation plantings, and strategies to avoid overuse of resources by wintering game and livestock. Erosion control programs would be implemented during all construction and operations and maintenance programs (Chapter 5). Also, under Alternative B, Reclamation would take a leadership role in a future TMDL process for the Willow Creek watershed to quantify the sources of erosion and implement erosion controls. All such actions would benefit water quality by reducing the input of sediment to water bodies.

Native Fish and Wildlife Protection and Enhancement

All alternatives include continued cooperation with IDFG under their Tex Creek and Cartier Slough Management Plans. Riparian habitat protection would reduce erosion and moderate water temperature by providing shade, both of which promote good water quality and thus a healthy aquatic habitat. More active improvement of riparian habitat would occur under Alternative B on Reclamation lands at Ririe and Tex Creek, further reducing erosion.

Improved or Restricted Access

Non-motorized trails that would be constructed from the Juniper area and, to the south from Blacktail under Alternatives B and C would result primarily in minor removal of native vegetation, thus increasing erosion potential and water quality degradation. Soil erosion potential from these trails is discussed in Section 3.3, *Soils*.

Improved Facilities and Miscellaneous

Development of new recreation facilities, including roads, parking lots, and campgrounds, under Alternatives B and C would result in minor short- and long-term water quality and contaminant impacts. Potential impacts include degraded stormwater runoff quality, drainage channel instability and subsequent erosion from increased stormwater runoff quantity, and an increased risk of swimming-associated health effects resulting from bacterial contamination from more numerous swimmers.

As paved surfaces replace vegetation that once intercepted rain and allowed it to infiltrate, the amount of stormwater runoff increases. In addition, stormwater quality is adversely affected as runoff from areas such as parking lots collects and transports pollutants, including nutrients, petroleum products, bacteria from animals, organic chemicals, heavy metals, and sediment.

Where irrigated lawns are created, water quality problems related to over-irrigation and over-fertilization are a potential impact that would likely occur to some degree.

For these reasons, the development of recreation facilities under Alternatives B and C would involve BMPs to collect and treat stormwater runoff (Chapter 5). Successful implementation of BMPs would keep these impacts minor.

Finally, the combination of improved facilities under Alternatives B and C and the general local area population increase (all alternatives) would result in greater numbers of watercraft using the reservoir. This would increase the amount of unburned fuel being discharged to the water, an adverse water quality effect.

Alternatives

Alternative A—No Action: Continuation of Existing Management Practices

The primary, existing water quality concern under the No Action Alternative is sediment from erosion. Erosion control measures have been implemented in some portions of the Willow Creek watershed, and a future TMDL process would address issues related to sediment such as load capacity, source controls, and load allocation requirements. Assuming a TMDL process is undertaken and successfully implemented, erosion-related water quality issues would be expected to improve.

Ongoing IDFG activities, including conversion of former farm land to native shrub communities at Tex Creek and control of noxious and invasive weeds at Tex Creek and Cartier Slough, would continue more or less at their current levels. Conversion of former farm land would result in short-term increases in erosion and sediment. Noxious and invasive weed control would continue at current levels and infestations of these plants would likely increase because of the dramatic increase in the size and number of infestations of these species throughout the West. The erosion control potential associated with these species would likely be less than a multi-storied canopy associated with a diverse, native species distribution. Any effects of increased noxious weed infestation on water quality would be very minor. Riparian habitat improvements would not be increased over existing activities, resulting in a continuation of current site-specific treatment of erosion problems and current levels of sediment in streams.

Existing recreation facilities would not be upgraded to meet increasing demand and new recreation sites and trails would not be constructed. At some point, capacity would be exceeded and the level of recreation use of the recreation sites and the reservoir would probably flatten out because of over-crowding, thereby limiting future impacts on water quality. It is not known if these limits would be reached during the 10-year time frame of this RMP.

Alternative B—Preferred Alternative: Recreation Development Compatible with Increased Natural Resource Protection Emphasis

Relatively minor adverse water quality and contaminant impacts would occur under Alternative B. Compared to Alternative A, an increased potential of bacterial contamination in the designated swimming areas would result from more swimmers. Because these areas are designated, there would likely be a higher percentage of swimmers under the age of 15, which elevates the likelihood of feces-contaminated water and water ingestion. Another source of increased bacterial contamination compared to Alternative A would be stormwater runoff from the equestrian trail beginning at Blacktail.

Improved or expanded boating facilities at Juniper and Blacktail (Table 2.2-1) would likely result in greater numbers of watercraft on the reservoir compared to Alternative A. Thus, the amount of unburned fuel discharged to water would increase as well. However, impacts would be localized in high use areas and would be minor on a reservoir-wide scale.

Recreation developments at Creekside and Juniper (Table 2.2-1) would result in minor short- and long-term impacts on water quality as described under the assessment categories. Because Alternative B includes implementation of BMPs, all of the other potential water quality and contaminant impacts described above would be minimized. Water quality benefits would result from the vegetation protection and enhancement actions, improved erosion control efforts, and riparian habitat protection as described in the Assessment Categories. In addition, Reclamation would take a lead role in the TMDL process. This should increase the success of sediment reduction measures required by the TMDL process.

Trails would be constructed from Juniper and Blacktail. Generally, trail construction in steep terrain involves some land clearing and leveling, so construction-related erosion is a potential problem. The water quality impacts associated with erosion, described above, would occur in the short term following trail construction. Although cut and fill slopes would be aggressively revegetated to minimize erosion, some minor water quality impacts would be expected because of the steep terrain and erosive soils. This would only be an impact on water quality where trails are close enough to water bodies for eroded material to enter the water. The BMPs described in Chapter 5, *Environmental Commitments*, to reduce soil erosion and subsequent water quality impacts would be implemented, making this a minor impact.

Horse dung along the equestrian trail in the Blacktail area under Alternatives B and C would be a source of bacteria that could be transported to surface water by stormwater runoff. However, with proper trail maintenance and revegetation as planned, stormwater runoff to water bodies should be minimized, thus making this a minor, but ongoing impact.

Alternative C—Recreation Development/Maintain Natural Resource Emphasis

Expansion of moorage facilities and construction of a new boat launch facility at Blacktail would promote increased recreation activity on the reservoir, resulting in increased adverse water quality and contaminant affects compared to both the No Action Alternative and Alternative B. This effect would primarily result from unburned fuel discharges to the reservoir. As in Alternative B, impacts would be localized and would be relatively minor on a reservoir-wide scale.

Recreation sites at Creekside and Juniper would be the same as under Alternative B, with impacts as described in the facilities assessment category. Recreation facilities would also be improved or expanded at Benchlands and Blacktail resulting in minor short- and long-term erosion-related adverse impacts or water quality in the immediate vicinity of these facilities. Adverse impacts would be greater than under Alternatives A and B.

Additional day use and parking facilities would be designed and constructed using similar BMPs as required for Alternative B. However, because of the expanded facilities that would be created under Alternative C, the BMPs to control stormwater runoff quantity and quality would have greater capacity than required for Alternative B. Creation of more irrigated areas would increase the likelihood of greater localized water quality impacts than for either the No Action Alternative and Alternative B.

Alternative C does not include increased levels of monitoring and control of noxious and invasive weeds at Tex Creek or Cartier Slough, or increased efforts to improve riparian habitat conditions at Tex Creek. Not implementing these increased levels of effort would result in minor ongoing adverse impacts similar to those of the No Action Alternative, and would not achieve the water quality benefits expected for Alternative B.

Also, Reclamation would not take a leadership role in the future TMDL process under Alternative C. Thus, the sediment reduction benefits expected under Alternative B associated with playing a leadership role may be lower. The outcome would be the same as under the No Action Alternative.

3.3 Soils

3.3.1 Affected Environment

The Torriorthents-Rock Outcrop complex dominates soil in the vicinity of Ririe Reservoir (USDA Natural Resources Conservation Service [NRCS] 1981a; formerly the U.S. Soil Conservation Service). The complex is approximately 60 percent Torriorthents and 30 percent rock outcrop and is highly erosive. Certain areas of the Aquic Cryoborolls-Typic Cryaquolls complex are found on level to gently sloping areas under and immediately adjacent to the reservoir. These soils are described in Table 3.3-1.

Table 3.3-1. Affected Soils at Ririe Reservoir, Tex Creek, and Cartier Slough

Name	Characteristics	Location	Erosion Hazard	Permeability	Rooting Depth (inches)
Ririe/Tex Creek					
Torriorthents	Formed in colluvium derived from shale, volcanic rock, or sandstone. Slopes of 35 to 65 percent. Rock fragment content from 0 to 80 percent. Mildly to strongly alkaline. Shallow to very deep and well drained.	60% of soil near Ririe Reservoir	High; rapid runoff	Slow to rapid with low to high water holding capacity	20 to 60
Ririe silt loams	Moderately alkaline. Very deep and well drained, with moderate permeability.	South- and west-facing slopes of foothills near reservoir	Moderate; slow runoff. Steeper slopes increase runoff; hazard becomes very high	Moderate	Greater than 60

Table 3.3-1. Affected Soils at Ririe Reservoir, Tex Creek, and Cartier Slough

Name	Characteristics	Location	Erosion Hazard	Permeability	Rooting Depth (inches)
Aquic Cryoborolls-Typic Cryaquolls complex	Very deep and somewhat poorly drained adjacent to the reservoir or river. Composed of silt loam to silty clay. Wetland and riparian communities are typically found on these soils.	Near Ririe Reservoir	Slight; slow runoff	—	—
Rin Silt Loam	Neutral, very deep, and well drained.	North-facing slopes in Tex Creek	Moderate; rapid runoff	—	—
Cartier Slough					
Channeled Haplaquolls	Deep, very poorly or poorly drained. Ponds and channels measuring up to 2 feet deep and 15 feet wide are present on the surface.	Floodplains near the Teton and Snake Rivers	Slight	—	20 to 60
Mathon-Rock outcrop-Modkin complex	Formed in sandy eolian deposits. Shallow with bedrock at 20 to 40 inches.	Laid over basalt plains in Cartier Slough	Moderate; slow runoff	Moderately rapid	—
Grassy Butte	Loamy sand formed in sandy eolian deposits. Deep and somewhat excessively drained.	Laid over basalt plains in Cartier Slough	Water erosion hazard is slight to moderate; wind erosion is high	Rapid; low water holding capacity	—

Source: NRCS 1981a and 1981b

Soils at Cartier Slough are primarily channeled Haplaquolls, Mathon-Rock outcrop-Modkin complex, and Grassy Butte loamy sand (NRCS 1981b). The soils are inundated by flooding every spring (IDFG 1998a) but generally have low water erosion potential (Table 3.3-1). A large amount of sediment was deposited on Cartier Slough as Teton flood waters receded.

Soil erosion is a serious problem on Tex Creek and surrounding private lands in the Willow Creek watershed. Removal of bank-stabilizing riparian vegetation, especially in agricultural areas, has left the highly erosive soils vulnerable to serious erosion. Numerous localized measures primarily associated with improving riparian vegetation conditions have been implemented by IDFG to reduce erosion problems on Tex Creek and the NRCS has programs to reduce erosion from agricultural lands. Section 3.3, *Water Quality and Contaminants*, discusses soil erosion, control measures on Tex Creek, and associated water quality problems in greater detail. Soil erosion is

generally not a problem at Cartier Slough because of the flat topography of the site. Some minor erosion does occur along the banks of the Henrys Fork during high runoff events. However, this erosion is related to natural fluvial processes associated with seasonal high flows in the unchannelized river.

3.3.2 Environmental Consequences

Assessment Categories

Native Vegetation Protection and Enhancement

Native vegetation protection and enhancement measures included in Alternatives B and C would beneficially impact soil resources through increased erosion protection. Maintenance or enhancement of native vegetation communities would provide an intact plant canopy cover, which reduces precipitation-induced dislodgment of soil particles from the soil surface. This is particularly true for riparian areas.

IDFG is in the process of re-establishing native shrub communities on areas that were formerly farmed within Reclamation's Teton Mitigation Lands. This would continue under all alternatives but the process would be improved under Alternatives B and C. There would be short-term local increases in soil erosion during conversion and possibly somewhat higher long-term erosion because of more sparse native cover than provided by dense, smooth brome.

An improved noxious weed infestation monitoring and control plan would be developed and implemented by Reclamation and IDFG under Alternatives B and C at both Tex Creek and Cartier Slough and on Ririe Non-Mitigation Lands. This plan would permit better decision-making and would decrease erosion by protecting native plant communities. Native communities tend to be multi-canopied, which would provide better soil protection than weedy communities.

Erosion Control

Alternatives B and C include increased monitoring and control of erosion at recreation sites, along roads and trails, and in riparian areas on all Reclamation lands addressed in the RMP. Actively identifying and addressing specific erosion problems as they arise would keep small problems from getting worse and would reduce erosion from Reclamation lands. Development of future TMDLs, with Reclamation as a lead agency under Alternative B, would be expected to substantially reduce sediment entering water courses on Ririe and Teton Mitigation Lands from within Tex Creek and from offsite. Implementation of actions identified during a TMDL process would be expected to reduce the movement of eroded soils into Tex Creek streams and into Ririe Reservoir. Reclamation would take a less active role in the TMDL process under Alternative C, which may reduce the effectiveness of the process in reducing soil erosion.

Native Fish and Wildlife Protection and Enhancement

Actions to improve upland and riparian habitat under native and fish wildlife protection would tend to reduce soil erosion and soil loss. These measures would be implemented in all Reclamation lands under Alternative B and on Non-Mitigation Lands and Teton Mitigation Lands at Tex Creek under Alternative C.

Improved or Restricted Access

Restricting livestock access along a portion of the Ririe Outlet Channel under Alternative B would increase vegetation cover and reduce soil loss and subsequent loss of productivity.

Development of new trails and trailheads at Juniper and Blacktail under Alternatives B and C would concentrate non-motorized offroad use onto trails designed and constructed to prevent erosion and subsequent soil loss. Development of new trails may also result in abandonment (or at least less use) of numerous ad hoc trails. These networks of ad hoc trails have resulted in minor gully formation, accelerated erosion, bank failure, and runoff pathways directly into the reservoir or streams. All these outcomes of undeveloped trails lead to loss of soil; a situation that would likely improve through new trail creation.

Improved Facilities and Miscellaneous

Recreation facilities would be expanded or improved at Creekside, Juniper, Benchlands, and Blacktail under Alternatives B and C. These actions would result in short-term increases in soil erosion during construction. Organizing parking areas and increasing parking area lot size would discourage using vegetated areas adjacent to existing parking lots as ad hoc overflow parking areas. This would improve groundcover and reduce soil compaction, which would lessen soil loss and surface runoff.

Expansion of existing facilities under Alternatives B and C would encourage additional visitor days, which would result in minor adverse impacts to natural areas adjacent to the facilities. Examples include expansion of day-use areas, construction of visitor center or kiosks, enlargement of campgrounds, and establishment of additional primitive camping sites. As native vegetation is impacted from increased visitor use, soil loss would accelerate. Expansion of boat ramps would result in increased use on the edges of the ramp. These areas would be compacted and devoid of vegetation, which would increase soil loss and surface runoff directly into the reservoir. Erosion control at facilities would improve compared to current conditions under Alternatives B and C, but not Alternative A.

Alternatives

Alternative A—No Action: Continuation of Existing Management Practices

No additional effort would be expended to protect or enhance native vegetation under Alternative A. Management activities directed toward erosion and noxious weed control would continue to be reactive rather than proactive. Soil loss from erosion in native vegetation areas, resulting from low

canopy cover levels, would continue. Current levels of noxious weed control would continue, with continued expansion of noxious weed infested areas. The current rate of native shrub establishment on formerly farmed lands would continue within Reclamation's Teton Mitigation Lands.

Erosion monitoring and immediate rectification of problem areas on Reclamation lands at Ririe and Tex Creek would not occur under Alternative A. Current soil loss levels from erosion would continue or accelerate as human use increases. Riparian area improvement and protection would only occur in accordance with the Tex Creek Management Plan and streamside areas would continue to experience soil loss.

Ad hoc trails on Reclamation lands at Ririe and Tex Creek would continue to be used and new ad hoc trails would be established. Gully formation, bank failure, vegetation loss, and surface runoff from ad hoc trails would continue. Cattle trespass would continue along the Outlet Channel and ad hoc trespass grazing would continue at Tex Creek and Cartier Slough. Current cattle management practices would not change under Alternative A.

No new recreation facilities would be developed on Reclamation lands at Ririe Reservoir and Tex Creek in this alternative. However, use of these facilities would continue to increase and lead to accelerated soil loss as ad hoc use expands into additional surrounding natural areas.

Alternative B—Preferred Alternative: Recreation Development Compatible with Increased Natural Resource Protection Emphasis

Increased native vegetation protection and enhancement and improved programs to monitor and control erosion and noxious weeds on all Reclamation lands would improve vegetative cover and reduce soil erosion in the long term compared to Alternative A. Native shrub establishment may improve on Teton Mitigation Lands, resulting in reduced long term soil erosion compared to Alternative A. Soil erosion would also be reduced compared to Alternative A by controlling grazing and grazing access along the Ririe Outlet Channel.

New trails and trailheads would be developed and ad hoc trail use reduced at Creekside Park, reducing soil erosion in the long term compared to Alternative A. New trails developed from trailheads at Juniper and Blacktail would be constructed mostly on highly erosive Torriorthents soils. Soil loss immediately following construction could be substantial. Design, construction timing, construction methods, and revegetation procedures for these trails would involve development and application of specific BMPs in addition to those listed in Chapter 5 to minimize erosion during and after construction. Trail development at Cartier Slough would result in minor soil loss during spring flooding compared to Alternative A.

Alternative C—Recreation Development/Maintain Natural Resource Emphasis

Impacts that would result from implementation of Alternative C would be the same as those described for Alternative B except as indicated below.

Compared to Alternative B, additional lands would be cleared for construction of facilities at Benchlands and Blacktail. These actions would cause an increase in short-term soil erosion compared to either Alternative A or B. The increased efforts to improve riparian habitat described for Alternative B would not occur, which is the same as Alternative A. Grazing would continue along the Ririe Outlet Channel, but under private ownership. Therefore, impacts on vegetation cover and soil erosion would probably be similar to those of Alternative A. Finally, Reclamation would not take a lead role in a future TMDL process, which would probably reduce the effectiveness of measures to reduce soil erosion that are developed during the process. This is similar to Alternative A.

3.4 Vegetation

3.4.1 Affected Environment

Reclamation's Non-Mitigation Lands and the Tex Creek WMA

Upland Cover Types

The *Tex Creek Management Plan* (IDFG 1998a) defines 12 upland cover types on the WMA. Vegetation on the area is diverse with good interspersion of different cover types. Bitterbrush (*Purshia tridentata*) shrub-steppe is the largest single natural cover type (about 3,500 acres). Big sagebrush (*Artemisia tridentata*), low sagebrush (*Artemisia arbuscula*), juniper (*Juniperus*), and serviceberry (*Amelanchier alnifolia*) shrub fields are common. Aspen (*Populus tremuloides*) is the most predominant forest cover type. Douglas-fir (*Pseudotsuga menziesii*) occupies about 250 acres. Of the nearly 5,500 acres of historical cropland, about 4,700 acres have been converted back to permanent herbaceous cover, which is dominated by smooth brome (*Bromus inermus*) with lesser amounts of perennial forbs such as alfalfa, Lewis blue flax (*Linum lewisii*), small burnet (*Sanguisorba minor*), and bunch grasses such as Sherman bluebunch wheatgrass (*Agropyron spicatum*). About 800 acres remain in winter wheat rotation to serve as an attractant and high quality winter and spring forage for mule deer (*Odocoileus hemionus*). Reclamation lands within the WMA extend from the lowest to the highest elevations and include all of the cover types present in the area. Active vegetation management actions have included planting over 170,000 shrubs.

Wetlands and Riparian Cover Types

The steep sides of the Willow Creek canyon through the reservoir area and fluctuating water levels during the growing season eliminate virtually all potential wetland and riparian cover types from the reservoir shoreline. Wetlands and riparian cover types do occur along all of the major perennial and intermittent drainages and springs on Tex Creek. Riparian communities include about 280 acres of willow-dominated lands and about 300 acres of other riparian cover types. Common overstory and understory species are listed on Table 3.4-1. About 16 acres of ponds have been developed by

IDFG to increase waterfowl production and habitat diversity, control erosion, improve water quality, hasten the recovery of eroded areas, and attempt to raise the water table and sub-irrigation of developed fields. Vegetation around the ponds includes hardstem bulrush (*Scirpus acutus*).

Table 3.4-1. Wetland and Riparian Cover Type Species in Tex Creek

Common Name	Scientific Name
Overstory Species	
Booth willow	*Salix boothii*
Drummond willow	*Salix drummondiana*
sandbar willow	*Salix exigua*
bog birch	*Betula glandulosa*
red-osier dogwood	*Cornus stolonifera*
bearberry honeysuckle	*Lonicera involucrata*
Understory Species	
several sedges	*Carex* spp.
Baltic rush	*Juncus balticus*
western meadowrue	*Thalictrum occidentale*
starry Solomon-plume	*Smilacina stellata*
goldenrod	*Solidago canadensis*
Kentucky bluegrass	*Poa pratensis*

Source: Youngblood et al. 1985

Noxious Weeds

Noxious weeds have been under active control on Reclamation mitigation lands at Tex Creek and Cartier Slough since management agreements between Reclamation and IDFG were completed in the late 1970s. Control efforts are more intensive on Teton mitigation lands at Tex Creek than on Ririe mitigation lands because of access limitations and steep terrain. Control measures include proper land practices, mechanical control, chemical control, and biological control. The four main weed species being controlled are musk thistle (*Carduus nutans*), Canada thistle (*Cirsium arvense*), houndstongue (*Cynoglossum officinale*), and hoary cress or white top (*Cardaria draba*). Leafy spurge (*Euphorbia esula*) has not been identified on the area but is found on adjacent lands. Common burdock (*Arctium minus*) is not classified as a noxious weed but is controlled on Tex Creek because it is considered a wildlife problem. A plan was developed in 1990 to establish guidelines, goals, and objectives for the control of noxious weeds on Tex Creek.

The most common methods of weed movement onto and within Tex Creek are vehicles, animal movements (wildlife, permitted, and trespass cattle), hay brought in to Tex Creek as horse feed by hunters and riders, and wind- or water-borne seed. Weed monitoring plots have been established throughout the area for permanent monitoring of infestations. Stem counts are conducted annually to determine effectiveness of control measures.

The long-term objective is to eliminate chemical control and rely on biological weed control on the area. Biological control was started in the early 1980s by Reclamation and IDFG with the release of the musk thistle seed head weevil around Ririe Reservoir. Starting in the early 1990s, releases of Canada thistle seed head weevils began on Tex Creek. Releases now include Canada thistle stem

mining weevils and defoliating beetles. Chemical control is still used on infestations found along roadways, heavily used areas, and new infestations. Rapid revegetation of disturbed soil prior to noxious weed infestation is the preferred management option. Establishment of desirable plants minimizes weed control requirements.

Cartier Slough WMA

Cartier Slough is located on the floodplain of the Henrys Fork. There are approximately 2.8 miles of riverbank and approximately 4 miles of slough channels (former river meanders). This is an uncontrolled and unchannelized section of the Henrys Fork where seasonal flooding and natural fluvial processes play a critical role in maintaining valuable long-term wildlife habitat. As much as 90 percent of the area is flooded during May and June of high runoff years. This regular flooding exerts a strong influence on the vegetation. The Cartier Slough management plan indicates that the primary plant communities include about 380 acres of floodplain grassland, 295 acres of willow-dominated communities, and about 155 acres of black cottonwood (*Populus trichocarpa*) and aspen. There are smaller areas of sagebrush/grassland, wet meadow, irrigated perennial grasses and shrubs, and about 35 acres of open water ponds and sloughs. Common species are listed on Table 3.4-2.

Table 3.4-2. Common Plant Species in Cartier Slough

Common Name	Scientific Name
black cottonwood	*Populus trichocarpa*
aspen	*Populus tremuloides*
black hawthorn	*Crataegus douglasii*
red-osier dogwood	*Cornus stolonifera*
snowberry	*Synphoucarpus alba*
sagebrush	*Artemisia spp.*
rabbitbrush	*Chrysothamnus nauseosus*
several willows	*Salix spp.*
common cattail	*Typha latifolia*
hardstem bulrush	*Scirpus acutus*
Baltic rush	*Juncus balticus*
creeping spike-rush	*Eleocharis palustris*
short-beaked sedge	*Carex simulata*
reed canary grass	*Phalaris asendinaceal*
Kentucky bluegrass	*Poa pratensis*

Source: Youngblood et al. 1985

Noxious Weeds

Noxious weed infestations identified in Cartier Slough include leafy spurge, Canada thistle, musk thistle, spotted knapweed (*Centaurea maculosa*), diffuse knapweed (*C. diffusa*) purple loosestrife (*Lythium salicaria*), and plumeless thistle (*Carduus acanthoides*). These species have come to be present on the area through a variety of means such as deposition of seed material during high flows, spread from motor vehicles, and past cattle grazing. Control measures include

both chemical and biological controls and reseeding disturbed areas to increase competition by desirable plant species. High spring flows often hamper control efforts.

3.4.2 Environmental Consequences

Assessment Categories

Native Vegetation Protection and Enhancement

Under all alternatives, Reclamation's continued cooperation in implementing IDFG's Tex Creek and Cartier Slough Management Plans would maintain existing native vegetation communities in all areas not slated for expansion of recreation facilities under Alternatives B and C.

Reestablishment of native shrub communities is being implemented by IDFG on areas that were formerly farmed within the Teton Mitigation Lands. Alternative B would formalize the plan for this conversion and may improve the conversion process, to the benefit of native plants.

Noxious weed infestations at both Tex Creek and Cartier Slough have displaced native vegetation, because they can out-compete native species under most circumstances. Reclamation would increase its efforts to monitor and control noxious weeds on all mitigation and non-mitigation lands at Tex Creek and Cartier Slough under Alternative B. Native vegetation communities would be improved and expanded by preventing infestations or improving control of noxious and invasive weeds. Lack of increased control at Cartier Slough under Alternative C would result in the continued degradation of native plant communities as noxious weeds increase.

Erosion Control

Active identification and repair of erosion along stream channels and trails on all Reclamation lands under Alternative B, and at Ririe Reservoir and Tex Creek under Alternative C, would involve planting native plant species in eroded areas. This would improve the extent of native plant communities on these lands, which would also curtail erosion before it has a chance to further degrade existing vegetation. Continuation of the existing level of erosion control efforts on all Reclamation lands under Alternative A would result in loss of additional plant communities. While these losses would be relatively minor, riparian communities would suffer disproportionately higher losses than upland cover types.

Native Fish and Wildlife Protection and Enhancement

Continuing cooperation with IDFG under their Tex Creek and Cartier Slough Management Plans would help to maintain the current condition of native plant communities. Maintaining and protecting riparian habitat on all Reclamation lands under Alternative B would involve actively improving riparian habitat and would benefit native vegetation communities. As described in Chapter 2, managing Ririe non-mitigation lands and Tex Creek to improve wildlife and fish habitat would

involve improvement of native plant communities, in most instances. Enhancement, and protection of riparian communities would enlarge the extent and improve the quality of those communities.

Improved or Restricted Access

Eliminating grazing along the Ririe Outlet Channel under Alternative B would reduce the removal of plant cover by livestock and replace weedy vegetation with upland shrubs, grasses, and forbs. Trail development under Alternatives B and C would negatively affect vegetation by removing plants to build trails, as well as providing a pathway for introduction of noxious weeds. Approximately 1 acre of native vegetation would be lost for each mile of trail developed in flat areas around Ririe Reservoir and at Cartier Slough. In steeper terrain, approximately 1/2 to 1 more acre of land would be disturbed to construct trails because of cut and fill losses. The equestrian trail constructed from Blacktail would result in the loss of about 2 acres of native vegetation per mile. All cut and fill slopes would be immediately revegetated to reduce erosion. However, full reestablishment of vegetation along trails would require several years because of the general lack of summer rain.

Improved Facilities and Miscellaneous

In general, areas where facilities are developed under Alternative C would result in the conversion of native vegetation to managed plant communities. In most instances, development of recreation facilities would result in the total loss of all native vegetation, where the new facilities are expanding into undisturbed vegetation. Trail improvements and resultant increased visitor use would result in greater disturbance and/or displacement of wildlife during periods of use. Trail development would adhere to all pertinent BMPs listed in Chapter 5 and habitat loss would be mitigated as described in Section 3.5, *Wildlife.*

Alternatives

Alternative A—No Action: Continuation of Existing Management Practices/Agreements

Current vegetation protection measures contained within IDFG's management plans at Ririe and Teton Mitigation Lands and Cartier Slough would continue. These actions would generally maintain native vegetation at the current level of health and development.

The current reactive erosion control activities would continue, which would result in continuing minor loss of native vegetation to erosion at Creekside Park and Vicinity, remaining Ririe Non-Mitigation Lands. Erosion is being addressed in the Tex Creek Management Plan at remaining Ririe and Teton Mitigation Lands. These actions would continue.

Native fish and wildlife enhancement measures (riparian vegetation protection and enhancement) at Creekside Park and Vicinity or on remaining Ririe Non-Mitigation Lands would not occur. Current levels of protection for native fish and wildlife (riparian vegetation) by IDFG at remaining Ririe and Teton Mitigation Lands, and Cartier Slough would continue. Vegetation conditions would be expected to remain stable or improve slowly on all Reclamation lands.

Facilities would not change at Creekside Park, Juniper Park, Benchlands, and Blacktail Park. Increasing usage at these facilities would further adversely impact nearby native vegetation.

Grazing would continue along the Ririe Outlet Channel. However, it would occur under a lease instead of the current trespass situation. The condition of current vegetation would not change.

Alternative B—Preferred Alternative: Recreation Development Compatible with Increased Natural Resource Protection Emphasis

Except at recreation sites, native vegetation would continue to be protected on Ririe Non-Mitigation Lands resulting in no change in vegetation condition. Increased noxious weed monitoring and control efforts would be implemented on all Reclamation lands, which would improve native vegetation compared to Alternative A.

Native vegetation would be protected through monitoring and repair of erosion problems on all lands. Native fish and wildlife habitat (for example, riparian vegetation) would be protected and enhanced on all lands. Reclamation would take a lead role in a future TMDL process to reduce erosion and sediment, which impacts native wetland and riparian vegetation on all Reclamation lands.

If implemented, winter closure of the Pipe Creek Road would protect native vegetation adjacent to the road from damage by snowmobiles. Grazing management and livestock access controls may be implemented at the Ririe Outlet Channel and a parcel along the channel would be converted to plants that would benefit local wildlife, an improvement compared to Alternative A.

Six to nine acres of native vegetation would be impacted through development of new trails in the Juniper Park area, including construction of a 4- to 6-mile trail along the east side of Ririe Reservoir. Another trail, with equestrian facilities, would be developed starting at the Blacktail area and extending south along Willow Creek. This trail would impact approximately 8 acres of mostly big sagebrush. Trail development would adhere to all pertinent BMPs listed in Chapter 5 and habitat loss would be mitigated as described in Section 3.5, *Wildlife.*

The footprints of the major proposed recreation sites included under Alternative B are shown as proposed recreation sites on Maps 2-4 and 2-5. Site-specific designs for these areas are not available at this time. For this impact assessment, it is assumed that all of the native vegetation within the footprints would be converted to facilities or non-native vegetation. The only exception is at Creekside, where most facilities would be constructed in disturbed areas. Based on these assumptions, the maximum extent of native vegetation communities that would be impacted by proposed recreation facilities is 36.7 acres. Site by site estimates of vegetation impacts are presented in Table 3.4-3. Nearly half of the affected acreage would be lost along linear features spread out over about 10 miles.

Table 3.4-3 Acres of Native Vegetation Types that Would be Impacted under Alternative B

	Vegetation Type/Acres Impacted						
Area	**Aspen**	**Big Sagebrush**	**Montane Shrub**	**Perennial Grass**	**Agricultural/Lawn**	**Juniper**	**Herbaceous Riparian**
Creekside Trail	—	1.0	—	—	—	—	—
Juniper Area	—	9.5	—	0.3	0.5	1.4	—
Juniper/East Side Trail	—	6.0 - 9.0	—	—	—	—	—
Blacktail Trail	—	7.5	0.5	—	—	—	—
Teton Mitigation Land Trails	1.0	2.0	2.0	—	—	—	—
Cartier Slough Trail	—	—	—	—	—	—	2.0
Total	**1.0**	**26.0-29.0**	**2.5**	**0.3**	**0.5**	**1.4**	**2.0**

Mitigation

Design of Creekside Park would avoid the loss of riparian vegetation by placing facilities in existing disturbed areas and keeping all facilities except stream crossings at least 20 feet away from the edge of Willow Creek. No trees would be removed during construction. A wildlife biologist or botanist would be actively involved in site design to assure that impacts to riparian vegetation are avoided. If unplanned losses of riparian vegetation did occur during construction, losses would be replaced on at least a 1:1 basis in the immediate vicinity of the park. Replacement of lost riparian vegetation would occur concurrently with recreation site construction.

Design of other recreation sites would minimize native vegetation losses by locating facilities in existing disturbed areas to the maximum extent possible. For example, parking facilities may be located in existing ad hoc parking areas to minimize loss of native vegetation if these are suitable locations for parking. Kiosks and interpretive centers would be placed within existing developed recreation areas and kept from areas of native vegetation. All construction areas would be revegetated with appropriate native vegetation immediately following construction.

All lost native vegetation that provides critical big game winter range would be mitigated through winter range enhancement on other Reclamation lands at Tex Creek. This action is discussed in greater detail in Section 3.5 *Wildlife.*

Residual Impacts

BMPs intended to avoid or reduce losses of native vegetation at all facilities would minimize short-term vegetation loss. Short-term losses of native vegetation in critical winter range areas would persist for several years until mitigation measures compensate for losses. Indirect impacts related to human disturbance cannot be avoided.

Regular monitoring and aggressive control of noxious and invasive weeds is expected to reduce infestations of these plants at disturbed sites. However, some increase in these plants at new recreation sites and along trails is likely in spite of these efforts.

Alternative C—Recreation Development/Maintain Natural Resource Emphasis

Impacts of Alternative C would be the same as those of Alternative B except as described below. Native vegetation enhancement and protection measures proposed under Alternative B would be implemented with this Alternative, except that more aggressive noxious weed monitoring and control would not occur on Non-Mitigation Lands and at Cartier Slough. This would allow the continued loss of native vegetation to aggressive weed populations. The problem would be expected to worsen with time and increased human use of these areas as described for Alternative B.

Native fish and wildlife protection and enhancement measures proposed in Alternative B would continue, except that riparian habitat improvement on Teton Mitigation Land would not occur. Implementation of the Tex Creek Management Plan would continue. Potential habitat improvements would not be as good as under Alternative B but would be better than under Alternative A.

Native plant communities that would be impacted under Alternative C are shown in Table 3.4-4. A maximum of 57.1 acres of native vegetation would be impacted, with up to 16.5 of these acres occurring along linear trail features.

Table 3.4-4. Acres of Native Vegetation Types that Would be Impacted under Alternative C

	Vegetation Type/Acres Impacted							
Area	**Aspen**	**Big Sagebrush**	**Low Sagebrush**	**Montane Shrub**	**Perennial Grass**	**Agricultural/Lawn**	**Juniper**	**Herbaceous Riparian**
Creekside Trail	—	1.0	—	—	—	—	—	—
Juniper Area	—	9.5	—	—	0.3	0.5	1.4	—
Juniper/East Side Trail	—	6.0 - 9.0	—	—	—	—	—	—
Benchlands	—	2.3	—	—	—	—	—	—
Blacktail	—	12.9	4.7	0.5	—	—	—	—
Blacktail Trail	—	7.5	—	0.5	—	—	—	—
Teton Mitigation Land Trails	1.0	2.0	—	2.0	—	—	—	—
Cartier Slough Trail	—	—	—	—	—	—	—	2.0
Total	**1.0**	**41.2-44.2**	**4.7**	**3.0**	**0.3**	**0.5**	**1.4**	**2.0**

3.5 Wildlife

3.5.1 Affected Environment

Tex Creek is managed by IDFG primarily as big game winter range and also for other wildlife under agreement with Reclamation and the other landowners. Vegetation management is directed toward providing forage for mule deer and elk (*Cervus elaphus*) and habitat for other wildlife. Riparian habitat improvement along streams within Tex Creek is also a management priority. Cartier Slough is managed by IDFG primarily as habitat for waterfowl and associated wildlife. The most complete and current information regarding wildlife communities at Tex Creek and Cartier Slough is contained in the respective WMA Management Plans (IDFG 1998a and 1998b). Much of the information summarized here is derived from those documents and is not specifically cited again in the text. Wildlife use of weedy areas along the Ririe Outlet Channel is likely limited to a few pheasants (*Phasianus colchicus*) and some seed-eating songbirds.

Non-Mitigation Lands and Ririe and Teton Mitigation Lands at the Tex Creek WMA

Wildlife habitat and use is similar on Non-Mitigation Lands and Ririe and Teton Mitigation Lands at Tex Creek. The IDFG mission statement for Tex Creek is stated as follows:

> *Protect and manage the wildlife resources of the Tex Creek Wildlife Management Area, as mitigation for habitat losses elsewhere in the region, to ensure sufficient quantities of high quality and secure habitat for wintering big game and for a wide variety of other game and nongame species. Provide high quality wildlife-based recreational opportunities and nature viewing compatible with this primary mission for the benefit of the public.*

The first five of the seven management priorities listed in the Tex Creek Management Plan relate directly or indirectly to wildlife and wildlife habitat. In order of priority, these include the following:

1. Big game winter range for elk and deer

2. Upland game habitat for Columbia sharp-tailed grouse (*Tympanuchus phasianellus*)

3. Public hunting

4. Other game and nongame habitat

5. Wildlife based recreation, nature viewing, and education

Mammals

Summer resident big game include about 80 to 100 elk, 200 mule deer, 30 moose (*Alces alces*), and a small number of white-tailed deer (*Odocoileus virginianus*). An estimated 80 to 100 moose may be present on Tex Creek during the fall rut. Resident elk produce 20 to 30 calves and deer produce 80 to 100 fawns each year.

Reclamation has supported IDFG's habitat improvement programs at Tex Creek during the last 25 years. Primary management activities have focused on improving the condition and expanding the extent of big game winter range. Numbers of elk and mule deer wintering on Tex Creek have increased dramatically during this period from a few hundred of each species when Tex Creek was formed. Tex Creek currently provides critical winter range for an estimated 3,200 elk, 4,000 to 5,000 mule deer, and 20 moose. The south and west facing slopes, and the prevailing southwest wind, tend to minimize snow depths and keep travel routes and foraging areas available most of the winter. Typical critical elk and deer winter ranges are shown on Map 3-1. However, it should be noted that critical winter use areas for elk vary from year to year depending on weather conditions, and include essentially all portions of Tex Creek at one time or another. Occupied winter range also

varies throughout the season as snow accumulation forces elk to use lower elevation areas. The abundant high quality winter range on Tex Creek minimizes elk depredation on adjacent private lands. IDFG also trades uses with a local private landowner to further reduce depredation on private lands. This involves livestock grazing on a portion of Tex Creek in exchange for the landowner not grazing nearby valuable private land that provides critical elk winter range. The secure winter range available on Tex Creek is essential to the survival of these large big game herds. This security is directly related to management activities that minimize human conflicts with big game wintering on Tex Creek.

Elk generally migrate to the southeast from Tex Creek for the summer. The timing of migration from summer range back to the Tex Creek winter range is most affected by snow depth and the timing of fall snowstorms. Migration may begin from mid-November to mid-December, with most elk arriving on the Tex Creek winter range by early January (Brown 1981). Movements along traditional migration corridors of as far as 70 miles between summer and winter range have been recorded.

Critical deer winter range includes all Reclamation non-mitigation lands and adjacent areas, as well as parts of the Meadow Creek drainage to the east of Ririe Reservoir (Map 3-1). The Tex Creek Management Plan indicates that winter wheat grown on fields adjacent to Tex Creek is heavily used by wintering deer. IDFG suspects that this use permits more deer to winter in the Tex Creek area than would be possible on available native range alone. Thomas (1987) found that deer that winter at Tex Creek tend to summer in the same areas as do the elk that winter at Tex Creek. Deer also follow the same general migration corridors as the elk.

The Tex Creek Management Plan indicates that at least 24 other mammal species occur on the area. Some of the other abundant or common small mammal species are listed on Table 3.5-1. Predators include a few mountain lion (*Felis concolor*), bobcat (*Lynx rufus*), and numerous coyotes (*Canas latrans*). A few black bears (*Ursus americanus*) are also present.

Table 3.5-1. Small Mammals Present in Tex Creek

Common Name	Scientific Name
Richardson's and golden-mantled ground squirrels	*Spermophilus richardsoni* and *S. lateralis*
red squirrel	*Tamiasciurus hudsonicus*
yellow-bellied marmot	*Marmota flaviventris*
northern pocket gopher	*Thomomys talpoides*
beaver	*Castor canadensis*
bushy-tailed wood rat	*Neotoma cinerea*
badger	*Taxidea taxus*
porcupine	*Erethizon dorsatum*
several rodents	

Source: IDFG 1998b, Groves et al. 1997

Birds

Tex Creek provides habitat for four native grouse species. Habitat management for the Columbian sharp-tailed grouse is the second highest priority for IDFG at Tex Creek. Columbian sharp-tailed

grouse currently occupy less than 10 percent of their original range (IDFG 1990). Columbian sharp-tailed grouse are considered to be a species of concern by the U.S. Fish and Wildlife Service (FWS), and a sensitive species by both the USFS and BLM.

Sharp-tailed grouse occur in a variety of foothill and low mountain shrub communities including antelope bitterbrush, three-tip sagebrush (*Artemisia tripartita*), and near shrub riparian areas. At Tex Creek, nests associated with higher shrub densities and taller grass had a substantially higher success rate. Lek or dancing ground counts at Tex Creek have been relatively low in recent years, and most of the leks active in the past 10 years have been abandoned, at least temporarily. However, fall sharp-tailed grouse numbers have been relatively good, suggesting that grouse may not be limited by habitat but rather by spring weather. Cold, wet spring conditions during nesting and for a few weeks after broods hatch is detrimental to good brood survival.

Sage grouse (*Centrocercus urophasianus*) numbers have declined throughout their range, including the upper Snake River area and Tex Creek (Connelly et al. 2000). Sage grouse are also a priority species for IDFG and the BLM. Sage grouse are dependent on sagebrush habitats during both the winter and nesting seasons. A few leks are known to occur on Tex Creek, but no specific surveys or management actions have been undertaken by IDFG. It is not known whether sage grouse using leks on Tex Creek are migratory or non-migratory, which affects general nesting distances from the lek (Connelly et al. 2000). However, it is very likely that most, if not all, sage grouse that use leks on Tex Creek also nest within Tex Creek because most surrounding former sagebrush habitats have been converted to agriculture. The Tex Creek Management Plan speculates that some sage grouse may also move into Tex Creek to winter, making this especially important habitat.

The peregrine falcon (*Falco peregrinus*), which occurs in the area, was de-listed as an endangered species in July 1999. Twelve peregrine territories are known to occur in southeast Idaho (Levine et al. 1998), although none nest in the immediate Tex Creek area. There are several nests within 25 miles of Tex Creek, and peregrines certainly pass through the area during migration and juvenile dispersal.

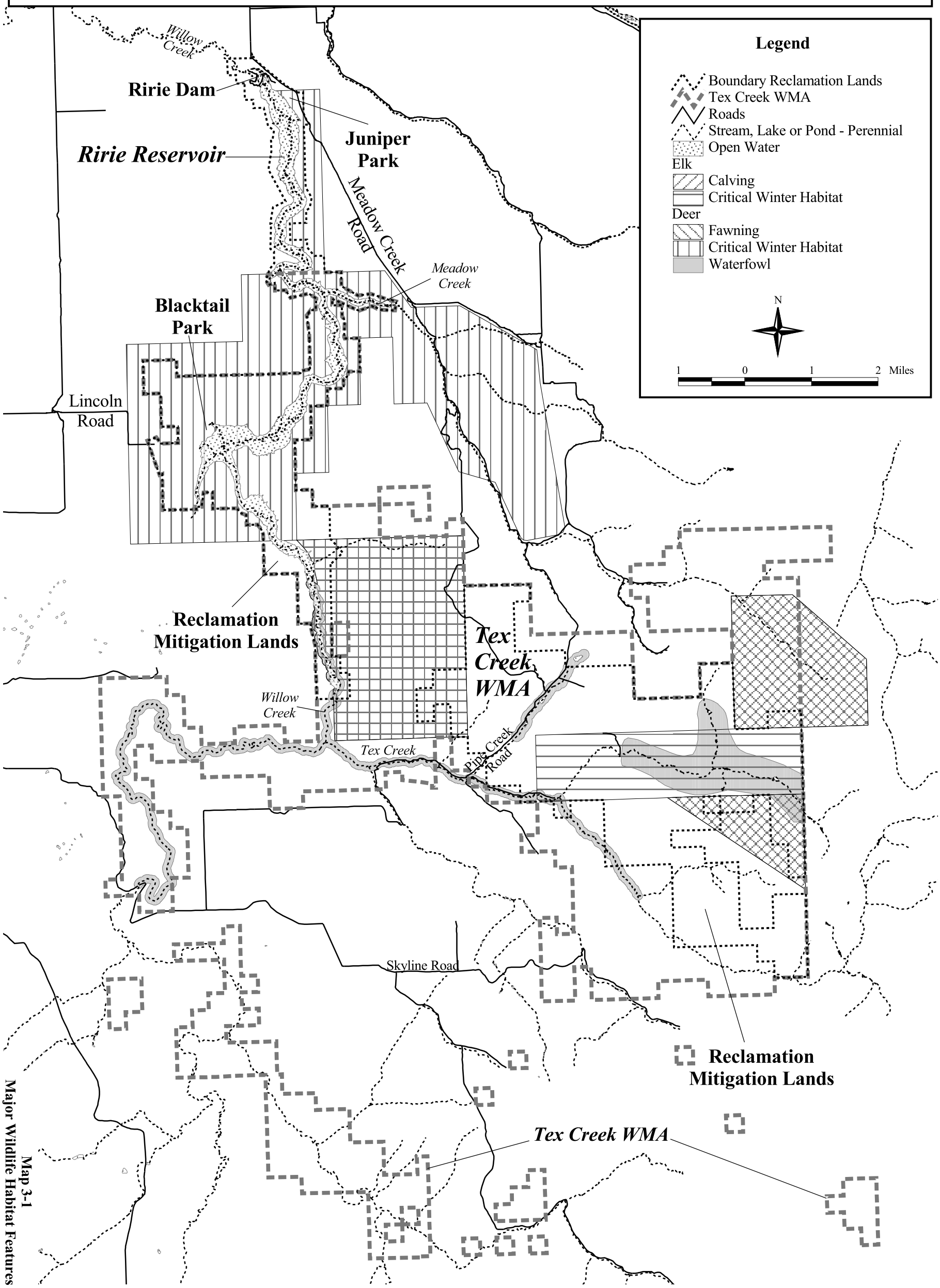
The Tex Creek Management Plan lists 92 species of birds that use Tex Creek. A few of the more common species include those listed in Table 3.5-2 and many neotropical migrants. Numbers of nesting waterfowl are low, with mallards (*Anas platyrhynchos*) the most common species. Mallards nest along perennial streams in Tex Creek.

Table 3.5-2. Common Bird Species in Tex Creek

Common Name	Scientific Name
golden eagle	*Aquila chrsaetos*
northern harrier	*Circus cyaneus*
red-tailed hawk	*Buteo jamaicensis*
American kestrel	*Falco sparverius*
killdeer	*Charadrius vociferus*
blue grouse	*Dendragapus obscurus*
ruffed grouse	*Bonasa umbellus*
mourning dove	*Zenaida macroura*
yellow-bellied sapsucker	*Sphyrapicus varius*
black-billed magpie	*Pica pica*

Map 3-1
U.S. Bureau of Reclamation
Ririe Resevoir Resource Management Plan
Major Wildlife Habitat Features
Ririe Reservoir and Tex Creek WMA

The information displayed here is based on the best available data at the time of publication.
Neither the authors, Reclamation, or any other party here warrant or represent that the information
is in every respect complete and accurate, and are not held responsible for errors or omissions.



Map 3-1
Major Wildlife Habitat Features

Amphibians and Reptiles

Some of the more common amphibians and reptiles that occur in Tex Creek include the western rattlesnake (*Crotalus viridus lutosus*), yellow-bellied racer (*Coluber constrictor mormon*), western terrestrial garter snake (*Thamnophis elegans*), common garter snake (*Thamnophis sirtalis*), gopher snake (*Pituophis melanoleucus deserticola*), and sagebrush lizard (*Sceloporus graciosus*). Rubber boas (*Charina bottae*) and northern leopard frogs (*Rana pipiens*) are occasionally seen. Populations of many frog species have apparently suffered declines on a global scale in recent years, making all suitable habitat especially important.

Rare Species

Loggerhead shrikes (*Lanius ludovicianus*) occur on Tex Creek. They are classified as a species of concern by FWS and a sensitive species by the BLM.

Cartier Slough WMA

Cartier Slough provides important habitat (forage, shelter, and reproduction sites) for a large number of wildlife species. Among the most crucial, abundant, and sensitive of these habitats are riparian areas and wetlands. The riparian communities and various wetland habitats are critical as nesting feeding and loafing habitat for waterfowl, shorebirds, and wading birds. The Cartier Slough Management Plan indicates that there are 197 species of birds, 25 species of medium and large mammals plus many small mammal species, and at least 5 amphibian and reptile species found in Cartier Slough.

Mammals

Common mammals include the coyote, red fox (*Vulpes vulpes*), striped skunk (*Mephitis mephitis*), and porcupine. Mule and white-tailed deer numbers are estimated at 25 each throughout the year plus an additional 25 mule deer during the winter. A few moose are also present and beavers and muskrats (*Ondatra zibethicus*) use aquatic habitats along the river and sloughs. River otters (*Lutra canadensis*) are also present in and along the Henrys Fork.

Birds

The diverse mix of wetland and riparian cover types and Cartier Slough's location adjacent to the Henrys Fork result in a diverse and abundant avifauna. Avian use of Cartier Slough is dominated by waterfowl, shorebirds, and other water-related species; 22 species of raptors; and a large number of neotropical migrants. A few of the most abundant species include those listed in Table 3.5-3. Although peregrine falcons, which were recently de-listed as an endangered species in 1999, are not known to nest in the Cartier Slough, there are nests within several miles. Peregrines are probably present throughout most of the year because of the large numbers of waterfowl that use the area.

Table 3.5-3. Abundant Bird Species in Tex Creek

Common Name	Scientific Name
pied-billed grebe	*Podilymbus podiceps*
great blue heron	*Ardea herodias*
black-crowned night heron	*Nycticorax nycticorax*
snowy egret	*Egretta thula*
white-faced ibis	*Plegadis chici*
Canada goose	*Branta canadensis*
mallard and several other dabbling and diving ducks	*Anas platyrhynchos and other duck species*
red-tailed hawk	*Buteo jamaicensis*
northern harrier	*Circus cyaneus*
osprey	*Pandion haliaetus*
sandhill crane	*Grus canadensis*
six species of swallows	*Hirundinidae* spp.
several shorebirds	

Source: IDFG 1998b, Groves et al. 1997

Amphibians and Reptiles

Three amphibians and two reptiles are known to occur in Cartier Slough. These include the northern leopard frog, striped chorus frog (*Pseudacris triseriata*), painted turtle (*Chrysemys picta*), western terrestrial garter snake, and gopher snake.

Rare Species

Several species listed as species of concern or sensitive by the FWS, BLM, or the USFS occur on the Cartier Slough. These include loggerhead shrike, burrowing owl (*Athene cunicularia*), trumpeter swan (*Cygnus buccinator*), white-faced ibis (*Plegadis chici*), and long-billed curlew (*Numenius americanus*). Trumpeter swans are present year around and up to 75 winter on the Henrys Fork Snake River along Cartier Slough.

3.5.2 Environmental Consequences

Assessment Categories

Native Vegetation Protection and Enhancement

The degree of proposed native vegetation protection and enhancement varies by site with generally less emphasis in the immediate vicinity of recreation areas and more emphasis on other non-mitigation lands and on mitigation lands. Areas of non-mitigation lands where recreation takes precedence over wildlife habitat would be expected to have degraded habitat values. This subject is more fully addressed below under *Improved Facilities and Miscellaneous*. Under Alternative A, Reclamation actions on sites not slated for expansion of recreation facilities would be expected to at least maintain current wildlife habitat values through continued cooperation with IDFG in implementing their Tex Creek and Cartier Slough Management Plans.

Noxious weed infestations are an increasing problem at both Tex Creek and Cartier Slough. Noxious weeds and other invasive non-native plants generally out-compete native species and degrade wildlife habitat quality. Reclamation would either continue current weed control efforts under Alternative A, or increase its efforts to monitor and control noxious weeds on mitigation and non-mitigation lands under Alternatives B and C. The current level of effort to control noxious and invasive weeds would probably not keep up with the expected spread of these species and habitat conditions would be expected to degrade. The rate of habitat degradation under current Alternative A control levels is not known but would be expected to increase above current rates because of the invasive and colonizing nature of these species. By avoiding infestations or otherwise better controlling noxious and invasive weeds, the increased efforts of Alternatives B and C would help to maintain wildlife habitat values and avoid the habitat degradation that would occur without these actions.

IDFG is in the process of re-establishing native shrub communities on areas that were formerly farmed within Teton Mitigation Lands. Reclamation assistance in formalizing conversion plans under Alternatives B and C may permit IDFG to increase the rate of conversion from former farmed lands to native shrub communities. A more formal plan and approach to conversion may improve overall wildlife habitat values for big game and other native species at a faster rate than would have been possible without the additional effort.

Erosion Control

Erosion control actions under Alternatives B and C generally would involve increased monitoring and reacting to address specific problems that are identified. This would help to minimize future wildlife habitat losses associated with erosion. Reclamation would take a leadership role in a future TMDL process under Alternative B to quantify and substantially reduce sediment entering Willow Creek drainage streams from Tex Creek and surrounding private lands. Implementation of actions identified during a TMDL process would be expected to reduce sediment input to streams and related aquatic sites and improve habitat conditions for semi-aquatic species, such as amphibians.

Native Fish and Wildlife Protection and Enhancement

Actions that would be implemented specifically for wildlife at Tex Creek and Cartier Slough include continued cooperation with IDFG under their management plans (all alternatives), maintaining and protecting riparian habitat (Alternative B), or actively improving riparian habitat (Alternative B and, on non-mitigation lands, also Alternative C). The expected effects of other actions to modify vegetation for wildlife were discussed above under *Native Vegetation Protection and Enhancement*. Continued cooperation with IDFG and protecting and maintaining riparian habitat under Alternative A would generally maintain current wildlife habitat values on affected lands. However, habitat conditions would not be expected to improve substantially. Efforts to actively improve riparian habitat conditions on Tex Creek under Alternative B would be expected to improve habitat for amphibians, neotropical songbirds and other birds, and a variety of small and

medium-sized mammals. Predators would benefit indirectly if prey populations increase in riparian areas.

Improved or Restricted Access

Trails that would be constructed under Alternatives B and C would result in both direct immediate impacts and indirect, long-term impacts. Trails generally involve land clearing and leveling and relatively minor loss of wildlife habitat. In flat areas at Tex Creek and on all of Cartier Slough, construction and maintenance of trails would be expected to result in the immediate loss of about 1 acre of native habitat per mile of trail for a pedestrian trail. The wider equestrian trail beginning at Blacktail would disturb more habitat per mile of trail. In steeper terrain at Tex Creek, an additional ½ to 1 acre of habitat would be lost per mile because of cut and fill slopes. The cut and fill slopes would be aggressively revegetated to minimize erosion and colonization by noxious and invasive weeds, but habitat values along these linear features would be degraded for many years. Use of trails by horses would probably accelerate the establishment and spread of noxious weeds and other exotic invasive plants because of the presence of weed seeds in horse dung. Soil exposed during construction would provide an ideal seed bed for noxious and invasive plants. The combination of exposed soil, the current presence of noxious weeds, and the introduction of more weed seeds from horses would degrade wildlife habitat quality along trails. Mitigation measures intended to reduce this problem are proposed for the Alternative B.

Trails and trailheads and facilities at Ririe Reservoir would not be maintained from late fall through mid-spring. Winter trail use would conflict with wintering big game, although levels of use would be low. Human use of trails would displace nearby deer and elk. Cartier Slough trails, retriever training, and dog training would be closed during the waterfowl nesting season to avoid impacts.

Alternative C includes undefined actions to accommodate winter access for ice fishing in the Juniper boat launch area, where some ice fishing already occurs. The boat launch area lies just to the north of the designated critical mule deer winter range. However, the Juniper Park area and all areas to the south are within critical deer winter range. Additional human activity in this area and on the lower end of the reservoir would displace mule deer from a portion or their traditional winter range. Mule deer would be expected to retreat for some distance from winter human activity on the reservoir. The affected area would vary depending on the location and levels of human use.

The Pipe Creek road bisects Tex Creek, is currently open all year, and is used by snowmobiles when snow conditions are suitable, which varies considerably from year to year and within each winter. Snowmobile access into Tex Creek is not possible during some years or parts of some winters because of lack of snow. Sight distances along many parts of the Pipe Creek road exceed 2 miles. Elk react to human presence, whether on foot or on a snowmobile, by moving away from the occupied area and they often move far enough to get out of sight of the source of the disturbance. Elk more than 1 mile away have been observed to move away from snowmobile activity on the Pipe Creek road (pers. comm., T. Thomas, IDFG, Idaho Falls, ID, June 17, 1999). The critical elk winter range on Map 3-1 is shown as two distinct parcels bisected by the Pipe

Creek road because the current snowmobile use displaces elk from the area near the road and substantially reduces that value of the winter habitat in the vicinity of the road.

Increased energy expenditure, especially late in the winter, reduces elk survival and long-term herd productivity. Snowmobile activity that precludes elk use of several square miles of what would otherwise be critical winter range causes the remaining available winter range to be more heavily used than if all range were available. This further degrades winter range conditions on the rest of Tex Creek. Snowmobile use is expected to increase at least as fast (and probably faster) as the rate of increase in the general population of the Idaho Falls area.

Alternatives A and C would permit future winter use of the Pipe Creek road and would result in continued elk displacement away from the road. Alternative B includes closure of the Pipe Creek road in the winter, subject to approval by Bonneville County. If the closure occurs, this would permit all of the winter range to be used by elk, reduce over-use or other range, reduce winter mortality, and increase long term herd productivity. If the closure does not occur, current impacts would increase as snowmobile use increases.

Improved Facilities and Miscellaneous

Generally, development of new recreation facilities under Alternatives B and C would result in both direct and indirect losses of wildlife habitat and habitat value. Direct impacts would result from conversion of native wildlife habitat to recreation and related facilities including roads, parking areas, trailheads, camp sites, and day use areas. This would occur to a greater extent under Alternative C than Alternative B. Noxious and invasive weeds would also be a problem at all sites where the soil surface is disturbed. Wildlife displacement related to increased levels of human disturbance at all recreation sites would occur under Alternative B, and to a greater extent, Alternative C.

Adding camping at Juniper, expanding Benchlands, and adding facilities at Blacktail under Alternatives B and C would eliminate mule deer winter range located on non-mitigation lands (Tables 3.4-3 and 3.4-4, respectively). These same native shrub communities also provide habitat for a variety of birds, mammals, and reptiles. Permitting overnight use at Benchlands under Alternative C would increase the potential for human-caused range fires, even though fires would be prohibited, especially during the July 4th holiday period. Reopening the Creekside Park area along Willow Creek under Alternatives B and C would result in disturbance of neotropical migrant and breeding birds that use the riparian community below the dam. Mitigation measures intended to avoid the direct loss of riparian habitat at Creekside and to replace any unplanned loss of the habitat are described for the Preferred Alternative.

Alternative C would allow a third party to construct a power line to Blacktail from the east. Reclamation would permit a right-of-way along the current access road to the park. A direct impact of this action would be that Blacktail could accommodate overnight RV use with full hook-ups. This alternative would also allow development of tent and RV camping, resulting in

additional loss of about 18 acres of upland shrub cover types designated as critical mule deer winter range. This loss would occur in non-mitigation lands at Ririe Reservoir. A secondary impact of permitting electric power to be brought into Blacktail relates to housing development that such a line would allow. Electrical power is not currently available to private lands located immediately to the west of Tex Creek. Construction of a power line to Blacktail would allow more economical development of houses in the vicinity of the power line and would hasten this activity. This would increase human disturbance of wildlife on nearby portions of Tex Creek and could render some portions essentially unusable for wintering big game, with adverse effects on over-winter survival and productivity.

Increased recreation site capacity and boat launching facilities under Alternatives B and C, combined with increasing human population, would result in more human activity on Ririe Reservoir, thereby increasing human disturbance of wildlife throughout the reservoir area.

Alternative actions for an isolated parcel along the Ririe Outlet Channel include retaining the parcel and formalizing a permit process for grazing (Alternative A), retaining the parcel and developing dryland wildlife habitat in cooperation with IDFG (Alternative B), or disposing of the parcel (Alternative C). Wildlife habitat values would improve under the habitat development option and remain low under the other options.

Alternatives

Alternative A—No Action: Continuation of Existing Management Practices

Selection of the No Action Alternative would result in a continuation of the generally slow but steady upward trends in the condition of wildlife habitat on all Tex Creek lands. Reclamation would continue to cooperate with IDFG under the Tex Creek and Cartier Slough Management Plans. Ongoing IDFG activities, including conversion of former farm land to native shrub communities at Tex Creek and control of noxious and invasive weeds at both areas, would continue more or less at their current levels and as currently implemented, which is to react to situations as they become known. Noxious and invasive weed control would continue at current levels and infestations of these plants would likely increase at Tex Creek and Cartier Slough, degrading habitat values. The rate of habitat degradation because of noxious weeds is uncertain but could be substantial over the 10-year RMP time frame. Failure to control noxious weeds during the next 10 years would make future control virtually impossible, with substantial impacts on wildlife habitat quality.

Existing recreation facilities would not be upgraded to meet increasing demand and new recreation sites and trails would not be constructed. Not expanding recreation sites or developing trails would avoid direct habitat loss that would occur under Alternatives B and C.

The Pipe Creek Road would continue to be open for winter use by snowmobiles, thereby reducing the value of critical a substantial area of elk winter range on Tex Creek.

Alternative B—Preferred Alternative: Recreation Development Compatible with Increased Natural Resource Protection Emphasis

New facilities and camping sites at Creekside Park, the Visitor's Center, and Juniper resulting in 12.7 acres of mostly sagebrush/grass habitat loss would occur under Alternative B compared to the No Action Alternative. These actions would occur on non-mitigation lands. Trail development in the Ririe Reservoir area would also be implemented under Alternative B, resulting in a loss of 14 to 17 acres of mostly big sagebrush habitat, with all of the loss occurring in critical deer winter range. This loss would occur as a narrow band along about 10 miles of trails rather than in a single block of land. This impact compares to several thousand acres of winter range present on Tex Creek. As described above, development of trails, and especially the equestrian trail from Blacktail along the west side of Willow Creek, would increase noxious and invasive weed infestations in areas disturbed during trail construction. All locations where the land surface would be disturbed would become more susceptible to colonization by noxious weeds, which would facilitate their spread to adjacent lands, thereby degrading habitat values.

Overall, Reclamation's noxious and invasive weed monitoring and control efforts would increase compared to the No Action Alternative. This would likely occur through a change in priority of Reclamation funds with a greater focus on noxious weeds. This would help to maintain wildlife habitat values and facilitate meeting the long range habitat management goals and Reclamation's mitigation requirements for Tex Creek and Cartier Slough. Monitoring and control along trails would be a priority. Trails would not be maintained during the winter but would not be closed. Winter trail use would displace wintering deer and elk.

Alternative B includes permanently closing winter use of the Pipe Creek road, subject to approval by Bonneville County. If this occurs, it would substantially increase the area of Tex Creek that is available for use by elk compared to Alternative A. If the closure does not occur, current impacts would increase as snowmobile use increases. This alternative also includes increased riparian habitat improvement efforts and a leadership role for Reclamation in the future TMDL process, both of which would benefit a variety of wildlife species compared to Alternative A.

Actions proposed for Cartier Slough (Table 2.2-1) would have some adverse direct and indirect effects on wildlife because of trail development and somewhat higher levels of human disturbance. Controlling trespass grazing and actively managing a 20-acre parcel along the outlet channel for wildlife would have minor beneficial effects on upland game birds and non-game wildlife compared to the Alternative A.

Mitigation

Mitigation measures to protect riparian habitat at Creekside Park and to aggressively monitor and control noxious and invasive weeds were described in Section 3.4, *Vegetation*. Residual effects on wildlife and habitat are described below.

Big game winter range habitat losses, including impacts from trail construction, would be mitigated by replacing impacted winter range habitat value through enhancement of existing winter range in Tex Creek. Enhancement needs of nearby winter range would be evaluated for actions that could improve value and mitigate losses. An approach would be developed to assess impacts, evaluate range conditions, determine mitigation needs to compensate for losses, and implement specific actions. Monitoring would be performed to determine if corrective actions are needed to fully meet mitigation needs.

Residual Impacts

Mitigation of deer winter range impacts resulting from recreation site and trail development would require several years to become fully functional. Therefore, minor short-term loss of habitat would occur. Over the long term, there would be no loss of winter range value.

Regular monitoring and aggressive control of noxious and invasive weeds is expected to reduce infestations of these plants at disturbed sites. However, some relatively minor increase in these plants at new recreation sites and along trails is likely in spite of these efforts.

Alternative C—Recreation Development/Maintain Natural Resource Emphasis

Many of the actions that would be implemented under Alternative C are the same as Alternative B. Only impacts that vary from those of Alternative B are described.

Additional day use facilities would be added east of Willow Creek below the dam, resulting in minor additional wildlife disturbance. Additional access for ice fishing would be accommodated, resulting in displacement of mule deer from portions of their winter range. Upland shrub habitat would be replaced by irrigated lawn at Benchlands and overnight camping would be allowed, resulting in a minor direct habitat loss and increasing the potential for range fires compared to Alternatives A and B.

Expansion of moorage facilities and construction of a new boat launch facility at Blacktail would increase human use of the reservoir with the resulting increase in wildlife disturbance compared to Alternatives A and B. Alternative C would allow a third party to construct a power line to Blacktail and would allow development of tent and RV camping. Additional day use, camping, and parking facilities would eliminate an additional 18.1 acres of upland shrub winter range in this area (Table 3.4-4).

Alternative C does not include improved monitoring and aggressive control of noxious and invasive weeds at Cartier Slough or efforts to improve riparian habitat conditions at Tex Creek. Not implementing these actions would result in adverse impacts similar to those of the No Action Alternative and would not achieve habitat benefits expected for Alternative B. Potential long term impacts from noxious weed infestations would be the same as described for Alternative A.

Alternative C would dispose of the isolated parcel along the outlet channel with similar habitat degradation associated with continued livestock grazing, as the No Action Alternative.

The Pipe Creek road would continue to be open for snowmobile use during the winter. Impacts on wintering big game would be the same as described for the Alternative A.

Reclamation would not take a leadership role in the future TMDL process; the same as under the No Action Alternative.

3.6 Threatened and Endangered Species

3.6.1 Affected Environment

Plants

Ute ladies' tresses (*Sprianthes diluvialis*) is endemic to moist soils in mesic or wet meadows near springs, lakes, or perennial streams within an elevation range of 4300 and 7000 feet. The plant appears to be adapted to regular disturbances caused by flooding on floodplains. The plant seems to occur in areas with shallow water tables where water is near the ground surface (18 inches) throughout the growing season and where the vegetation is relatively open and not overly dense. Mature riparian communities do not provide suitable habitat conditions. The orchid thrives in full sun or partial shade.

Ute ladies' tresses are typically found in two types of plant communities in the RMP area. These communities consist of the spike-rush and the Silverberry/Willow communities. While site specific vegetation surveys have not been conducted, these communities may exist on Willow Creek upstream of the reservoir high water elevation and at the outlet of the dam into Willow Creek. The similar habitats may also occur at Cartier Slough. Ute ladies' tresses have been located on the South Fork of the Snake River upstream of Idaho Falls.

Wildlife

The bald eagle (*Haliaeetus leucocephalus*) is listed as threatened in Idaho. One bald eagle nest is located just upstream of one of the tributaries to Ririe Reservoir near the north end of Tex Creek. The nest is approximately 1,200 feet from the reservoir. The pair produced eggs but did not fledge any young in 1998 (Beals and Melquist 1998). Nest productivity data for 1999 are not available. The nest was occupied in 2000 and 2001, but production of young was not observed.

Bald eagle territories usually include a nest site, perch trees, and foraging areas. Eagles typically nest in isolated, mixed-aged timber in codominant or dominant trees with a clear flight path to feeding areas which, in this case, would be the reservoir. Fish in the reservoir provide the primary prey for the bald eagle. Management for nest protection typically requires a 1/4-mile no disturbance

radius around the nest throughout the breeding season (April through July) but foraging areas may extend throughout the reservoir. Human presence interferes with normal nesting and foraging behavior, although the degree to which their behavior is affected varies for individual eagles.

One bald eagle nest is located 1/4 mile south of Cartier Slough on BLM land, and bald eagles are common in the area all year. The Cartier Slough pair fledged one young in 1998 (Beals and Melquist 1998) and the nest was active in 2000. The abundant fish in the Henrys Fork as well as waterfowl sustain the eagles that use the area.

The FWS letter listing species protected under the Endangered Species Act (ESA) includes the lynx (*Lynx canadensis*), which was proposed for listing under the ESA during preparation of the draft EA, and is now listed as a threatened species. Idaho is near the southern limits of the lynx range. Mountainous regions supporting stands of spruce (*Picea sp.*) and fir (*Abies sp.*), Douglas-fir, and lodgepole pine (*Pinus contorta*) are generally considered to be suitable lynx habitat (Ruggiero et al. 1999). Snowshoe hares (*Lepus americanus*) represent the lynx primary prey (Hall 1981) and red squirrels (*Tamiasciurus hudsonicus*) are an important alternate prey when hares are scarce (Ruggiero et al. 1999). Higher elevation lands in the southeast corner of Tex Creek and on adjacent USFS lands to the east of Tex Creek may provide suitable lynx habitat based on the tree species present and the relatively undisturbed nature of those areas. Snowshoe hares and red squirrels are probably present in both areas.

Gray wolves (*Canis lupus*) were re-introduced into Yellowstone National Park and central Idaho in the mid-1990s. Wolves in the Yellowstone Management Area (a designation by FWS that includes the Ririe Reservoir and Tex Creek areas) are classified as a nonessential experimental population. They now occur widely throughout much of Idaho in both forested and shrub communities. During the winter, wolves are closely associated with wintering big game. Because of the large numbers of deer and elk that winter in the Tex Creek area, wolves could occupy Tex Creek during the winter.

Whooping cranes (*Grus americana*) now occur in portions of southeast Idaho as part of an effort to re-introduce the species at Gray's Lake National Wildlife Refuge, which is located about 20 miles south of Tex Creek. This population is also designated as nonessential experimental. These cranes migrate between southeast Idaho and New Mexico. They use fresh water marshes and wet meadows during the summer and also feed in grain fields (Groves et. al. 1997). Recorded occurrences in Idaho include the Gray's Lake area and the Teton River valley 35 miles northeast of Tex Creek. Both of these areas include large fresh water marshes. No whooping cranes have been reported in the immediate Tex Creek area. Grain fields in the vicinity of Tex Creek probably do not provide very suitable habitat because of the lack of large nearby marshes.

3.6.2 Environmental Consequences

Assessment Categories

The general impacts in each of the Assessment Categories would be the same as described in Section 3.4, *Vegetation*, and Section 3.5, *Wildlife.*

Alternatives

Plants

Alternative A—No Action: Continuation of Existing Management Practices

No facilities would be constructed under Alternative A. Ongoing management activities that involve ground disturbance in areas where Ute ladies'-tresses may occur would not be constructed until appropriate field surveys are conducted. If Ute ladies'-tresses are located, the management activity would be modified to avoid impacts in the vicinity of tresses and the site hydrology would not be changed. Therefore, there would be no effect on Ute ladies'-tresses.

Alternative B—Preferred Alternative: Recreation Development Compatible with Increased Natural Resource Protection Emphasis

Areas around the reservoir that support habitats likely to contain Ute ladies' tresses would be surveyed using established protocols as part of this alternative. If any Ute ladies'-tresses are located in areas where facilities are to be constructed, the facility would be moved to unoccupied habitat to avoid any possible impacts. Therefore, there would be no effect on Ute ladies'-tresses orchids.

Alternative C—Recreation Development/Maintain Natural Resource Emphasis

The same measures described for Alternative B would be implemented to locate and avoid Ute ladies'-tresses orchids. Therefore, there would be no effect on Ute ladies'-tresses orchids from implementation of Alternative C.

Wildlife

Alternative A—No Action: Continuation of Existing Management Practices

The effects of current boating activities on the nesting bald eagles are not known. Future use of the reservoir is expected to increase. No access restrictions or monitoring of potential effects are included in Alternative A. Therefore, implementation of Alternative A may impact the nesting pair of bald eagles by reducing productivity or causing nest abandonment but would not affect the continued survival of the bald eagle.

Areas with the highest potential for supporting lynx would not be affected by the continuation of existing activities. Therefore, there would be no effect from implementation of Alternative A.

Alternative A would have no new adverse effects on wintering big game. Elk use would continue to be precluded along the Pipe Creek Road at times during the winter, possibly reducing potential wolf prey. Occasional snowmobile use of the Pipe Creek Road would increase the potential for disturbance if wolves currently use the area use it in the future and could also increase the potential for illegal shooting of wolves. Alternative A is not likely to jeopardize the continued existence of gray wolves.

Implementation of Alternative A is not likely to jeopardize the continued existence of whooping cranes.

Alternative B—Preferred Alternative: Recreation Development Compatible with Increased Natural Resource Protection Emphasis

Shoreline access would be restricted under Alternative B by signage within 1/4 mile of an active bald eagle nest from April 1 to July 15 to reduce disturbance. However, enforcement capabilities are limited so the effectiveness of the closure would depend largely on the public's willingness to voluntarily adhere to its conditions. If the public adheres to the shoreline access restriction, it should be effective in reducing disturbance of this nesting pair of bald eagles. The bald eagle nest at Cartier Slough is on BLM land and is subject to the February 1 to July 31 public lands closure to all unauthorized entry to protect nesting bald eagles.

Currently, recreation use on the Willow Creek Arm may be causing adverse impacts to be bald eagles. The implementation of Alternative B would provide for conducting a 3-year monitoring program to collect basic life history data on this nest. Details of this monitoring program are provided in Appendix B. This program would also identify environmental and recreational impacts to the nesting pair so that a nest management plan could be prepared and include proper protection measures. Depending on the findings of the monitoring program, implementation of Alternative B will have no effect or possibly a beneficial effect on the nest area by putting the nest management plan that would avoid future impacts into effect. In accordance with ESA, Reclamation would consult with the FWS prior to taking any action in this regard.

Implementation of Alternative B will not affect the bald eagle; however, in the short term, current recreation in the Willow Creek Arm may continue to affect the nest area. Reclamation finds that overall Alternative B will not immediately reduce recreation affects on the bald eagle; therefore, Alternative B may affect but not adversely affect the bald eagle. Consultation would be carried out under the ESA and involve Reclamation and FWS and other agencies as required to achieve full compliance with ESA.

Areas with the highest potential for supporting lynx, Dave's Mountain, would not be adversely affected by actions that would be implemented under Alternative B. Grazing of domestic livestock, recreation improvements, road construction, winter recreation activities (including snowmobiling, skiing, sledding, snowshoeing, snowboarding, etc.), or vegetation management that would be detrimental to lynx are not part of this RMP. Therefore, there would be no effect on the Canada lynx.

Subject to approval by Bonneville County, Alternative B includes closure of the Pipe Creek Road during the winter, including snowmobile use. This action could benefit wintering elk, and indirectly wolves by potentially increasing the size of the elk herd and reducing human disturbance and possible illegal shooting. These potential benefits would not occur if the Pipe Creek Road is not used. Alternative B is not likely to jeopardize the continued existence of the gray worf.

Implementation of Alternative B is not likely to jeopardize the continued existence of whooping cranes.

Alternative C—Recreation Development/Maintain Natural Resource Emphasis

Short- and long-term effects of Alternative C would be the same as those described for Alternative B.

Potential impacts and the effects determinations for the lynx, gray wolf, and whooping crane would be the same as described for Alternative A.

3.7 Aquatic Biology

3.7.1 Affected Environment

Since its creation, Ririe Reservoir has developed into a popular fishery and supports one of the most intensively used salmonid fisheries in the state (IDFG 1996). One of the main reasons for this popularity is the close proximity to Idaho Falls. In addition to the reservoir, several of the larger tributaries upstream of the reservoir, as well as in Willow Creek downstream of the dam, provide recreational fishing opportunities.

Reservoir Fishery

Ririe Reservoir provides a mixed fishery of both cold water and warm water game species. The reservoir also includes many non-game species that compose the majority of the fish biomass in the reservoir. All species are listed on Table 3.7-1.

Table 3.7-1. Game and Non-Game Fish Species Found in Ririe Reservoir

Common Name	Scientific Name
Cold Water Game Species	
rainbow trout	*Oncorhynchus mykiss*
brook trout	*Salvelinus fontinalis*
brown trout	*Salmo trutta*
Kokanee salmon	*Oncorhynchus nerka*
cutthroat trout	*Oncorhynchus clarkii*
Warm Water Game Species	
smallmouth bass	*Micropterus dolomieui*
yellow perch	*Perca flavescens*
Non-Game Species	
Utah chub	*Gila atraria*
Utah suckers	*Catostomus ardens*
mountain suckers	*Catostomus platyrhynchus*
redside shiner	*Notropis lutrensis*
speckled dace	*Rhinichthys osculus*
longnose dace	*Rhinichthys cataractae*
mottled sculpin	*Cottus bairdi*

Source: Simpson and Wallace 1978

The game fish species were mostly established through stocking by IDFG. The only exception is yellow perch, which were illegally introduced in the 1980s but have established a self-sustaining population. Currently, only rainbow trout and kokanee are maintained by stocking programs, as the other gamefish naturally reproduce within the reservoir or tributaries. Yellowstone cutthroats are largely confined to streams but a few do occur in the reservoir (pers. comm., J. Dillon, IDFG, Idaho Falls, ID, April 28, 1999). The non-game fish are not stocked and are considered to be overabundant, particularly the chubs (pers. comm., J. Dillon, Biologist, IDFG, Idaho Falls, ID, April 28, 1999). Bass were introduced to the reservoir to help control chub populations (IDFG 1996). To date, this effort has not proved successful as chubs and suckers are still abundant (pers. comm., J. Dillon, Biologist, IDFG, Idaho Falls, ID, April 28, 1999). Bass growth rates are very slow because of low water temperatures and the short growing season.

The reservoir fishery is open year-round. Sport fishing is mainly focused on hatchery rainbow trout, as they make up about 70 percent of the fish caught based on recent creel surveys (pers. comm., J. Dillon, Biologist, IDFG, Idaho Falls, ID, April 28, 1999). Yellow perch are the next most sought fish, making up about 20 percent of the sport catch. All the other gamefish account for the remaining 10 percent of the catch. Most of the sport fishing takes place in late spring through early fall. There is little opportunity for ice fishing on the reservoir, as the ice-over period is usually short (1 to 2 months) if at all in some years. When ice fishing is available, yellow perch are the primary species caught.

Spawning conditions for warm water game and non-game fish in the reservoir are generally good. Shoreline gravels, rocks, and vegetation usually remain inundated long enough for spawning, egg development, and fry emergence to occur. The cold water species primarily use the tributaries for spawning.

Rearing habitat conditions within the reservoir are generally good, even with reservoir drawdown operations, and adverse effects on the fishery are not known to occur. The reservoir has not yet become heavily eutrophic (high nutrient levels), and has relatively deep water refuge habitat available near the dam during periods of low pool levels. This, coupled with short or absent ice-over periods, has prevented low dissolved oxygen levels common to many western flood control and irrigation reservoirs. During summer, the pool level is maintained at relatively full levels, allowing stratification of the water column (a warm layer of water on top of a cool layer). This provides refuge habitat for cold water species during the warm summer months. In addition, no significant algae blooms occur during the summer that would contribute to poor water quality conditions.

The primary fishery concern on the reservoir is the overabundance of chubs and suckers. During recent survey work, IDFG found that Utah chubs and suckers comprised almost 90 percent of their sampling catch (IDFG 1996). The problem with this overabundance is that most of the available food supply for young fish, such as zooplankton, is probably being consumed by these non-game species. Therefore, this may be limiting the recruitment or growth of some of the game fish species (pers. comm., J. Dillon, Biologist, IDFG, Idaho Falls, ID, April 28, 1999). In addition, most of the game fish do not appear to be using the chubs and suckers as forage as indicated by recent diet samples (pers. comm., J. Dillon, Biologist, IDFG, Idaho Falls, ID, April 28, 1999). This means that little of the biomass in the reservoir is being translated into the sport fishery.

The only other concern of note is the growing conflict between sport fishing use and other recreational use (personal watercraft) on the reservoir. This issue is addressed in Section 2.16, *Recreation* (pers. comm., J. Dillon, Biologist, IDFG, Idaho Falls, ID, April 28, 1999).

Reservoir Tributary Fishery

About 95 miles of streams are located in the Willow Creek drainage above Ririe Reservoir. All but a few of the major streams in the drainage eventually drain into Ririe Reservoir. Most of the streams are located in narrow canyons, and their flows vary from extremes of several thousand cubic feet per second (cfs) during runoff to becoming intermittent during the late summer and winter (IDFG 1996). The six major streams draining into the reservoir are as follows:

- Willow Creek
- Meadow Creek
- Tex Creek
- Grays Lake Outlet
- Brockman Creek (tributary to Grays Lake Outlet)
- Hell Creek (tributary to Grays Lake Outlet)

Tex Creek contains all or portions of these major streams, with the exception of Brockman and Hell Creeks, which are relatively far upstream in the Grays Lake Outlet system.

Most of the tributaries contain wild populations of Yellowstone cutthroat (*Oncorhynchus clarki bouvier*), brown, and brook trout. Yellowstone cutthroat trout are the species of primary focus for IDFG because they are the only native species of salmonids in the drainage. Native cutthroat trout populations are currently depressed in the drainage, although they are believed to be viable (IDFG 1996). Overharvest and habitat degradation are believed to be contributing to the decline of this species (pers. comm., J. Dillon, Biologist, IDFG, Idaho Falls, ID, April 28, 1999). Cutthroat and brown trout currently dominate the catch in tributaries, with hatchery catchable rainbow trout found in stocked areas near road access. No wild rainbow trout have been found in the Willow Creek drainage (IDFG 1996). The cutthroat trout harvest limit is a maximum of two per day; all fish that are between 8 and 16 inches must be released. This rule may have begun to restore cutthroat trout populations (IDFG 1996).

As noted, habitat degradation is believed to be a major contributor to the decline of Yellowstone cutthroat in the Willow Creek drainage. Dry land farming and grazing practices have denuded riparian vegetation within the upper watershed (IDFG 1996). As a result, groundwater inflow is virtually nonexistent in some areas and water temperatures vary widely, both daily and seasonally (IDFG 1996). Turbidity is high during the late winter and spring runoff and generally remains so until mid-summer. NRCS has identified the predominant soil series in the Willow Creek drainage area as one of the most erosive in the United States (IDFG 1996). A water quality program has been initiated to reduce loss of topsoil and improve the water quality of Willow Creek above Ririe Dam. Riparian habitat improvement through improved grazing management is a high priority on both state and private lands (IDFG 1996).

Fisheries Management Considerations

Within the reservoir, most of the fisheries management is concentrated on maintaining a viable sport fishery. The emphasis is on maintaining high game fish numbers in conjunction with high angler use and competition with non-game species. This goal is primarily addressed through stocking programs, because habitat in the reservoir is not considered a significant issue by IDFG. In the tributaries, however, habitat is the primary concern. Many of the riparian areas are heavily disturbed, and soil erosion and bank instability are severe along some streams. IDFG has identified objectives and programs to address these issues for Ririe Reservoir and the Reservoir tributaries (IDFG 1996). These programs are listed in Appendix C. Reclamation supports IDFG's objectives.

3.7.2 Environmental Consequences

Assessment Categories

This section describes the benefits and potential impacts that the alternatives may have on the fishery resources of Ririe Reservoir and some of its tributaries. Most of the actions are not directed specifically at fishery resources (for example, improving a specific portion of known spawning habitat). Instead, they involve indirect improvements such as terrestrial habitat enhancement and BMPs for constructing facilities. The most direct actions that would affect fish are those relating to water quality, erosion, and riparian/shoreline vegetation. These are discussed more fully in Sections 3.2, *Water Quality*; 3.3, *Soils*; and 3.4, *Vegetation*, respectively. The main goals of the RMP for fishery resources (Goal A.2, Appendix A, RMP Draft Goals and Objectives) are to support IDFG in implementing their Fishery Management Plan and the Tex Creek Management Plan, both of which aim to improve habitat conditions.

Native Vegetation Protection and Enhancement

The primary benefits that would be derived from the protection and enhancement of native vegetation for fishery resources would be the reduction of sediment input to the reservoir and tributaries and the maintenance or creation of riparian and shoreline habitat. The No Action Alternative would not provide as many benefits as the other alternatives because vegetation management measures do not extend much beyond noxious weed control. Alternatives B and C would provide more of the benefits to fish through increased vegetation protection measures, as described in Chapter 2 and Section 3.4, *Vegetation*.

If sediment input to tributaries is reduced under Alternatives B and C, then reservoir water quality, and hence, fish habitat would be enhanced. However, most of the reservoir game-fishery is comprised of stocked hatchery fish, so effective in-reservoir benefits would be relatively low.

Enhanced vegetation cover along riparian areas, as a result of measures under Alternatives B and C, would provide the following specific benefits:

- Reduced erosion and sediment input to the reservoir and tributaries, resulting in improved water quality and cleaner spawning substrate.
- Increased potential for more woody debris input along stream corridors, which would enhance cover habitat and stream complexity.
- Increased food production in streams. An increase in the food supply for aquatic insects would be expected to occur, along with an increase in terrestrial insect production.

Erosion Control

Erosion control measures outlined in the No Action Alternative constitute as-needed corrective measures erosion problems. Individually, corrective measures of spot-erosion problems would probably not improve aquatic habitat conditions a substantial amount. However, a programmatic

approach to addressing erosion, such as terracing and creating sediment basins on mitigation lands under Alternatives B and C, would cumulatively improve conditions throughout the reservoir and tributary areas.

Native Fish and Wildlife Protection and Enhancement

The potential benefits of fish and wildlife protection and enhancement actions are essentially the same as described for the *Native Vegetation Protection and Enhancement* assessment category.

Improved or Restricted Access

The improvement of access to the tributaries and portions of the reservoir under Alternatives B and C has the potential to increase angling pressure along with poaching and harvest violations. Improving existing trails and roads, or constructing new ones, would follow all necessary BMPs for minimizing erosion problems during both construction and use (Chapter 5). Short-term increases in sediment following trail construction could have a minor adverse impact on the reservoir fishery in very localized areas. Erosion issues related to trails or roads developed under the two action alternatives are not considered a potential long-term impact on fisheries.

Improved Facilities and Miscellaneous

For the fishery resource impact assessment, the improvement or construction of facilities under Alternatives B and C can be divided into two categories:

- Terrestrial environment facilities, such as campsites and associated parking facilities and access roads, day use facilities, trails, and miscellaneous visitor amenities.
- Reservoir or aquatic facilities, such as fishing piers, boat ramps, swimming areas, and platforms.

The terrestrial improvements would all be planned and constructed under existing BMPs that would minimize erosion potential, hazardous spills from construction facilities, and water quality issues relating to surface water runoff. Implementation of and adherence to these BMPs would eliminate or minimize to the extent practicable any impacts on the aquatic resources.

Expanded facilities, combined with population growth, may increase recreational use by 16 percent over the next 10 years (see Section 3.8, *Recreation*). It can reasonably be assumed, however, that not all of this user increase would translate directly to an increase in angler pressure, only some lessor unknown portion. Given this, angler pressure would not be expected to substantially impact the reservoir or tributary fisheries.

The in- or near-water facilities constructed under the action alternatives would be constructed under BMPs that limit the impact of construction related activities. Also, BMPs would limit the timing of the construction to avoid interfering with gamefish spawning, which occurs in shallow

water along and near the reservoir shoreline. With the exception of boat ramps and swimming areas, all of the planned in-water features (docks and piers) would enhance in-reservoir habitat. These facilities would provide cover, shade, and ambush sites for predatory gamefish. These facilities may also increase predation of gamefish on the over-abundant non-game fish, which is a management goal. However, the overall impact in reducing non-game fish numbers attributable to these habitat improvements would be inconsequential.

Boat ramps and swimming beaches proposed in Alternatives B and C would essentially eliminate minor amounts of near-shore habitat because they are maintained in an artificial state that lacks natural habitat. However, given the extremely small percentage of shoreline area these facilities occupy, their impact on the shoreline habitat would be negligible.

Alternatives

Alternative A—No Action: Continuation of Existing Management Practices

The No Action Alternative would not propose any changes in operation or facilities that would impact or benefit the fishery resource compared to existing conditions. IDFG is actively managing the fishery resource through the implementation of the State Fishery Management Plan for the reservoir and through the management of Tex Creek. Under the No Action Alternative, Reclamation would continue to support these efforts.

Alternative B—Preferred Alternative: Recreation Development Compatible with Increased Natural Resource Protection Emphasis

The natural resources aspect of Alternative B focuses on promoting the protection and enhancement of native fish and wildlife habitat in conjunction with recreational and cultural resources. The primary benefits for fish resources under Alternative B would be improved erosion control and the protection and enhancement of riparian vegetation, as described in Section 3.3, *Soils*, and 3.4, *Vegetation*.

The largest benefits to fisheries from erosion control measures would be derived on Ririe and Teton Mitigation Lands because these areas contain many of the upstream tributaries. Reduction in sediment input would generally improve water quality and habitat, especially for Yellowstone cutthroat trout populations.

The greatest benefits to fisheries from vegetation enhancement would be realized in the Willow Creek Arm and on the Teton Mitigation Lands because these areas contain upstream tributaries. Efforts to improve riparian areas in particular would probably have a more immediate benefit for the fishery resources than upland control of noxious weeds or native vegetation plantings or management. However, in the long run, both programs would enhance stream corridor vegetation, and thus instream habitat conditions, compared to current conditions.

Facility construction and improvement, as well as trail development, would occur primarily at Creekside Park, Juniper Park, the Benchlands Area, and Blacktail Park. These improvements would be constructed using BMPs that would minimize impacts to fishery resources. Only a portion of the recreational increase that follows facilities development would result in increased angler pressure. Therefore, increased angling in the reservoir and the tributaries would not be expected to impact fishery resources. This is particularly true given that more than 70 percent of the angler use on the reservoir is for stocked hatchery trout and that most of the fishing pressure in the Ririe Reservoir and Tex Creek areas is on the reservoir. Only a slight increase in angling pressure would be expected in the tributaries, and IDFG has aggressive angling and harvest restrictions in place to minimize impacts to Yellowstone cutthroat trout.

Alternative C—Recreation Development/Maintain Natural Resource Emphasis

The natural resources aspect of Alternative C would be essentially the same as described for Alternative B, along with additional expansion of recreational sites and facilities. Improved erosion control, as well as native vegetation protection and enhancement, would occur in the same areas and to the same degree as under Alternative B. Therefore, the fisheries resources would experience benefits similar to those described for Alternative B. Protection and enhancement of native fish and wildlife habitat would not occur on Ririe and Teton mitigation lands. So the fishery benefits from these activities described under Alternative B would not occur.

The most notable recreational improvements for fish habitat would be the construction of additional floating platforms at Juniper Park, Benchlands Area, and at Blacktail Park, and an additional fishing pier at Juniper Park. Although these structures do provide usable habitat for reservoir gamefish (mostly warm water species), they would occupy a very small area. An access point for winter ice fishing would be provided at Juniper Park under this alternative. Any increase in fishing pressure as a result of this access would have no effect on the fishery because the winter ice fishing season is short and is primarily for yellow perch, which are an abundant and under-used game species.

3.8 Recreation

3.8.1 Affected Environment

Recreation activities in the reservoir area include both land- and water-based activities, with some seasonal opportunities for snow-based winter recreation. Most of the recreational users of this area are Idaho residents and most are on day trips from the Idaho Falls area and surrounding areas of Bonneville County. Because of the different opportunities available at Ririe Reservoir, Tex Creek, Cartier Slough, and the Ririe Outlet Channel, as well as the distinctly different user groups at each site, these four use areas are discussed separately.

Ririe Reservoir

Recreation Activities and Use Levels

Ririe Reservoir provides recreation opportunities serving Idaho Falls, southeastern Idaho, and out-of-state visitors. Its proximity to Idaho Falls makes the reservoir a popular destination for local recreationists, especially day users. It is estimated that approximately 75,000 visitors typically visit the area during the summer season.

A questionnaire administered by the Bonneville County Department of Parks and Recreation during three summer weekends in 1999 identified some of the most popular activities in the area (EDAW and Bonneville County Department of Parks and Recreation [BCDPR] 1999). Visitors indicated that the most important primary activities while on their trip were waterskiing (29 percent), fishing from a boat (19 percent), powerboating (16 percent), and fishing from shore (9 percent). While these reflect the activity that is most important to their trip, visitors also participate in many other activities while on the same trip. The activities engaged in most frequently include swimming (50 percent of visitors), waterskiing (47 percent), resting or relaxing (42 percent), picnicking (38 percent), powerboating (38 percent), and fishing from a boat (36 percent). Other activities in the area include hunting, snowmobiling, hiking, and camping.

Most visitors to the reservoir were on day trips (92 percent), with those trips averaging about 5.3 hours in length (EDAW and BCDPR 1999). Of those who were on overnight trips, the average length of stay was 2.9 days, or roughly the equivalent of a long weekend trip. Few visitors stay overnight near the reservoir because of the large percentage of day users, a relative lack of camping facilities, and the proximity of accommodations in Idaho Falls.

An indication of the inadequacy of current facilities to meet demand is the estimated current use of these facilities (pers. comm., Craig Daniels, Facilities Manager, BCDPR, Idaho Falls, ID, September 22, 1999). During the summer season (May to September), occupancy at the Juniper Park campground is estimated at 95 percent on weekends and 30 percent on weekdays. Use of the parking area at Blacktail Park is estimated at 100 percent (with overflow) on weekends, and 50 percent on weekdays during the summer season. In addition to use figures, data from the visitor questionnaire indicate that over half (55 percent) of visitors had to wait to use a boat ramp while on their trip (EDAW and BCDPR 1999).

Overall, visitors at Ririe Reservoir felt slightly to moderately crowded (EDAW and BCDPR 1999). Over half of all visitors (54 percent) are engaged in recreation activities on the reservoir on any given day. With respect to conditions on the reservoir itself, similar levels of crowding were perceived by reservoir users.

Recreation Facilities

Recreational facilities are currently provided at three developed sites on Ririe Reservoir by BCDPR, including Juniper Park, Blacktail Park, and Benchland Park, as well as dispersed recreation sites at Tex Creek and Cartier Slough operated by IDFG (Maps 2-1, 2-2, and 2-3). Most of the recreation facilities at this site were developed when the project was built in 1975. An additional site—Creekside Park—is located downstream of the dam, but this facility was recently closed to recreational use.

Data on visitor perceptions of the existing facilities shows that most feel that the number of facilities (boat ramps, campgrounds) at the reservoir are about right, with only the slightest indication that the number of boat ramps, shoreline access points, docks, and available parking spaces are too low. Visitor support is limited for the construction of new facilities; however, there is visitor support for better maintenance of existing facilities (EDAW and BCDPR 1999).

Juniper Park, located at the northern end of the reservoir, contains a separate day-use area with an overlook and interpretive facilities, an overnight campground with two loops containing a total of 49 sites and one camp host site, and a boat launch. Access to the water at this location is somewhat limited because of the steeply sloping access road that terminates at a two-lane concrete boat ramp. The steep shore at Juniper Park inhibits other recreational access; however, a small floating dock close to the boat ramp is available for tie-ups. Juniper Park receives the most use of the recreation sites on the reservoir, a function of both its camping facilities and its proximity to Highway 26, which is a main route between Jackson Hole, Wyoming, and Interstate 15 in Idaho Falls. At Juniper Park, universal accessibility (access to visitors with physical disabilities, including wheelchairs) to existing recreation facilities is variable. At the day use area and overlook, accessible facilities include two flush restrooms, visitor center/office, parking stalls, and a paved pathway. At the campground, accessible facilities include a restroom and shower, and one campsite (partially accessible) out of 49 sites. Paved pathways are not accessible at the campground. At the boat launch, only the restroom is accessible. The restroom at the boat launch below Juniper Park is universally accessible. There is also an accessible parking stall being completed here.

Below Ririe Dam is Creekside Park; Bonneville County recently decommissioned this park because of maintenance problems and safety concerns. Access to this park was provided by a road across the top of the dam. Visitors at the top of the dam may also stop at a viewpoint area where a portable toilet is located, as well as parking for approximately 10 vehicles. Park facilities formerly included two parking areas and a paved access road, landscaped areas, a group tent camping area, and a shelter and vista point. Restrooms at Creekside Park have been recently demolished. Visitors to the park were able to access the river below the dam for fishing, wildlife observation, and walking. No universally accessible facilities existed at this park.

Blacktail Park, a day use-only area located at the southern end of the reservoir, contains a boat launch with two large parking areas, a large grassy area, concession stand offering food and beverage items as well as fuel for boats, day use picnic area with covered tables, marina, swimming area, and restrooms. Two of these picnic tables were replaced by Bonneville County with accessible tables. The boat launch here is much larger than that at Juniper Park, and is closer to

many visitors coming from Idaho Falls. This site is closed in the winter to reduce potential impacts on wintering elk and deer. Blacktail Park contains the only designated swimming beach on the reservoir, which is protected from boat traffic by a floating dock demarcating a no-wake zone. At Blacktail Park, universally accessible facilities include two (out of 13) picnic shelters, with asphalt and concrete paving (tables are not accessible), two accessible parking stalls, and one accessible vault toilet.

Benchlands Park, a day use-only area located along the western shore of the reservoir between Juniper and Blacktail, is only accessible from the water by boat, as there are neither road nor non-motorized trail connections to this dispersed site. The park consists of five covered picnic tables with barbecue grills and a pit toilet. The first covered picnic area has a universally accessible picnic table with a gravel path leading up to it. The shoreline consists of a sandy beach, which is close to the picnic sites when the reservoir is at full pool. Vegetation is different from Blacktail because it is mostly sagebrush and other wild grasses, with a small irrigated lawn area. Only one picnic area at Benchlands Park is universally accessible.

Other developed facilities on Ririe Reservoir include scattered floating platforms that are moored close to shore along the length of the reservoir. They are needed because the steep grade of the reservoir shoreline limits the beaching of boats by visitors. These platforms are maintained by Bonneville County and serve as tie-ups for boaters during the day, as well as overnight moorage for those camping on their boat. At seasonal drawdown, most of these docks are beached along the exposed banks. None of these platforms are universally accessible.

Ririe and Teton Mitigation Lands—Tex Creek WMA

Tex Creek is managed by IDFG as critical winter range for elk and mule deer, as well as habitat for upland game birds. It supports high numbers of elk, deer, moose, sharp-tailed grouse, and a variety of non-game species. Recently, bald eagles have once again attempted to nest in the upper end of the reservoir within Tex Creek. Two of the most popular recreational opportunities at Tex Creek are wildlife viewing and hunting for deer, elk, and grouse (pers. comm., P. Faulkner, IDFG, Idaho Falls, ID, November 11, 1998). Opportunities for horseback riding, hiking, mountain biking, and snowmobile riding are also available. No estimate of annual visitation is available for Tex Creek.

The IDFG operates six primitive campsites scattered in different areas of Tex Creek, three of which are on Reclamation land. These sites cater to groups of between 2 and 15 people and are used primarily in the fall for hunting, rather than in the summer when there is little shade and the area is hot and dusty. There is a 10-day limit for dispersed camping at these sites. These sites typically include poles for horse tie-ups, horse trailer pull-throughs, fire rings, and level tent areas. None of these sites are universally accessible. The most popular of these sites, in part because it has summer shade provided by large trees, is an area known locally as Smith Place. The second-most popular area includes two sites along Meadow Creek that are clustered together. This area has a horse corral and chute for group use. Another popular location is Indian Creek Pond. This site has been scheduled for improvement for wildlife viewing opportunities.

Ririe and Teton Mitigation Lands—Cartier Slough WMA

Cartier Slough is a 1,026-acre area managed by IDFG as habitat for waterfowl and fur-bearing mammals. A small parking area and boat launch at this site are managed by IDFG. The primary recreational activities include walking, wildlife viewing, hunting (waterfowl, pheasants, deer, moose, and small game), fishing, trapping, snowshoeing, and cross country skiing. Cartier Slough is also used by Rexburg school and scout groups, and by Ricks College as an outdoor classroom. Access includes a small parking lot with a non-motorized trail into the area. None of the facilities are universally accessible. Adjacent to Cartier Slough is Beaver Dick Park, owned and operated by Madison County. This park provides a campground, picnic shelters, restrooms, boat ramp, and an accessible fishing pier. The primary walk-in access to Cartier Slough is through Beaver Dick Park; however, visitors also walk in from the access road along the north boundary of Cartier Slough.

Ririe Reservoir Outlet Channel

This man-made channel extends approximately 8 miles from its confluence with Sand Creek to the Snake River in Idaho Falls. A rough gravel road borders the channel on both sides. These roadways are likely used by local residents for jogging, bicycle riding, and off-road vehicle (ORV) use. No formal facilities are provided. Some public use of this corridor occurs in the last mile nearest the Snake River where visitors access the Snake River for fishing on an ad hoc basis. No estimate of annual visitation is available for the Ririe Outlet Channel.

3.8.2 Environmental Consequences

This section discusses the expected positive and adverse impacts of the RMP alternatives on recreation resources. A general discussion of these potential impacts in each of five assessment categories is presented below, followed by a more detailed discussion of impacts under each of the three alternatives.

Assessment Categories

Native Vegetation Protection and Enhancement

The degree of proposed native vegetation protection and enhancement varies by location. Recreation facilities and use areas generally have less emphasis compared to undisturbed native vegetation areas. In areas where proposed recreation facilities are to be implemented, impacts to existing native vegetation would be minimized. Removal of native vegetation would be allowed in these areas where the expansion of recreation facilities is needed. However, under Alternatives B and C, native vegetation protection and enhancement measures would be followed in surrounding areas.

Noxious weed infestations are an increasing problem at both Tex Creek and Cartier Slough, although these infestations do not directly affect recreation in these areas. Under Alternatives B and

C, interpretive facilities that provide information about noxious weeds would be provided. Interpretive facilities would identify common noxious and invasive weeds, discuss problems that they pose, and request support in avoiding the spread of these species.

Erosion Control

Erosion control measures could impact recreation use if erosion problems were identified in existing or proposed recreational facilities or use areas. Adverse effects on recreation could also occur in response to a Reclamation-supported IDEQ TMDL process. In general, erosion control efforts under Alternatives B and C would not have an adverse impact on recreation and would enhance the visitor experience, with the exception of specific erosion problem areas at recreation sites that may be identified in the future and require remediation that may limit recreation use.

Native Fish and Wildlife Protection and Enhancement

Actions that would be implemented that relate to recreation under Alternative B and to a slightly lesser extent, Alternative C include maintaining and protecting riparian habitat, actively improving riparian habitat, winter closure of some areas, and permanent closure of some areas. In most cases, these proposed actions would have an adverse impact on recreation use and opportunities. Actions related to nest protection would have the potential for limiting use of a small section of the shoreline within the Willow Creek Arm. Under Alternative B, winter closure of Pipe Creek Road would limit use of the area. This measure would allow for continued use of closed areas by sensitive wildlife species without the detrimental impacts that now result from concurrent recreational use. The closure as proposed by Alternative B could have the effect of shifting existing recreational use to nearby adjacent areas.

Improved or Restricted Access

Potential actions related to public access involve either improving access, such as providing additional non-motorized trails, or restricting access to protect habitat or wildlife. Actions related to restricting access were discussed above under Native Fish and Wildlife Protection and Enhancement. However, several actions under Alternatives B and C would result in both improved access and a positive impact on recreation and the visitor experience. One specific group of actions proposed under both Alternatives B and C involves developing additional non-motorized trails that would serve distinct recreational user groups. Potential non-motorized trail developments that would improve access include hiking trails, groomed cross-country ski trails, and interpretive pedestrian trails. A separate action that would improve access to recreational users would involve permanently opening specific areas to recreation use, such as the outlet channel as proposed by Alternatives B and C.

Improved Facilities and Miscellaneous

Many actions under both action alternatives would result in the improvement of recreation facilities, which would have a positive impact on recreation and increase day use. Potential actions focus on the improvement, expansion, or construction of facilities associated with day use, overnight, or boating facilities. Most of these actions would result in improved opportunities for recreation and a higher quality recreation experience. However, adverse impacts associated with increased recreation include the increased operations and maintenance costs associated with additional trash removal, human waste disposal, and law enforcement. Specific actions as they relate to alternatives and a discussion of the more specific impacts of these actions on recreation are presented in more detail below.

Alternatives

Alternative A—No Action: Continuation of Existing Management Practices

All recreation sites and facilities currently available would be operated at their current level of service, with a few exceptions. One exception is Benchlands Park, where restroom facilities would be upgraded to be made universally accessible as part of an existing Reclamation mandate. This alternative would also result in a continuation of current management regarding the closure of Creekside Park. This alternative would result in continued closure of the area to motorized access with no facilities provided.

While few immediate direct effects on recreation would result from this alternative, several indirect effects could impact recreation in the future. Current use trends suggest that recreational visits to the area would continue to increase. With a continuance of current recreation management operations into the future, no mechanism would exist to relieve higher levels of use that would likely fill the day and overnight use areas to capacity on summer weekends. There is also a perception among some users that additional boat launch facilities are necessary to eliminate long waiting periods. Thus, one effect of this alternative on recreation would be more crowded conditions resulting in a higher density recreation experience. Increased crowding would negatively impact the visitor experience and likely result in lower overall satisfaction.

Alternative B—Preferred Alternative: Recreation Development Compatible with Increased Natural Resource Protection Emphasis

This alternative would allow for an increase in recreation development, principally at Ririe Reservoir. This increase would include additional day use and overnight facilities, as well as additional non-motorized trails and increased access in some areas. In general, this alternative would have a positive impact on the recreational experience in the area, with a few exceptions discussed below. Expansion and development of new facilities would increase the opportunities available to visitors without exceeding the carrying capacity of the area.

The most considerable positive impacts on recreation allowed under this alternative would result from proposed improvements at Juniper Park and Blacktail Park. New recreation development at Juniper Park would result in many new recreational opportunities that would greatly increase the capacity for visitor participation in camping, fishing, boating, swimming, hiking, shoreline access, and interpretation and education. This alternative would allow the capacity of the campground to be doubled and would greatly increase the total acreage of the park devoted to active recreation. A similar expansion in recreation opportunities would be allowed under this alternative at Blacktail Park; however, the actual developed acreage of the park would not increase. The capacity of existing day use facilities would essentially be doubled, with new facilities allowed related to fishing, boating, interpretation and education, and visitor services. This alternative would permit a 4- to 6-mile long non-motorized trail on the reservoir's eastern shoreline and rim; and a new trailhead and trail leading from Blacktail Park to Tex Creek WMA. Other improvements would include new and expanded swimming areas, additional parking, and floating platforms on the reservoir, as well as new regulatory and informational signage.

Additional recreation development would also be allowed at several other areas. Creekside Park would be reopened, with the development of new day use facilities, hiking trails, and interpretive facilities. A group tent camping area would also be allowed and used as demand warrants. This alternative would slightly increase the total developed acreage of this park. Developments along the east side of Willow Creek below the dam would formalize existing recreation uses here. Day use facilities at Benchlands Park would be expanded; however, no additional acreage would be added to this site. Formalization and new development of non-motorized trails, increased interpretation and education, and increased public access opportunities would also be allowed at the Ririe Outlet Channel, Tex Creek, and Cartier Slough.

Two actions under this alternative would have minor adverse impacts on recreational access in two specific areas. Under this alternative, wildlife restrictions on the Willow Creek Arm would restrict seasonal public use of approximately 1/4 mile of the reservoir shoreline. However, since this zone represents a very small portion of the total shoreline available to public use, the adverse impact of this closure on recreational access is considered minor. A second action under this alternative would close the Pipe Creek Road at Tex Creek during the winter because of concerns for recreation impacts on wildlife. This would have an adverse impact on opportunities available for snowmobiling in the immediate area. However, USFS lands immediately east of Tex Creek are open to snowmobile use and have more reliable snow conditions.

Alternative C—Recreation Development/Maintain Natural Resource Emphasis

This alternative would allow for additional recreation development beyond those actions allowed under Alternative B. Alternative C would also greatly expand the actual developed acreage of some recreation areas. In general, this alternative would have a positive impact on the recreation experience in the area, with a few exceptions discussed below. Expansion and development of new facilities would increase the opportunities available to visitors without exceeding the physical carrying capacity of the area.

In most cases, this alternative allows for recreation development similar to that outlined in Alternative B, with the notable exceptions of Blacktail Park and Benchlands Park. At Blacktail Park, the area devoted to active recreation would more than double with the development of a new day use area and a new campground. Blacktail Park would remain a day use area under Alternative B, but would be expanded for overnight use under Alternative C. While no change would result from the No Action Alternative, other improvements not listed under the previous alternative would include expanded moorage facilities, a new boat launch facility, and the potential availability of electrical power brought in from offsite. The active recreation area at Benchlands Park would also greatly increase in size under Alternative C by allowing overnight use at this location. Under Alternative C, Benchlands Park would also become an overnight facility; in Alternative B, it is a day use site only. Other than compliance with Federal accessibility requirements, no change would be made to Benchlands Park under Alternative A. In the case of both Benchlands Park and Blacktail Park, the development of overnight facilities would create additional operations and maintenance concerns not involved in the operation of the existing day use facilities.

Other recreation areas and facilities would not increase in size under Alternative C, but the development of additional recreation facilities and access routes would be allowed. A new fishing pier, concession facility, and winter access for ice fishing would be allowed at Juniper Park, and additional floating day use platforms would be added under this alternative. Other positive impacts to recreation under this alternative include the additional day use facilities on the east side of Willow Creek below the dam.

One minor adverse effect on recreation under Alternatives B and C remains the same. Restricted public shoreline access for a 1/4-mile zone along the Willow Creek Arm of the reservoir would be implemented.

3.9 Land Use

3.9.1 Affected Environment

This section provides an overview of existing land status and management issues; agreements, easements, and leases; and encroachment and trespass issues, as well as a brief discussion of surrounding land uses.

Existing Land Status and Management

Reclamation's land holdings consist of approximately 1,564 acres of submerged lands beneath the reservoir itself, as well as most of the canyon, large portions of Tex Creek, most of Cartier Slough, and the Ririe Outlet Channel (see Table 3.9-1). Reclamation lands are composed of mitigation and non-mitigation lands. Mitigation lands at Tex Creek and Cartier Slough are those lands that were specifically set aside to compensate for the loss of wildlife habitat from the development of the Ririe and Teton dam and reservoir projects. Management of the Ririe and Teton mitigation lands at Tex

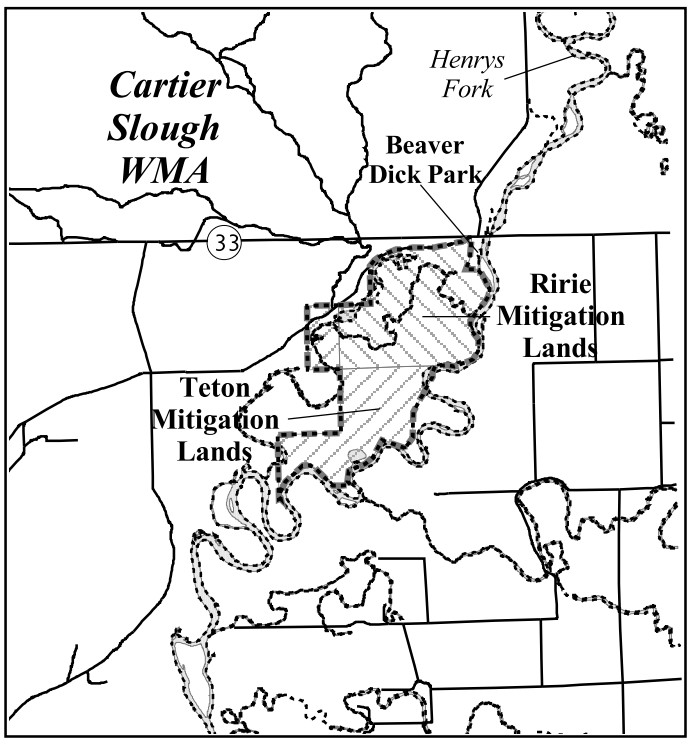
Creek is first and foremost for the conservation and protection of habitat for big game species, particularly elk and deer. All other uses of the mitigation lands (for example, recreation) are considered secondary. Management of mitigation lands at Cartier Slough is directed toward waterfowl. Non-mitigation lands comprise all other Reclamation-owned lands. Maps 2-1, 2-2, 2-3, and 3-2 show the extent of Reclamation's ownership and the specific areas covered by the Ririe and Teton mitigation lands, as well as the non-mitigation lands. Table 3.9-1 provides a breakdown of Reclamation's land ownership as it relates to mitigation and non-mitigation lands for all Reclamation lands.

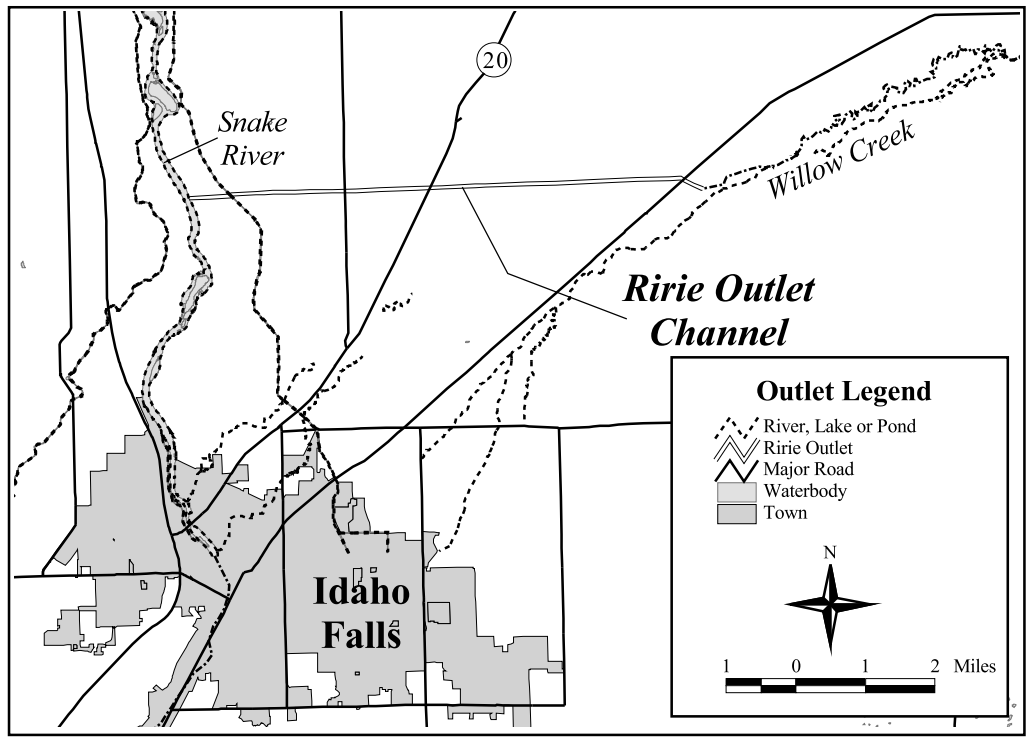
As shown on Map 3-2, not all lands within Tex Creek are mitigation lands. Lands surrounding the Benchlands recreation site, Blacktail Park, and a drainage on the north side of the Willow Creek Arm are non-mitigation lands, as well as a 300-foot wide zone extending around the reservoir (within the WMA) from the reservoir's high pool level. These non-mitigation lands are not encumbered by any agreements or plans related to Tex Creek. However, since Tex Creek was established, they have been managed as part of the overall WMA.

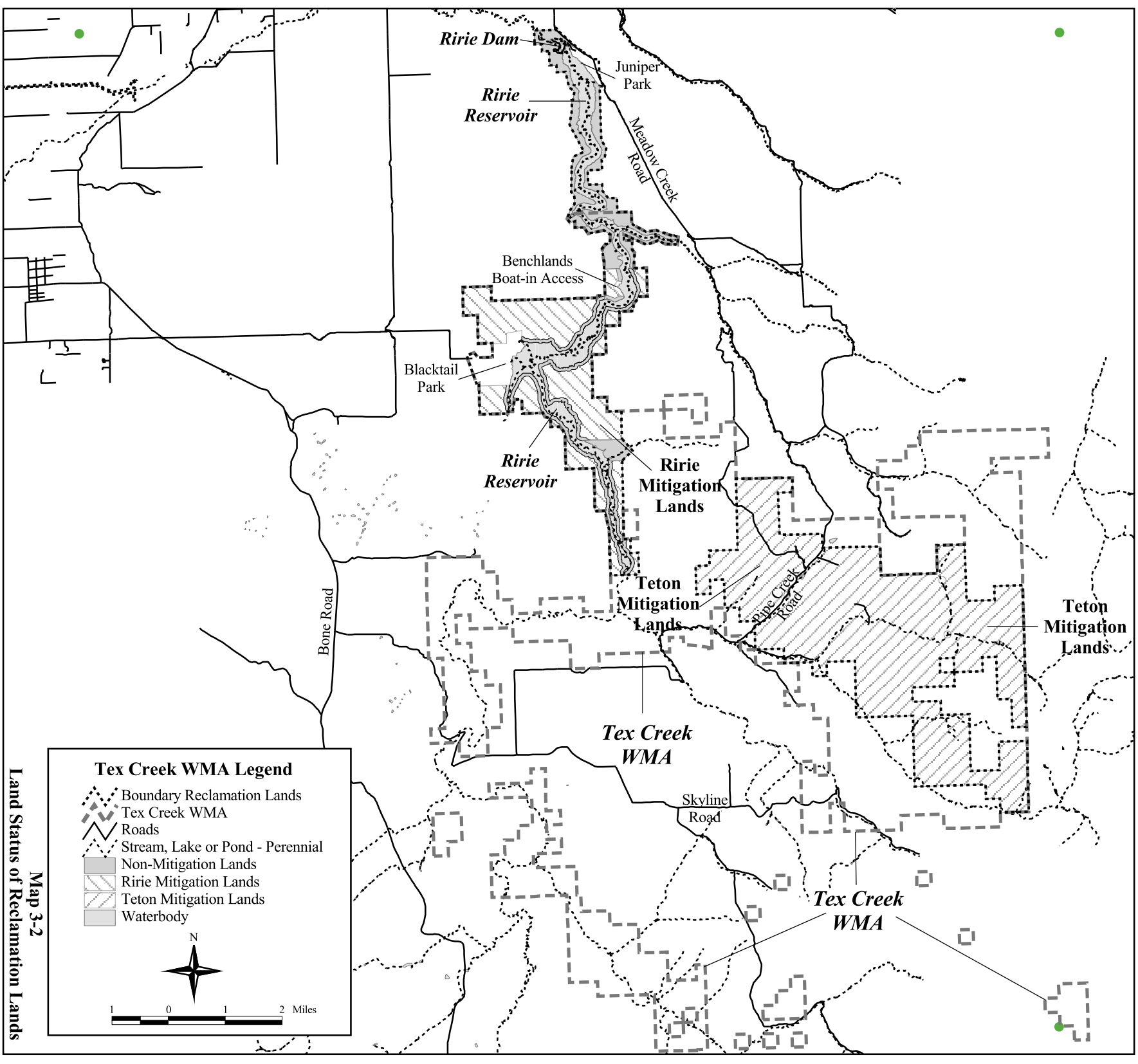
Land surrounding the northern half of the reservoir is managed by Reclamation, while the IDFG manages Tex Creek and Cartier Slough. The Bonneville County Department of Parks

Map 3-2
U.S. Bureau of Reclamation
Ririe Reservoir Resource Management Plan
Land Status of Reclamation Lands

The information displayed here is based on the best available data at the time of publication. Neither the authors, Reclamation, or any other party here warrant or represent that the information is in every respect complete and accurate, and are not held responsible for errors or omissions.







Map 3-2
Land Status of Reclamation Lands

and Recreation manages the three recreation sites at the reservoir. However, as the landowner, Reclamation has ultimate authority and responsibility over the management of all Reclamation lands.

Table 3.9-1. Bureau of Reclamation Land Ownership (in Acres)[1]

Reclamation Lands	Tex Creek WMA	Cartier Slough WMA	Outside of WMAs	Total
Ririe Mitigation Lands	2,502[1]	560	NA	**3,062**
Teton Mitigation Lands	9,104	468	NA	**9,572**
Non-Mitigation Lands within WMAs[2]	1,407[3]	0	NA	**1,407**
Non-Mitigation Lands Outside of WMAs Adjacent to Ririe Reservoir[2]	NA	NA	646[4]	**646**
Other Non-Mitigation Lands Outside of WMAs (Ririe Outlet Channel)	NA	NA	167	**167**
Total	**13,013**	**1,028**	**813**	**14,854**

Source: Reclamation 2000
[1]Original mitigation lands minus the 567 acre reservoir buffer.
[2]Does not include submerged lands of about 1,073 acres for the reservoir in the WMA.
[3]Original non-mitigation lands plus the 567 acre reservoir buffer.
[4]Does not include the submerged lands of about 491 acres for the reservoir not in the WMA.

Ririe Reservoir

Ririe Reservoir was created by the COE in the early 1970s when Willow Creek, a tributary of the Snake River, was dammed. The reservoir was authorized under the Ririe Project in 1962. Authorized purposes include flood control, irrigation, and recreation. Fish and wildlife protection measures also were included in the Ririe authorization. The 12-mile-long reservoir contains 100,500 acre-feet of water retained for flood control and irrigation comprising 1,560 acres of surface area (Reclamation 1974).

Management of recreation has been contracted to the Bonneville County Department of Parks and Recreation since 1995. The county has managed the reservoir surface and three adjacent recreation sites since this time, maintaining recreational and administrative facilities and providing staffing and visitor services.

Tex Creek WMA

Most of Reclamation's lands (11,606 of 13,013 acres) within Tex Creek were acquired for the purpose of mitigation of fish and wildlife habitat losses caused by the construction and operation of the Ririe Reservoir Project and the Teton Project. Tex Creek is comprised of a patchwork of

Reclamation, IDFG, BLM, and private lands. The IDFG manages the entire Tex Creek with priority for big game winter habitat. Reclamation owns approximately 11,606 acres of the 28,750-acre Tex Creek (Reclamation 2000), including approximately 2,502 acres surrounding the southern portion of the reservoir (Ririe mitigation lands) and 9,104 acres located in a non-contiguous parcel southeast of the reservoir in the Indian Fork, Pipe Creek, and upper Tex Creek drainage (Teton mitigation lands).

Cartier Slough WMA

Reclamation's lands within Cartier Slough were also acquired for the purpose of mitigating fish and wildlife habitat losses caused by the construction and operation of the Ririe and Teton Projects. The WMA is composed of approximately 1,028 acres of Reclamation land, which are managed by IDFG. Primary management priorities for Cartier Slough are to provide habitat for waterfowl, threatened and endangered species, and other game and non-game wildlife. Secondary management priorities are to provide for wildlife-related recreation. Although Cartier Slough is entirely composed of the Reclamation Ririe and Teton mitigation lands, there are parcels of BLM-owned lands (located along the Henrys Fork of the Snake River) that IDFG includes in the management activities of the WMA. However, no agreement currently exists between the IDFG and BLM related to their management activities on these lands.

Ririe Outlet Channel

Below the dam, water is discharged from Ririe Reservoir into Willow Creek, which flows in its natural stream channel for approximately 6 miles through private property. Where Sand Creek branches from Willow Creek, an outlet channel owned and operated by Reclamation connects Willow Creek to the Snake River to the west. This 7.8-mile-long channel provides overflow capability, preventing flooding in Idaho Falls. The channel is about 50 feet wide at the surface and ranges in width from approximately 30 feet to 200 feet on either side.

Existing Agreements, Easements, and Leases

Agency Agreements

Ririe Reservoir

The Ririe Reservoir and Project-related lands were transferred to Reclamation from the COE by a Memorandum of Agreement (contract #DACW68-75-C-0124) on October 14, 1976.

Ririe Mitigation Lands

A tri-party agreement (contract #DACW68-75-C-0091) between Reclamation, the COE, and IDFG was signed by all three agencies on August 18, 1976, establishing the Ririe mitigation lands adjacent to Ririe Reservoir, at Tex Creek, and at Cartier Slough. The

purpose of establishing the mitigation lands was to mitigate for the loss of fish and wildlife habitat caused by the construction and operation of the Ririe Reservoir Project. This 100-year agreement designates the IDFG as the manager of these lands.

Teton Mitigation Lands

A 25-year agreement (contract #1-07-10-L0450) between Reclamation and IDFG established the Teton mitigation lands south of Ririe Reservoir and at Cartier Slough. The purpose of establishing the mitigation lands was to mitigate for the loss of fish and wildlife habitat caused by the construction and operation of the Ririe and Teton Projects. The agreement designated the IDFG as the manager of these lands and will expire on October 1, 2006 (that is, within the life of the 10-year RMP).

Ririe Reservoir Recreation Sites

Reclamation has an agreement with Bonneville County (MOA #1425-5-MA-10-01120) authorizing the county to provide management, operation, maintenance, development, and replacement of all recreation facilities. The agreement included financial cost sharing by Reclamation for the first 3 years of the agreement (1995 to 1997). This 2-year agreement, renewable for up to 20 years, began in 1997 and was last renewed in 1999.

Related Agreements

The IDFG and Madison County Parks and Recreation have a cooperative agreement for the development and maintenance of a windbreak on Cartier Slough through their Habitat Improvement Program. The agreement requires the county to develop and maintain a 1.24-acre, five-row windbreak adjacent to the county's Beaver Dick Park on Cartier Slough. The 10-year agreement is effective from May 1, 1994 until May 1, 2004.

Agricultural Leases

There is one agricultural lease (contract #1-07-14-L0201) for 14 acres of land along the canyon rim near the northwest corner of the reservoir. The lease does not include water rights, nor can the lessee restrict hunting and fishing by the public on leased lands. This one-year renewable lease began in 1998 and would be extended at the lessee's discretion, if conditions of the lease are met, until 2003.

Crossing Agreements/Rights-of-Way/Easements

Numerous utility crossings are authorized for utilities and public service agencies including Utah Power (also known as PacifiCorp), the City of Ucon, Mountain Bell Telephone, Idaho Irrigation District, Progressive Irrigation District, and Bonneville County. These arrangements allow pipes, roads, and power and communication lines to cross Reclamation lands.

Existing Encroachments and Trespass Issues

Natural barriers, limited services, and ownership of adequate buffer land prevent encroachments around Ririe Reservoir. Tex Creek, Cartier Slough, and the Ririe Outlet Channel are more subject to livestock trespassing but have little physical encroachment.

Ririe Reservoir

Encroachments have not generally been a problem around Ririe Reservoir. Because Reclamation's land is located within the canyon surrounding the reservoir, this barrier generally protects the lands from encroachment. In addition, its relatively remote location and lack of public services inhibit development.

Tex Creek WMA

The Tex Creek WMA boundaries are fenced and residential encroachments are not an issue. However, cattle trespass is a frequent problem within Tex Creek and generally results from cattle entering the area through broken fences. IDFG's WMA staff regularly repair fences after notifying adjacent ranchers that cattle have crossed into the WMA.

Cartier Slough WMA

Encroachments have not been a problem near Cartier Slough. However, cattle trespass does occur occasionally.

Ririe Outlet Channel

Most of the Ririe Outlet Channel is protected from encroachment by roads and fences. However, cattle trespass had been occurring on about 15 acres for several years. This trespass activity was terminated in 1999.

Surrounding Land Use

A variety of land uses occur near Reclamation's lands. These include traditional uses such as crop and pasture lands, as well as more recent uses such as urban development and lands managed for conservation purposes. In general, the intensity of surrounding land uses is determined by proximity to water, transportation, and other infrastructure.

Ririe Reservoir

Most of the property surrounding Reclamation lands is privately owned and used for agriculture. Farmland near the downstream end of the reservoir slopes gently to the north and is accessible from Highway 26. These lands are irrigated and planted in rotations of potatoes, wheat, and alfalfa.

Agricultural structures such as pivot circles and potato sheds can be seen from Juniper Park. Scattered houses are associated with the adjacent farms.

Much of the land bordering Reclamation's property is flat or gently sloping. Lands west of the reservoir slope gently downward to the west, planted in dryland wheat. Grazing is common on other adjacent land, particularly in the more remote areas farther south.

With the exception of a large home overlooking the dam immediately south of the Juniper campground, there is currently no residential use close to the reservoir. The only other noticeable private construction consists of a large shelter for potato crops on the canyon rim above the former Creekside Park area below the dam.

Tex Creek WMA

Most of Tex Creek is bordered by private ranches and farms with cattle grazing being the predominant use of these lands. Additional land is cultivated in wheat and other dryland crops, while some is planted in forage crops, under the NRCS Conservation Reserve Program. In general, the lowland areas of Tex Creek border grazing or agriculture, while upland areas border pasture, Conservation Reserve Program land, and forested lands such as the Caribou National Forest along the eastern boundary. Residences near Tex Creek include ranches and several rural home sites.

Cartier Slough WMA

Wetland areas extend to the north and south of Cartier Slough and are mostly privately owned; however, some land is owned by the BLM. Surrounding uses generally consist of grazing and farming. In addition, Beaver Dick Park, a small public recreation area owned and operated by the Madison County Department of Parks and Recreation, is located at the northeast corner of Cartier Slough.

Ririe Outlet Channel

The outlet channel is almost entirely bounded on either side by privately owned pasture and irrigated farmland.

3.9.2 Environmental Consequences

Assessment Categories

Native Vegetation Protection and Enhancement

No direct impacts on land use are expected from actions to enhance vegetation, wildlife habitat, and natural resources on Reclamation lands under any of the alternatives. An indirect beneficial impact would result from the realty action proposed under all alternatives related to the agricultural

use area on the Ririe mitigation lands at Tex Creek. This action calls for pursuing a land exchange or sharecrop agreement to acquire or develop habitat that benefits wildlife.

Erosion Control

The majority of erosion control measures proposed under Alternatives B and C would involve monitoring and reacting to address specific problems that are identified. These measures would have positive impacts on land use by protecting land from erosion.

Native Fish and Wildlife Protection and Enhancement

Actions that would be implemented in support of native fish and wildlife enhancement that relate to land use under all of the alternatives, especially Alternative B, include maintaining and protecting riparian habitat, actively improving riparian habitat, winter closure of some areas, and permanent closure of some areas. These potential actions would not have a direct impact on land use.

Improved or Restricted Access

Road closures proposed under Alternative B could potentially have an indirect impact on land use if roads to be closed provide unique access to private property. Since the Pipe Creek Road is not used for this purpose, access changes would have no impact on land use.

Improved Facilities and Miscellaneous

Facility improvements proposed by Alternatives B and C would generally result in positive land use impacts by enhancing one of the region's major water-based recreation attractions and thereby improving the local quality of life.

Allowing electrical power to be brought into Blacktail as proposed under Alternative C could indirectly result in adverse land use impacts at Ririe Reservoir and Tex Creek by modifying land uses adjacent to the reservoir and the Ririe mitigation lands at Tex Creek. Access to electricity could make land overlooking the reservoir and the Ririe mitigation lands at Tex Creek highly desirable residential real estate. Land use impacts could result if the availability of electrical power fosters new residential development on properties west of Reclamation-owned lands.

Alternatives

The following section discusses the expected impacts of each of the three alternatives on land use in the area. This section addresses the relative magnitude of the impacts and provides a brief description of how the proposed recreation development comprising each alternative would affect land use. Except as otherwise noted, none of the alternatives would have a direct impact on regional land use.

Alternative A—No Action: Continuation of Existing Management Practices

No direct or indirect land use impacts are expected to result from this alternative.

Alternative B—Preferred Alternative: Recreation Development Compatible with Increased Natural Resource Protection Emphasis

No direct or indirect adverse land use impacts are expected to result from this alternative. Minor positive impacts could indirectly result from quality of life enhancements and directly from erosion control measures.

Alternative C—Recreation Development/Maintain Natural Resource Emphasis

This alternative would allow recreation development to be maximized within the constraints imposed by existing agency commitments. Although this would not have direct land use impacts, providing electricity in Blacktail could potentially result in indirect adverse land use impacts on adjacent private lands as discussed above.

3.10 Public Facilities, Utilities, and Services

This section addresses impacts associated with both action alternatives and the No Action Alternative on the area's public facilities, utilities, and services.

3.10.1 Affected Environment

The limited public facilities at Juniper Park, Blacktail Park, Benchlands, and Beaver Dick Park are operated by agencies other than Reclamation. Police and fire services are provided by local counties.

Ririe Reservoir

Public facilities at Ririe are very limited. Juniper Park is the most developed of the three recreation sites. Water is pumped from onsite wells to a 15,000-gallon storage tank. Potable water is chlorinated and piped to the visitors' center, washrooms, and campsites. Well water is also used for lawn sprinklers and fire fighting purposes. Wastewater is treated by Reclamation's own treatment system adjacent to the Juniper recreation site, allowing for restrooms with flush toilets and showers. Most of the 49 RV sites have water and electrical hookups, but only a few in the A Loop have full hookups. A dump station is available for RVs. Juniper is the only recreation site at Ririe with electricity, which is available at the visitors' center and RV sites from a power line on the county road.

Water at Blacktail Park is supplied by wells. Water is used at the day use site and to irrigate the grass-covered lawn areas. Electricity is produced by a generator used by the concession to operate

the fuel pumps and by the county for park maintenance. High summer temperatures reduce the generator's reliability, challenging the concession's operations. Vault toilets provide the only sanitation facilities.

Benchlands, accessible only by boat, has no services or facilities other than pit toilets and covered picnic tables.

Creekside Park, a small under-used day use area below the dam, contains a small grass-covered area, trees, and parking. The site was recently closed and the facilities removed after vandalism and beaver damage made management of the area difficult.

Solid waste is stored temporarily at Ririe in dumpsters maintained by a private waste hauling contractor for disposal in the Bonneville County Landfill.

Fire protection at the west side of Ririe is Bonneville County's responsibility. The Jefferson County Fire Department is responsible for the eastern side of the site. The Bonneville County Sheriff provides law enforcement.

Ririe and Teton Mitigation Lands—Tex Creek WMA

Tex Creek has few developed facilities. The most developed public facilities include numerous unimproved roads and non-motorized trails. No roads within Tex Creek are paved, and many become slick and unpassable after precipitation. Thus, access is somewhat limited to dry summer weather and by snowmobile during the winter. Directional signage is limited or non-existent. Six individual primitive campsites are located within the WMA and are accessible by road near Trail Creek and Meadow Creek. The campsites contain no facilities other than fire rings and feeding bins and hitching rails for horses. The Tex Creek headquarters has three house trailers with several storage sheds, water from a well, electricity by generator, two Quonset huts, and a workshop.

Consistent with its mission, most projects at Tex Creek have emphasized habitat restoration and enhancement. Fences have been removed, new fencing to exclude livestock installed, old farmsteads cleaned up, and buildings removed. Over 170,000 shrubs have been planted. Springs have been developed for livestock as part of land trades that benefit wintering big game. Terracing and water and sediment basins have been constructed on Ritter Bench, in the Pipe Creek and Indian Fork drainages, and Bull's Fork to control erosion. They are also intended to increase the water table and sub-irrigation of developed fields, and to aid in the recovery of eroded areas (IDFG 1998a).

Ririe and Teton Mitigation Lands—Cartier Slough WMA

Most facilities at Cartier Slough are directly or indirectly related to wildlife management and protection, including water control and irrigation structures, fencing, and nest structures.

The main public access to Cartier Slough is Beaver Dick Park, which is owned and managed by Madison County. Secondary visitor access is from the primitive road, which more or less follows the northern boundary of Cartier Slough. This road also accesses the primitive boat ramp in one of the slough channels, and ultimately leads to the water control structure at the west end of Cartier Slough. There is an unimproved two-track road running through much of Cartier Slough that is restricted to administrative motorized use only. Most visitors use this two-track road as a trail for walking, horseback riding, or cross country skiing. This two-track road is not accessible during high water periods. Beaver Dick Park has limited facilities, which are described in Section 3.8, *Recreation*, of this EA. Police and fire protection at Cartier Slough and Beaver Dick Park are the responsibility of Madison County.

Ririe Outlet Channel

No public facilities are provided along the Ririe Reservoir Outlet Channel.

3.10.2 Environmental Consequences

Assessment Categories

Native Vegetation Protection and Enhancement

No direct impacts of native vegetation protection and enhancement measures would occur to public facilities, utilities, and services under any alternative.

Erosion Control

Erosion control measures should not have direct impacts on public facilities, utilities, and services under any alternative.

Native Fish and Wildlife Protection and Enhancement

Actions that would be implemented in support of protection and enhancement of native fish and wildlife that relate to public facilities, utilities, and services under Alternatives B or C include the following: maintaining and protecting riparian habitat, actively improving riparian habitat, winter closure of some areas, and permanent closure of some areas. In most cases, these potential actions would not have a direct impact on public facilities, utilities, and services other than recreation impacts discussed in Section 3.8, *Recreation*, of this EA. Seasonal or permanent closures of areas, under Alternatives A and B, would limit public access to certain areas that would have positive impacts on local law enforcement agencies by reducing the size of the patrol area. Reduced human access would also reduce opportunities for wildfires, resulting in positive impacts on local fire departments.

Improved or Restricted Access

In some cases, increased public access proposed under Alternatives B and C would increase opportunities for crime and nuisance behavior, adding to existing demands on law enforcement agencies. For example, overnight moorage proposed at Juniper under Alternatives B and C would create crime targets that may require increased policing.

Improved Facilities and Miscellaneous

Many actions under Alternatives B and C (described in Chapter 2) would focus on the improvement, expansion, or construction of facilities associated with day use, overnight, or boating facilities that could increase demands on public facilities and services. For example, new overnight use of Benchlands and at Blacktail under Alternative C would increase demands on public services provided by the county such as police, trash removal, and maintenance. Depending on facilities, new campsites could also increase demands on water, sewage handling, and electricity. The proposed prohibition of open fires would help mitigate additional demands of fire departments, but increased public use could potentially increase the likelihood of fire. Nevertheless, the moderate scale of proposed facility improvements and access enhancement is not expected to be great enough to result in measurable negative impacts.

Alternatives

The following section discusses the expected impacts of each of the three alternatives on public facilities, utilities, and services in the area. This section addresses the relative magnitude of the impacts and provides a brief description of how the proposed recreation development comprising each alternative would affect public services and utilities.

Alternative A—No Action: Continuation of Existing Management Practices

This alternative would result in demands on utilities and public facilities and services that are similar to those that currently exist. All recreation sites and facilities currently available would be maintained at their current level of service. One exception is at the Benchlands area, where restroom facilities would be upgraded to be made accessible as part of an existing Reclamation mandate. This alternative would also result in a continuation of current management practices, one of which is the continued closure of Creekside Park.

While there would be few, if any, direct effects on utilities and public facilities and services resulting from this alternative, there would be several indirect effects that could impact public services in the future. Current use trends suggest that recreational visits to the area would continue to increase. Without facility expansion and access improvements, there would be no mechanism to relieve high levels of use that often fill the day use and overnight use areas to capacity on summer weekends. Overcrowding could result in user conflicts and accidents that could become a law enforcement issue.

Alternative B—Preferred Alternative: Recreation Development Compatible with Increased Natural Resource Protection Emphasis

This alternative would allow for recreation development that would increase the facilities available to visitors in the area. This would include additional day use and overnight facilities, as well as additional non-motorized trails and increased access to some areas. This alternative would moderately increase demands on utilities and public facilities and services as discussed below.

Moderate impacts on utilities and public facilities and services would likely result from improvements to Juniper Park and Creekside Park. Recreation development at Juniper Park would result in 40 additional campsites. Creekside Park would be re-opened with the development of day use recreation facilities and potentially a group tent camping area. Developments along the east side of Willow Creek below the dam would formalize existing recreation uses. These new and expanded accommodations would result in a proportionate increased demands on water supplies, wastewater treatment, and electricity depending on the number and type of RV hook-ups and other facilities provided. The increased visitation facilitated by these improvements would generate a proportional increase in solid waste production and contribute to the need for more police and fire services to some degree.

Expanded recreation opportunities would occur under this alternative at Blacktail Park and Benchlands, both of which would expand the capacity of existing day use facilities which would have a slight impact on law enforcement and solid waste.

This alternative also includes provisions for better coordination with the IDFG, which would have positive impacts on public facilities and services, especially transportation and law enforcement.

Alternative C—Recreation Development/Maintain Natural Resource Emphasis

This alternative would allow recreation development to be maximized within the constraints imposed by existing agency commitments. As a result, Alternative C and its resulting public facilities, utilities, and services impacts are very similar to Alternative B in the northern portions of the Ririe Reservoir, outside the mitigation lands. Farther south within Tex Creek, the level of recreation development intensifies in a number of locations under this alternative. In general, increased development correlates to proportionately larger impacts on public services and utilities. Specific examples of increased impacts resulting under this alternative are discussed below.

Depending on the nature and scale of business, conversion of the Visitor's Center into a concession/convenience store could increase consumption of electricity and water, and increase wastewater production.

Overnight use of Benchlands and Blacktail could require a moderate degree of additional response from local law enforcement and emergency medical agencies. Campers could also generate additional utility demands depending on the level of services offered. In addition, expansion of day

use facilities at Blacktail would increase water consumption from irrigation of the additional lawn areas and landscaping.

3.11 Environmental Justice

This section addresses impacts associated with both action alternatives and the No Action Alternative on environmental justice issues in the vicinity of the Ririe Reservoir, Tex Creek, Cartier Slough, and the Ririe Outlet Channel.

3.11.1 Affected Environment

In February 1994, the President issued Executive Order 12898 that requires all Federal agencies to seek to achieve environmental justice by "identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations" (Executive Order 12898).

This resource management planning and NEPA environmental review process complied with Executive Order 12898 by identifying minority and low-income populations early in the process and incorporating the perspectives of these populations into the decision-making process.

The U.S. Department of Housing and Urban Development (HUD) defines low income as 80 percent of the median family income for the area, subject to adjustment for areas with unusually high or low incomes or housing costs. Southeastern Idaho is a predominantly rural area with a lower than national average annual per capita income of approximately $15,339. Based on the HUD standard, Bonneville County (with an average 1994 per capita income of $18,933) would not be considered a low-income population. With an average per capita income of $11,085, however, Madison County would be considered a low-income population as defined by HUD (HUD 2000). In addition to being low income, Madison County's per capita income is well below the national poverty threshold. The Shoshone-Bannock Tribes were identified as a potentially affected minority population in this region.

3.11.2 Environmental Consequences

Adverse impacts would be limited to potential fee increases, but this would be offset by enhancement of low-cost recreation opportunities and improved access.

3.12 Cultural Resources

3.12.1 Affected Environment

Evidence of human occupation in southeastern Idaho dates as early as 14,500 years before the present (B.P.). Three major prehistoric cultural periods have been identified for southeastern Idaho: the Early Prehistoric Period (15,000 to 7,500 B.P.), the Middle Prehistoric Period (7,400 to 1,300 B.P.), and the Late Prehistoric Period (1,300 to 150 B.P). Sites excavated in the Ririe Reservoir area have yielded diagnostic tools that indicate the study area was occupied for at least portions of the Middle and Late Prehistoric Periods.

A total of 35 cultural resource sites (including isolates) within the boundaries of the Ririe/Tex Creek RMP study area have been previously recorded on forms filed at the Idaho State Historic Preservation Office (SHPO). The sites include 29 archaeological sites and 6 historic structures or features. An archaeological site and several historic structures (the red granary, the headquarters granary, and possibly others) exist within the boundaries of Tex Creek, but have not been officially documented on site forms. These sites are not included in the above count of historic structures.

Most of the archaeological sites are deposits of prehistoric artifacts, usually obsidian, ignimbrite, and cryptocrystalline silicate (chert, jasper, or chalcedony) flakes produced in tool manufacture. Sometimes these artifacts are found associated with other stone tools (for example, manos, bifaces, and hammerstones), pieces of animal bone, or ceramic potsherds. Prehistoric site types include open prehistoric sites (lithic scatters), a toolstone quarry, rock shelters, and a surface depressions resembling house pit features common at prehistoric village sites. Diverse cultural activities and widespread use of the study area in prehistoric times is reflected in the range of site types, site location/environmental association, and variability in site size. Excavations at the Blacktail Park site, which yielded deeply stratified cultural deposits, indicate intensive prehistoric utilization of the study area over time.

Explorers and fur trappers first entered southeastern Idaho in the early 19th century. The major east-west travel route of the early Euroamerican explorers passed south of the Ririe/Tex Creek RMP study area at Fort Hall and later became the Oregon Trail. Settlement in southeastern Idaho began in 1860. During the1870's, gold discoveries brought miners to southeast Idaho. Although mining was not a significant factor in the Ririe/Tex Creek RMP study area, settlers in the area worked in and provided supplies to the Caribou Mountain mining district about 45 miles to the southeast. Agriculture was and is the primary industry of settlers in southeastern Idaho, and irrigation systems were of signal importance to agricultural development of the area. Federal programs, including the Minidoka Project begun in 1904 by the Reclamation Service (later renamed the Bureau of Reclamation) provided a system of reservoirs for water storage, flood control and power. The historic resources in the study area are represented by farmsteads and farm-related equipment and structures such as silos, sheds, corrals, dumps, cabins, and barns. Some of these sites have associated archaeological deposits.

Cultural affiliations of ethnohistoric groups in the study area are Northern Shoshone and Bannock. These two groups spoke different dialects of the Numic language, and lived together in winter villages on the upper Snake River. Shoshone and Bannock territory consisted primarily of southern Idaho, including the study area, with bands congregating along the Snake and other rivers. After acquiring the horse, they ranged north into southern Alberta and east to the Black Hills to hunt bison and trade. The Fort Hall reservation was established in 1867. The length of time the Shoshone and Bannock Tribes have occupied southern Idaho is a subject of long-standing debate among scholars.

A Class I cultural resources inventory of the Ririe/Tex Creek RMP study area indicates that these lands are rich in cultural resources. Only 5,000 to 7,000 acres of the estimated 30,000 acres in the study area have been previously surveyed. Of the cultural resource sites known for the study area, six are considered eligible for the National Register:

- Willow Creek Cabin (10BV181)
- Two lithic scatter sites (10BV24/69 and 10BV179)
- Meadow Creek Rockshelter (10BV22)
- Willow Creek Rockshelter (10BV32/36)
- Blacktail Park site (10BV48)

These sites (as well as a number of other sites that remain to be identified and evaluated for the National Register) have the potential to address research questions relating to early occupation of the study area. For example, questions of chronology, prehistoric/historic settlement, natural resource use, and prehistoric affiliations could be answered by investigations here.

Locations exist in the study area that may have traditionally served as plant and other resource collection areas, and as such, could constitute places of traditional cultural importance to the Shoshone-Bannock, Shoshone-Paiute, and possibly other Tribes. Tex Creek in particular contains draws and valleys that could have served as collecting areas for aboriginal peoples; these areas harbor willow, mint, choke cherries, sagebrush, and other collectible resources.

3.12.2 Environmental Consequences

Assessment Categories

Native Vegetation Protection and Enhancement

Measures to control noxious weeds through spraying projects have the potential to adversely affect archaeological sites by chemical contamination of radiocarbon samples and possibly other organic remains, if all or a portion of the site is on the ground surface. Conversion of former farm lands to

native shrub communities involves removing the existing vegetation through burning, grazing, and/or mowing, plowing, and disking—all measures which can adversely affect archaeological sites by disturbing the horizontal and vertical context of artifacts or, in the case of burning, by contaminating or altering organic material such as wood or bone.

Erosion Control

Methods to control erosion around roads or trails, or water channels (for example, with sediment traps) that would involve the use of heavy machinery or equipment, have the potential to adversely affect cultural site deposits. Vehicle operation or road grading in association with erosion control can destroy or damage cultural deposits by compaction causing breaking and dissociation of artifacts, or soil movement and churning causing horizontal or vertical mixing of cultural levels and overall loss of context.

Improved or Restricted Access

Improving access to recreation areas by means of increased or improved roads or trails can physically destroy scientifically valuable depositional data. Road or trail construction and subsequent use by vehicles or pedestrians can damage intact cultural deposits, break artifacts, and mix together artifacts from different episodes of occupation. A secondary effect of improved access is an increase of surface erosion once the road or trail is established, especially on soft, sandy soils which are very vulnerable to damage from increased vehicle access or recreational use. Repeated use strips vegetation that serves to hold sandy soils in place, leading to soil destabilization. Destabilized soils cause vertically distinct cultural layers, representing different occupations, to be deflated into a single, disturbed layer. An indirect effect of improved access for recreational and other purposes is greater potential for site looting. Relic collection reduces the scientific value of a site by removing artifacts that can be used to date when a site was used and to interpret its function and organization.

Improved Facilities and Miscellaneous

There is a direct correlation between impacts to cultural resources and improved facilities, land development, and other encroachments that modify the surface of the land. Construction activities associated with recreational and other improvements can cause impacts to archaeological, historical, and traditional cultural properties by directly disturbing or damaging artifacts, features, and structures comprising the site. In addition, such improvements can invite or attract more visitors or tourists to an area, thus causing indirect impacts from increased vandalism and looting.

Alternatives

Alternative A—No Action: Continuation of Existing Management Practices

Because only a small portion of the RMP study area has been intensively surveyed for cultural resources, the discussion of effects is general. Identification, protection, and management of cultural

resources would continue to occur on a project-specific, ad hoc basis, in response to individual Reclamation undertakings. The management of cultural resources would continue to be reactive instead of proactive.

Under existing management, exposed archaeological deposits, in general, would continue to be degraded by erosive forces within and away from the Ririe reservoir pool, by vandalism and relic collecting, and by Reclamation-sponsored or initiated actions within the study area. The effects would be cumulative, annually affecting the integrity of the cultural property and its potential eligibility to the *National Register of Historic Places*. To the extent that Alternative A retains the status quo in terms of recreational improvements, management of natural resources, and other actions that affect or modify the land surface, Alternative A would result in fewer impacts to cultural properties than either Alternative B or C. However, for actions proposed under the action alternatives that manage erosion and visitor use, those alternatives would afford better protection for cultural properties than Alternative A.

Alternative B—Preferred Alternative: Recreation Development Compatible with Increased Natural Resource Protection Emphasis

It is Reclamation's policy to preserve significant cultural resources **in situ**, and to avoid impacts to these sites whenever possible. However, avoidance is not always feasible or possible. Future actions under Alternative B could impact known significant sites as well as unrecorded cultural resources.

Construction activities related to Alternative B include new trails, trailheads, parking areas, day use facilities, camping areas, and other surface-disturbing actions at Blacktail, Juniper, Creekside Parks, and other locations in proximity to Ririe Reservoir, Tex Creek, and Cartier Slough. If Register-quality archaeological sites are located in the area of potential effect for these activities, construction actions could directly physically impact significant sites by disturbing artifact deposits and destroying the horizontal and vertical context of the artifacts, severely diminishing the information value of the site. In the case of traditional cultural properties, the resource would be lost or compromised. Post-construction impacts of these same areas would result from more intensive public use and improved public access, exposing cultural sites to potentially greater levels of relic collection and vandalism, thus reducing their scientific value. Conversely, monitoring erosion and addressing erosion control problems at Ririe Reservoir, and formalizing grazing in the Ririe Outlet Channel, would have positive effects on cultural resources by arresting or halting physical deterioration of such resources. The placement of regulatory signs and interpretive displays in Juniper Park, Blacktail Park, and other locations, would provide the opportunity to acquaint visitors with the importance of cultural resources and the need to protect them, potentially reducing site looting, illicit digging, and vandalism, although the opposite effect could occur by calling attention to such sites.

Mitigation

Mitigation under Alternative B (or any alternative) would occur if cultural resources are present that are eligible for the National Register, and if they are being adversely impacted by reservoir operations or land uses or are being damaged by natural agents. If an action is planned that could adversely impact an archaeological, traditional, or historic resource, then Reclamation would investigate options to avoid the site. Cultural resource management actions for impacted sites would be planned and implemented in accordance with consultation requirements defined in 36 CFR 800, using methods consistent with the Secretary of the Interior's Standards and Guidelines.

Residual Impacts

Some level of relic collection and site looting may occur following the mitigation of a site.

Alternative C—Recreation Development/Maintain Natural Resource Emphasis

Under Alternative C, there is increased emphasis on recreational developments, with greater potential disturbances to cultural resources, than under Alternative B. Development of additional day use areas and associated facilities, parking, tent and RV campgrounds in the Juniper Park, Blacktail Park, or Willow Creek areas could directly impact archaeological or traditional cultural properties that might be in proximity to the developments. Indirect impacts resulting in vandalism and illegal artifact collecting would be expected to occur as a result of increased visitation and public use of these areas. The physical nature of the direct and indirect impacts would be the same as those described above under Alternative B.

3.13 Sacred Sites

3.13.1 Affected Environment

Sacred sites are defined in Executive Order 13007 as "any specific, discrete, narrowly delineated location on Federal land that is identified by an Indian Tribe, or Indian individual determined to be an appropriately authoritative representative of an Indian religion, as sacred by virtue of its established religious significance to, or ceremonial use by, an Indian religion...."

Although no specific sacred sites have been identified in the study area, there are various natural features and locations on the study area landscape that would have held spiritual or religious significance to aboriginal Tribes. These places include mountains, foothills, buttes, springs, lakes, rivers, and rock shelters, among others. Specific site types in the study area that might require special attention by Reclamation in the future management of the RMP area include altars; vision quest sites; water sources, springs, and headwaters; burial sites; and historical places, for example, battlegrounds, rendezvous sites, sites where ceremonies occurred, and routes traveled by important persons; and others.

3.13.2 Environmental Consequences

Assessment Categories

Native Vegetation Protection and Enhancement

Conversion of former farm lands to native shrub communities involves removing existing vegetation through burning, grazing, and/or mowing, plowing, and disking. These are actions that can adversely affect Indian sacred sites by physically disturbing or damaging the site or its environment. If the site is an archaeological site such as a human burial, its exposure could further subject it to erosion and looting.

Erosion Control

Same effects as described under "Improved Facilities and Miscellaneous."

Improved or Restricted Access

Improving access to recreation sites by means of increased or improved roads or trails can adversely affect sacred sites by disturbing or destroying their physical and spiritual context. Any activities which result in an increase of visitors to an area is likely to adversely impact sacred sites—directly, by causing a physical change in the character of the site, and indirectly, by introducing intrusive elements such as noise and changes in viewshed and setting.

Improved Facilities and Miscellaneous

Construction and development associated with expansion and improvement of recreation facilities (as well as other land development) is likely to compromise the physical and spiritual integrity of Indian sacred and religious sites. If the site is an archaeological site such as a human burial, its contents could be physically damaged or destroyed. Improved facilities are often associated with increased visitor use, which can introduce elements discordant with a sacred site and it's "sacredness"—for example, noise, refuse, site looting, vandalism, or simply a greater number of people into a given area. An aspect of "sacredness" likely to suffer because of improved facilities and other encroachment is the physical "setting" of the sacred site—the character of that location and how that site is situated and its relationship to surrounding features and open space. A compromised setting is likely to diminish the spiritual qualities of the site from the perspective of Tribal members and practitioners.

Alternatives

Alternative A—No Action Alternative: Continuation of Existing Management Practices

Possible impacts to Indian sacred sites from a continuation of existing management practices in the area of the RMP (or from new management practices) cannot be clearly determined since the specific location of sacred properties is unknown. If sacred sites are located in the area of potential effect of a Reclamation facility, their integrity could be compromised by actual physical disturbances as well as visual or auditory intrusions resulting in changes in character, feeling, and association of the site. In such cases, their "sacredness" and esteem as a religious or sacred site would very likely be diminished.

Alternative B—Preferred Alternative: Recreation Development Compatible with Increased Natural Resource Protection Emphasis

Impacts would be the same as those described for Alternative A.

Mitigation

Although Executive Order 13007 does not require agencies to mitigate for the impacts of their actions upon sacred sites, it does direct them to avoid adverse impacts wherever possible. For future Reclamation actions in the RMP area that could impact Indian sacred sites, Reclamation would consult with Tribes in conjunction with any 36 CFR 800 consultations. Under these consultations, Reclamation would seek means to avoid adverse impacts.

Residual Effects

Residual impacts cannot be determined since the presence of sacred sites is unknown.

Alternative C—Recreation Development/Maintain Natural Resource Emphasis

Impacts would be the same as those described for Alternative A.

3.14 Indian Trust Assets

3.14.1 Affected Environment

Indian Trust Assets (ITAs) are legal interests in property held in trust by the United States for Indian Tribes or individuals. The Secretary of the Interior, acting as the trustee, holds many assets in trust for Indian Tribes or Indian individuals. Examples of trust assets include lands, minerals, hunting and fishing rights, and water rights. While most ITAs are on-reservation, they may also be found off-reservation.

The United States has an Indian trust responsibility to protect and maintain rights reserved by or granted to Indian Tribes or Indian individuals by treaties, statues, and executive orders. These are sometimes further interpreted through court decisions and regulations.

The Shoshone-Bannock Tribes, a Federally recognized Tribe located at the Fort Hall Reservation in Southeastern Idaho, have trust assets both on- and off-reservation. The Fort Bridger Treaty was signed and agreed to by the Bannock and Shoshone headman on July 3, 1868. The Treaty states in Article 4 that members of the Shoshone-Bannock Tribe "shall have the right to hunt on the unoccupied lands of the United States...." The Tribes believe their right extends to the right to fish. The Fort Bridger Treaty for the Shoshone-Bannock has been interpreted in the case of State of Idaho v. Tinno, an off-reservation fishing case in Idaho. The Idaho Supreme Court used the canon of construction to determine the Shoshone word for "hunt" also included to fish. Under Tinno, the Court affirmed the Tribal Members' right to take fish off-reservation pursuant to the Fort Bridger Treaty. (Shoshone-Bannock Tribes 1994 Treaty Rights Seminar (booklet) Pocatello Idaho May 18-20; Publisher, The Shoshone-Bannock Tribes Treaty Rights Seminar Planning Committee).

Other Federally recognized Tribes, the Shoshone-Paiute Tribes of the Duck Valley Reservation do not have recognized treaty rights outside their Executive Order Reservation (pers. comm., V. Peterson, DOI Regional Solicitors Office, 3/12/97) but may have cultural and religious interests in the area of the Ririe Reservoir. Certain interests of the Tribes may be protected under historic preservation laws and the Native American Graves Protection and Repatriation Act (NAGPRA). See Sections 3.12, *Cultural Resources*, and 3.13, *Sacred Sites*, for a discussion of other Tribal interests.

3.14.2 Environmental Consequences

Potentially impacted trust assets are Tribal hunting rights and fishing rights. The Tribes' right to hunt or fish are not impacted and remains the same under all alternatives. The impact to resources associated with ITAs is discussed in Section 3.5, *Wildlife*, and Section 3.7, *Aquatic Biology*.

3.15 Transportation and Access

3.15.1 Affected Environment

Recreation use is focused on two main areas: Blacktail and Juniper parks. Juniper Park is accessed from State Highway 26 (SH-26). SH-26 is the main arterial connecting Idaho Falls to the recreation areas in Wyoming. This two-lane highway is a popular travel route for visitors going to Palisades Reservoir and the Grand Teton and Yellowstone National Parks. SH-26 is maintained by the Idaho Transportation Department (ITD). In general, it is a typical rural, mountain highway with a speed limit of 65 mph and a standard paved width of approximately 24 to 28 feet with 2- to

6-foot gravel shoulders. Meadow Creek Road is paved to Juniper Park. During winter, the road is plowed to the visitor center.

Blacktail Park is a popular area for fishermen, boaters, and picnickers on weekday afternoons as well as on weekends. It is a accessed by Lincoln Road, a paved county road that connects the neighboring towns of Iona, Ammon, and Lincoln and terminates approximately 10 miles from Idaho Falls at the Blacktail Park. Lincoln Road is not plowed during winter.

No roads completely circle the reservoir, although access is possible from the north and east by Meadow Creek Road and the west by Lincoln Road. A number of minor roads leave Meadow Creek Road and provide access to creeks, campsites, and other recreational areas in Tex Creek.

Actual parking facilities are identified only at Juniper Park and the Blacktail Access. Parking can be inadequate at both these sites on busy weekends. Isolated occurrences of driving and parking off the designated roads throughout Tex Creek have been noted. It is estimated that about 75,000 people visit the Ririe Reservoir and Tex Creek areas annually.

Cartier Slough is not physically connected to Tex Creek and is accessed by SH-33. This two-lane highway runs east-west between Interstate 15 and U.S. 20. Direct access to the slough is through the Beaver Dick County Park. No actual transportation system is provided in this mitigation area. Access from Beaver Dick Park is pedestrian. An informal parking lot at the edge of the mitigation land, in the park, provides parking for the slough. No other formal roads or trails pass through the slough. Rexburg, to the east on SH-33, is the nearest town of significant size. Cartier Slough is roughly 15 miles to the north and east of Ririe Reservoir.

The main access to Tex Creek is along the paved Meadow Creek Road. Numerous accesses are available from this road into Tex Creek. Only one access road—the Pipe Creek Road—bisects Tex Creek. Pipe Creek Road is a primitive, dirt road that becomes impassible during wet weather conditions in the spring and fall. This road is graded periodically but no further maintenance is conducted.

The transportation and access system consists of two parts: the physical condition of the accesses and roads, and the operational ability of those roads and accesses. In general, the current transportation system in Tex Creek, Cartier Slough, and Ririe Reservoir is adequate for the traffic levels experienced. Peak traffic events occur during holiday weekends that stress the level of service of the transportation and access system, but these are not benchmark numbers.

Current visitation at Ririe is about 75,000 per year. Approximately 71 percent of those visitors come from Bonneville County. If Bonneville County's predicted population increase at 16 percent from 2000 to 2010 occurs, it is reasonable to assume a 16 percent increase in visitors to the Ririe area, which would result in a potential increase to 87,000 visitors per year.

The Bonneville County Parks Department estimates that 20,000 to 24,000 vehicles per year use the Juniper and Blacktail Accesses. In addition, another 6,000 to 7,000 vehicles use the

campgrounds at these locations. Therefore, the estimated total vehicles using Juniper and Blacktail Accesses range from 26,000 to 31,000 vehicles per year.

No detailed traffic volumes are available at this time, so specific comments on level of service and average daily traffic cannot be prepared. Based on observations by county employees, the existing transportation system adequately handles the volume of traffic currently using the area. Additional observations suggest weekend and holiday traffic is heavy at specific recreation sites and accesses. A more detailed evaluation of traffic in the area cannot be conducted without further study.

3.15.2 Environmental Consequences

Assessment Categories

Native Vegetation Protection and Enhancement

Depending on the degree of protection proposed for native vegetation under Alternatives B and C, limitations on vehicular access could vary. However, no impacts on transportation are expected from such measures.

Erosion Control

Roads and trails are sources of erosion, and maintenance activities conducted to reduce that erosion would improve the physical condition of the road or trail, increasing its longevity and serviceability. Road and trail maintenance would continue to occur on an as-needed basis under all alternatives. New trails proposed under Alternatives B and C would follow BMP guidelines described in Chapter 5 to reduce erosion.

Native Fish and Wildlife Protection and Enhancement

Native fish and wildlife protection and enhancement measures proposed under Alternatives B and C would not be expected to impact the transportation and access system, as described under *Native Vegetation Protection and Enhancement*.

Improved or Restricted Access

The transportation and access system would benefit from any access improvements and may be impaired by any restrictions proposed in Alternatives B and C. Access would not change under Alternative A, because impacts on the transportation and access system are site-specific, they are discussed in more detail under each of the alternatives.

Improved Facilities and Miscellaneous

If parking and circulation improvements are included with expanded facilities in Alternatives B and C, results to the transportation and access system associated with these facilities would benefit

visitors. However, if the facility is improved beyond the capacity of the access road to the facility, the overall result would be a detriment to the transportation and access system. Exceeding the capacity of the access roads would be unlikely, considering current use levels within the area.

Alternatives

Alternative A—No Action: Continuation of Existing Management Practices

The existing transportation and access system would remain the same in all areas. Presently, ad hoc parking and trails are used throughout much of Tex Creek and Ririe Reservoir.

Creekside Park and the area east of Willow Creek below the dam are currently closed to motorized access, although the east side below the dam has a fairly heavy use from ad hoc trails and parking. Up to a certain level of traffic, ad hoc access is sufficient; however, there is a point where an informal transportation system is not adequate. Because the Creekside area is not accessible by vehicle now, access impacts to this area under this alternative are likely minor.

No formal trails are provided at Juniper, but an informal trail traverses from the dam to the reservoir and along the shoreline. Under the No Action Alternative, the size or circulation of the current transportation and access system would not be changed at the Visitor Center facility and day use area, the Juniper Campground, or the boat launch area.

Access to the Blacktail area is by Lincoln Road. This area is heavily used on weekends and holidays, mostly by Idaho Falls residents. No walking trails are currently designated at the Blacktail Access. Under Alternative A, no walking trails would be added. No changes would be made to the current transportation and access system for the boat ramp and day use areas and Lincoln Road would not be improved. As use of the area increases, negative impacts to the transportation and access system would develop. No current traffic studies indicate current volumes of traffic and level of service on Lincoln Road. This access could potentially reach its traffic capacity more quickly than the other major accesses.

The Ririe Outlet Channel, currently used as a flood control channel, would remain unchanged with mostly open access on both sides. As use increases, uncontrolled accesses could become undesirable because of potential trespass issues with adjacent land owners.

On Ririe Mitigation lands in Tex Creek, shoreline access is not restricted at the Willow Arm of Ririe Reservoir. No trails or shoreline access are currently provided on remaining Tex Creek mitigation lands, and none would be proposed.

Several designated walking trails extend through the Teton Mitigation lands in Tex Creek. Although it is not plowed in the winter, Pipe Creek Road is open year-round. Such seasonally maintained access can result in increased maintenance because of excessive deterioration during the late fall and early spring when the road is susceptible to damage from moisture.

In general, if no changes are made to the transportation and access system of Ririe Reservoir, Tex Creek, and Cartier Slough, and if visitation continues to increase, eventually the impact on the transportation and access system would be negative. The system would deteriorate both physically and operationally. However, without more detailed traffic studies, it is not possible to predict when traffic would increase enough to negatively impact the system.

Alternative B—Preferred Alternative: Recreation Development Compatible with Increased Natural Resource Protection Emphasis

Alternative B increases recreation facilities in the area while improving the transportation and access system.

This alternative would reopen Creekside Park to recreation. With this increase in use of the area, improvements to the access may be necessary depending on the volume of use estimated and the remaining capacity of the existing transportation system.

In general, recreation improvements at the Juniper Access area include more formal parking and overflow parking. Improvements to parking and access would benefit the transportation and access system as long as they are constructed and designed appropriately to the type and magnitude of use anticipated. For example, the addition of a fishing pier off of the dam may increase the need for parking.

In the Benchlands area of the reservoir, Alternative B would expand day use facilities. Because access to this area is only by boat, no impacts are expected on the transportation and access system.

At the Blacktail Access, recreation improvements include additional parking as needed at both the day use area in general and the boat launch. With improvements to the circulation at the boat launch, the impact to the transportation and access system would be positive, as long as special design needs, such as trailers for horses and boats, are considered. Compared to the No Action Alternative, improvement to this already heavily used area would draw more visitors down Lincoln Road.

Creation of a non-motorized trail at Blacktail is intended to improve pedestrian and equestrian access along the shore of the Willow Creek Arm as well as further south into Tex Creek, connecting to some of the existing trails. This action would benefit the transportation and access system.

The “mostly open” access at the Ririe Outlet Channel would be modified to “fully open,” which would benefit access. Potential use of this area is not anticipated to increase beyond that described in the No Action Alternative.

Proposed modifications in the Tex Creek Teton Mitigation Lands include development of parking to accommodate improved recreation facilities as warranted by demand. Because the anticipated

The first public meeting was held February 9, 1999. The purpose of this meeting was to conduct public scoping of the issues at Ririe Reservoir. Approximately 40 people attended the meeting. Reclamation provided information about the RMP planning process, then the participants broke into small work groups to discuss important issues and opportunities the RMP should address. The second public meeting was held February 15, 2000. Approximately 80 people attended the meeting. The meeting followed a similar format, beginning with presentation of the alternatives and RMP Draft Goals and Objectives, and followed with small group discussions. The third public meeting was held on January 30, 2001, during the public comment period for the draft EA. The purpose of the meeting was to present the contents of the draft EA, hold an informal workshop to discuss specific issues, and encourage one-on-one dialogue. The 60-day public comment period extended from December 13, 2000, to February 15, 2001. Public comments are summarized in Appendix E of this document.

The Ad Hoc Work Group met in April, July, September, October 1999, January and March 2000, and February and June 2001. The 20 members were of considerable assistance in the alternatives development process. A wide variety of viewpoints were included in the group. The Preferred Alternative was arrived at through public comments from the second public meeting, Ad Hoc Work Group discussions, and the recommendations of agency scientists and planners. The following entities were represented in the Ad Hoc Work Group:

- Adjacent owner
- Alpine Club
- BLM
- Bonneville County Commissioners
- Bonneville County Waterways Committee
- City of Idaho Falls Parks and Recreation Department
- City of Ririe/South Fork Watershed Advisory Group
- Eagle Rock Bass Masters
- FWS
- Greater Yellowstone Coalition
- IDFG
- IDPR
- Idaho Falls Chamber of Commerce
- Madison County Parks
- NRCS
- Jefferson County Pheasants Forever
- Rocky Mountain Elk Foundation
- Shoshone-Bannock Tribes
- Trout Unlimited
- Willow Creek Watershed Group

increase in traffic volume is low, and assuming the parking is designed appropriately to meet the needs of the trail and campsite users, the impact to the transportation system is minor.

Proposed modifications to Cartier Slough include constructing a nature trail that connects with Beaver Dick County Park and grooming the cross country ski trails in winter. These additions improve access for different seasons, but unless the parking areas used in conjunction with these modifications are improved, the overall impact to the transportation and access system may be negative.

A detailed analysis of each modification, including the number of users anticipated, type of use, and volume of traffic estimated, would be necessary to properly identify the required improvements to the roads and accesses supporting the recreation opportunities. Master planning of the entire area would account for the cumulative effects of facility improvements and allow for appropriate modification to the transportation and access system.

Alternative C—Recreation Development/Maintain Natural Resource Emphasis

Alternative C has similar impacts to the transportation and access system as Alternative B; only the differences are described in this section.

At Creekside Park, only a few day use facilities beyond those included in Alternative B are added. These additional facilities draw more users, but the additional access described in Alternative B would also be implemented and should accommodate the users.

In addition to the improvements proposed in Alternative B at Juniper Access, Alternative C improvements consist of a reorganization of the Visitor's Center to include a concessionaire and convenience store, addition of a fishing pier as part of the moorage facility, and accommodation of winter access for ice fishing. Winter access would not require any physical additions to the transportation and access system, but would require additional maintenance during the off season to keep the access area open for users. This would benefit users by providing additional seasonal access.

The proposed additions to Blacktail under Alternative C would increase visitation to the area, especially during holiday weekends. This would be expected to increase the traffic volume on Lincoln Road. The increased traffic could become a negative impact, depending on the volume.

4.0 Consultation and Coordination

4.0 CONSULTATION AND COORDINATION

4.1 Public Involvement

Reclamation's approach to the RMP and EA was to develop a dialogue with local stakeholder groups and agencies. The goal of the public involvement process was to make sure that all stakeholders, including the general public, had ample opportunity to express their interests, concerns, and viewpoints, and to comment on the plan as it was developed. By fostering two-way communication, Reclamation was also able to use the talents and perspectives of local user groups and agencies during the alternatives development process.

Reclamation's public involvement process involved four key components:

- **Newsbriefs**—A mailed newsletter was initially sent to more than 600 user groups, nearby residents, and agencies. The mailing list was continuously expanded as more stakeholders were identified. A sixth newsbrief will be mailed when the RMP is released.

- **Public Meetings/Workshops**—Three public meetings were held during the process, two of which were held prior to the release of the draft EA. The final public meeting was held during the public review period of the draft EA.

- **Ad Hoc Work Group**—This group consists of approximately 20 representatives from interested groups, Tribes, and agencies. They met throughout the development process to identify issues, and assist with RMP and alternatives development.

- **Project Web Site**—The newsbriefs, draft materials, and meeting announcements were regularly updated at http://www.pn.usbr.gov. The draft EA was available for review on the web site, with a public comment form to submit comments.

Prior to the release of the draft EA, Reclamation provided five newsbriefs, held two public meetings, and held six Ad Hoc Work Group workshops.

In January 1999, the first newsbrief introduced the RMP process, announced the first public meeting, and provided a form for submitting issues and initial comments on the management and facilities at Ririe Reservoir, and Reclamation lands in the Tex Creek WMA and at Cartier Slough. The results of the mail-in form and the issues raised at the first public meeting were summarized in the second newsbrief, mailed June 1999. The issues were listed in a table with the number of responses for each issue. A total of 157 responses were included. The third newsbrief was mailed in November 1999 and provided an update of the Ad Hoc Work Group process. The fourth newsbrief in February 2000 announced the second public meeting, summarized the draft goals and objectives of the RMP, and summarized the alternatives being considered. A fifth newsbrief was mailed in November 2000 that described the alternatives in the draft EA, who to contact to receive a copy of the draft EA, and announced an upcoming public meeting where the draft EA was discussed.

4.2 Agency Consultation and Coordination

Reclamation consulted with several Federal and local agencies throughout the RMP process to gather valuable input and to meet regulatory requirements. This coordination was integrated with the public involvement process.

4.2.1 Fish and Wildlife Coordination Act

Coordination on fish and wildlife issues to meet the requirements of the Fish and Wildlife Coordination Act (FWCA) was accomplished by consulting with the FWS. Information about this consultation is provided in Appendix B. The FWS provided comments on the draft EA and Reclamation has made the appropriate changes in the document. Specific information in answer to each comment is provided in Appendix E.

4.2.2 Endangered Species Act

The evaluation of threatened and endangered species contained in this EA is Reclamation's biological evaluation of effects to Ute ladies'-tresses orchids, bald eagles, Canada lynx, gray wolf, and whooping crane as required under the ESA. Reclamation has determined that the proposed RMP will *not affect* the Canada lynx and Ute ladies' tresses. It *is not likely to jeopardize the continued existence* of the gray wolf and whooping crane. FWS has concurred with Reclamation's findings. Reclamation and FWS have agreed to a 3 year, bald eagle nest monitoring plan of the Willow Creek Arm nest; therefore, the proposed RMP *may affect* but *is not likely to adversely affect* the bald eagle. As part of this monitoring plan, Reclamation will provide a detailed report on the observations and findings to FWS. Reclamation and FWS agree to meet annually to discuss these findings and plan next year's activities. If it is determined that recreational activities are causing nest failure, Reclamation and FWS agree to meet and jointly discuss how these impacts can be mitigated. Reclamation will also consult with FWS if any new species are listed.

4.2.3 National Historic Preservation Act

Reclamation has completed a Class I existing data inventory of the Ririe Reservoir/Tex Creek Wildlife Management Area. That information will facilitate subsequent compliance with the National Historic Preservation Act (NHPA) and its implementing regulations (36 CFR 800). Coordination with the Idaho SHPO and the Shoshone-Bannock and Shoshone-Paiute Tribes over cultural resources and sacred sites aspects of the RMP has occurred in conjunction with public review of the draft Environmental Assessment. (It is understood that specific, future undertakings in response to RMP prescriptions will require specific consultations with the SHPO and Tribes pursuant to the 36 CFR 800 regulations).

4.3 Tribal Consultation and Coordination

4.3.1 Consultation with Tribes

Reclamation met with Council members and staff of both the Shoshone-Bannock and the Shoshone-Paiute Tribes to discuss the preparation of the RMP and to identify ITAs, TCPs, and Indian Sacred Sites.

A representative from the Shoshone-Bannock Tribes participated in the Ad Hoc Work Group, which facilitated close coordination with the Government and helped assure that Tribal interests were integrated with the RMP.

Several meetings were held and correspondence was exchanged between Reclamation and the Tribes. The dates for the meetings and correspondence are provided in Appendix D.

In addition to input on all draft goals and objectives included in the RMP, the following reflect specific Tribal input and concerns that were incorporated into the planning process.

- ***GOAL NAT 1: Protect, conserve, and enhance wildlife habitat and natural resources on Reclamation lands.***

  - Objective NAT 1.4: Recognize the interest of the Tribes and other agencies in long-term management of resources on Reclamation lands.

- ***GOAL CUL 1: Protect and conserve cultural resources (including prehistoric, historic, and traditional cultural properties), sacred sites, and paleontological resources.***

  - Objective CUL 1.1: Ensure protection of sensitive cultural and paleontological resources for all Reclamation undertakings in accordance with all applicable Federal and State laws.

  - Objective CUL 1.2: In accordance with Section 110 and Section 106 of the National Historic Preservation Act and other cultural resource and legal mandates, accomplish proactive management of cultural and paleontological resources, including inventory, identification, evaluation, and protection.

  - Objective CUL 1.3: Generate awareness of cultural resources compliance and protection needs among State and County personnel who interact with Reclamation in the RMP study area.

  - Objective CUL 1.4: Provide opportunities for public education on cultural and paleontological resources, including the importance of, and requirements for, protecting these resources within the parameters of various laws and regulations.

- ***GOAL CUL 2: Protect and conserve Indian Trust Assets as specified in applicable Secretarial Orders.***

  - Objective CUL 2.1: Within the scope of Reclamation authority, ensure that the RMP is consistent with the Shoshone-Bannock Tribes' adopted Snake River Basin Policy through conservation, protection, and/or enhancement of natural resources.

  - Objective CUL 2.2: Avoid any action that would adversely impact Tribal Indian Trust Assets.

- ***GOAL ACI 5: Ensure continued coordination and cooperation with involved agencies and the public as needed to implement the RMP and associated IDFG WMA Management Plans.***

  - Objective ACI 5.7: Continue to coordinate with involved Tribes in implementing RMP Goals, Objectives, and Management Actions.

The RMP and EA will be distributed to representatives from the Tribes. Tribal representatives that received the draft EA are listed in Chapter 7, *Distribution List*.

4.3.2 National Historic Preservation Act

The National Historic Preservation Act of 1966 (NHPA) (as amended through 1992) requires agencies to consult with Indian Tribes if a proposed Federal action may affect properties to which the Tribes attach religious and cultural significance. The implementing regulations of the NHPA, 36 CFR 800, addresses procedures for consultation in more detail.

4.3.3 Indian Trust Assets

Reclamation met with the Shoshone-Bannock Tribes to identify their interests, including ITAs. These are discussed in Chapter 3, Section 3.14, *Indian Trust Assets.*

4.3.4 Other Laws and Regulations

The relationship between Federal agencies and sovereign Tribes is defined by several laws and regulations addressing the requirement of Federal agencies to notify or consult with Native American groups or otherwise consider their interests when planning and implementing Federal undertakings. Among these are the following:

- National Environmental Policy Act
- American Indian Religious Freedom Act
- Archeological Resources Protection Act

- Native American Graves Protection and Repatriation Act
- Executive Order 12875, Enhancing the Intergovernmental Partnership
- Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations
- Presidential Memorandum: Government-to-Government Relations with Native American Tribal Governments
- Executive Order 13007, Indian Sacred Sites
- Executive Order 13175 of November 6, 2000, Consultation and Coordination with Indian Tribal Governments (EO 13175 revokes EO 13084 issued May 14, 1998)

5.0 Environmental Commitments

5.0 ENVIRONMENTAL COMMITMENTS

Although not listed here, the management actions identified in the preferred alternative as needed for proper stewardship resources are also considered to be environmental commitments.

5.1 Best Management Practices

The following best management practices (BMPs) will be implemented to avoid or offset potential effects to the resources within the Ririe Reservoir RMP study area that could occur if the preferred alternative were implemented. BMPs are intended to avoid or minimize impacts.

5.1.1 Landscape Preservation and Impact Avoidance

1. Developed facilities will complement the surrounding landscape and follow strict design and construction criteria, guidelines, and standards.

2. Disturbed areas resulting from any construction will be aggressively revegetated.

3. To the maximum extent practicable, all trees, native shrubs, and other vegetation will be preserved and protected from construction operations and equipment except where clearing operations are required for permanent structures, approved construction roads, or excavation operations.

4. To the maximum extent practicable, all maintenance yards, field offices, and staging areas will be arranged to preserve trees, shrubs, and other native vegetation.

5. Clearing will be restricted to the minimum area needed for construction. In critical habitat areas—including, but not limited to, wetlands, riparian areas, and big game winter range—clearing may be restricted to only a few feet beyond areas required for construction.

6. Stream corridors, wetlands, riparian areas, steep slopes, or other critical environmental areas will not be used for equipment or materials storage or stockpiling; construction staging or maintenance; field offices; hazardous material or fuel storage, handling, or transfer; or temporary access roads, in order to reduce environmental damage.

7. Excavated or graded materials will not be stockpiled or deposited on or within 100 feet of any steep slopes (defined by industry standards), wetlands, riparian areas, or stream banks (including seasonally active ephemeral streams without woody or herbaceous vegetation growing in the channel bottom), or on native vegetation.

8. To the maximum extent possible, staging areas, access roads, and other site disturbances will be located in agricultural or disturbed areas, not in native vegetation.

9. The width of all new permanent access roads will be kept to the absolute minimum needed for safety, avoiding wetland and riparian areas where possible. Turnouts and staging areas will not be placed in wetlands.

5.1.2 Erosion and Sediment Control

1. The design and construction of facilities will employ Best Management Practices to prevent possible soil erosion and subsequent water quality impacts.

2. The planting of native grasses, forbs, trees, or shrubs beneficial to wildlife, or the placement of riprap, sand bags, sod, erosion mats, bale dikes, mulch, or excelsior blankets will be used to prevent and minimize erosion and siltation during construction and during the period needed to reestablish permanent vegetative cover on disturbed sites.

3. Final erosion control and site restoration measures will be initiated as soon as a particular area is no longer needed for construction, stockpiling, or access. Clearing schedules will be arranged to minimize exposure of soils.

4. Cuts and fills for relocated and new roads and trails will be sloped to prevent erosion and to facilitate revegetation.

5. Slope instability in reservoir areas will be identified through surveys conducted during final design of new facilities. The identified areas will be stabilized or protected to prevent mass soil movement into reservoir pools to the extent practicable.

6. Soil or rock stockpiles, excavated materials, or excess soil materials will not be placed near sensitive habitats, including water channels, wetlands, riparian areas, and on native vegetation, where they may erode into these habitats or be washed away by high water or storm runoff. Waste piles will be revegetated using suitable native species after they are shaped to provide a natural appearance.

7. Especially restrictive BMPs will be developed and employed to prevent soil erosion during and after construction on highly erosive soils.

5.1.3 Biological Resource Site Clearances

1. Rare and sensitive species clearances described below will be conducted.

2. If native plant communities must be used for access roads or staging areas, site clearances at the appropriate time of year for the species involved will be conducted by qualified biologists to ensure sensitive species are not impacted. Established search protocols will be followed where these exist.

3. Construction activities that could impact fish will be undertaken during non-spawning periods.

5.1.4 Site Restoration and Revegetation

1. Construction areas, including storage yards, will be free of waste material and trash accumulations at all times.

2. All unused materials and trash will be removed from construction and storage sites during the final phase of work. All removed material will be placed in approved sanitary landfills or storage sites and work areas will be left to conform to the natural landscape.

3. Upon completion of construction, grade any land disturbed outside the limits of permanent roads, trails, and other permanent facilities to provide proper drainage and blend with the natural contour of the land. Following grading, revegetate using plants native to the area, suitable for the site conditions, and beneficial to wildlife.

4. Where applicable, consult with the following agencies to determine the recommended plant species composition, seeding rates, and planting dates:

    - Idaho Department of Fish and game (IDFG)
    - U.S. Natural Resources Conservation Service (NRCS)
    - U.S. Bureau of Land Management (BLM)

5. Grasses, forbs, shrubs, and trees appropriate for site conditions and surrounding vegetation will be included on the revegetation plant list. Species chosen for a site will be matched for site drainage, climate, shading, resistance to erosion, soil type, slope, aspect, and vegetation and erosion management goals. Wetland and riparian species will be used in revegetating disturbed wetlands. Upland revegetation shall match the plant list to the site's soil type, topographic position, elevation, aspect, and surrounding natural communities.

5.1.5 Pollution Prevention

1. All Federal and state laws related to control and abatement of water pollution will be complied with. All waste material and sewage from construction activities or facilities will be disposed of according to Federal and state pollution control regulations.

2. Construction contractors may be required to obtain a National Pollutant Discharge Elimination System (NPDES) permit as established under Public Law 92 500 and amended by the Clean Water Act (Public Law 95 217).

3. Construction specifications shall require construction methods that will prevent entrance or accidental spillage of pollutants into flowing or dry watercourses and underground water sources. Potential pollutants and wastes include refuse, garbage, cement, concrete, sewage effluent, industrial waste, oil and other petroleum products, aggregate processing tailings, mineral salts, drilling mud, and thermal pollution.

4. Eroded materials shall be prevented from entering streams or watercourses during dewatering activities associated with structure foundations or earthwork operations adjacent to, or encroaching on, streams or watercourses.

5. Any construction wastewater discharged into surface waters will be essentially free of settling material. Water pumped from behind cofferdams and wastewater from aggregate processing, concrete batching, or other construction operation shall not enter streams or watercourses without water quality treatment. Turbidity control methods may include settling ponds; gravel-filter entrapment dikes; approved flocculating processes not harmful to fish or other aquatic life; recirculation systems for washing aggregates; or other approved methods.

6. Any riprap shall be free of contaminants and not contribute significantly to the turbidity of the reservoir.

7. Appropriate controls to reduce stormwater pollutant loads in post-construction site runoff shall be selected from the *State of Idaho Catalog of Storm Water Best Management Practices for Idaho Cities and Counties* (IDEQ 1997). The appropriate facilities shall be properly designed, installed, and maintained to provide water quality treatment for runoff originating from all recreational facilities.

5.1.6 Noise and Air Pollution Prevention

1. Contractors will be required to comply with all applicable Federal, state, and local laws and regulations concerning prevention and control of noise and air pollution. Contractors are expected to use reasonably available methods and devices to control, prevent, and reduce atmospheric emissions or discharges of atmospheric contaminants and noise.

2. Contractors will be required to reduce dust from construction operations and prevent it from damaging dwellings or causing a nuisance to people. Methods such as wetting exposed soil or roads where dust is generated by passing vehicles will be employed.

5.1.7 Cultural Resource Site Protection

1. Cultural resource personnel, or other land management personnel sensitized to cultural resource management concerns, will periodically monitor the RMP area to determine if operations, natural erosion, or land use is damaging cultural resources. If significant sites are being damaged, management actions will be implemented. If the site cannot be protected, mitigation may be considered.

2. If there are significant cultural resource sites that may be affected by a Reclamation undertaking (including TCPs), Reclamation will consult with the SHPO and Tribes about appropriate actions to take to protect those sites.

3. Prepare a cultural resource management plan (CRMP) for these lands which outlines actions and methods to protect cultural resources. The CRMP will include descriptions of the consultation processes; enforcement strategies; resource protection actions, including vehicle access management, monitoring, site stabilization, and public education; and data recovery actions in the case of adverse effects to sites from agency actions or uncontrollable natural conditions. The CRMP will also identify procedures to address Native American Graves Protection and Repatriation Act (NAGPRA) issues of burial protection and custody of cultural materials.

4. Obtain location-specific cultural resource clearances when the agency acts to enhance recreation or wildlife. Avoid adverse effects to significant cultural resource sites by relocating or redesigning any proposed development.

5. Stabilize or protect cultural sites when avoidance is not possible. Test excavations will be conducted as necessary to determine if the sites are eligible for the National Register. Consultations, per 36 CFR 800, will also be conducted to determine site eligibility, project effect, and appropriate treatment of adversely affected Register-eligible sites.

6. Initiate actions to protect human burials as soon as possible if they are reported to be exposed or endangered by reservoir operations, natural erosion, or land use. Unless the burials are clearly non-Indian, the Tribes will be consulted upon the discovery of a burial and procedures for protection, treatment, and disposition of the remains will be worked out with the Tribes in accordance with NAGPRA.

7. Curate archaeological collections, in most cases at the Southeastern Idaho Regional Archaeological Center. Exceptions will be human burials, grave goods associated with a burial, and items that are sacred to or of cultural patrimony to American Indian Tribes (NAGPRA items). When NAGPRA items are recovered, procedures set forth in 43 CFR Part 10 for consultation and custody will be followed.

8. If consultation with Indian Tribes determines that Indian sacred sites are present and are being adversely affected by land use, Reclamation will implement actions to reduce or avoid such impacts.

5.1.8 Miscellaneous Commitments

1. Reclamation-issued land use licenses, leases, and permits will contain sufficient language and stipulations to help protect existing resources and help mitigate possible conflicts among the various users and between visitors and adjacent land owners.

2. Carrying capacity limits and user demand will be properly determined before any major facility development occurs.

3. A 3-year monitoring plan will be carried out to determine life history data and assess recreation effects on the Willow Creek bald eagle territory.

5.2 Mitigation Measures

Mitigation measures are environmental commitments intended to compensate for impacts that cannot be avoided through implementation of BMPs.

5.2.1 Soils

All roads, trails, and new or upgraded facilities would employ designs that would not contribute to short- or long-term soil loss during and following construction and revegetation.

5.2.2 Vegetation

Design of Creekside Park would avoid the loss of riparian vegetation by placing facilities in existing disturbed areas and keeping all facilities except stream crossings at least 20 feet away from the edge of Willow Creek. No trees would be removed during construction. A wildlife biologist or botanist would be actively involved in site design to assure that impacts to riparian vegetation are avoided. If unplanned losses of riparian vegetation did occur during construction, losses would be replaced on at least a 1:1 basis in the immediate vicinity of the park. Replacement of lost riparian vegetation would occur concurrently with recreation site construction.

Design of other recreation sites would minimize native vegetation losses by locating facilities in existing disturbed areas to the maximum extent possible. For example, parking facilities may be located in existing ad hoc parking areas to minimize loss of native vegetation if these are suitable locations for parking. Kiosks and interpretive centers would be placed within existing developed recreation areas and kept from areas of native vegetation. All construction areas would be revegetated with appropriate native vegetation immediately following construction.

All lost native vegetation that provides critical big game winter range would be mitigated through winter range enhancement on other Reclamation lands at Tex Creek. This action is discussed in greater detail in Section 3.5 *Wildlife.*

5.2.3 Wildlife

Mitigation measures to protect riparian habitat at Creekside Park and to aggressively monitor and control noxious and invasive weeds were described in Section 3.4, *Vegetation*. Residual effects on wildlife and habitat are described below.

Big game winter range habitat losses would be mitigated by replacing impacted winter range habitat value through enhancement of existing winter range in Tex Creek. Enhancement needs of nearby winter range would be evaluated for actions that could improve value and mitigate losses. An approach would be developed to assess impacts, evaluate range conditions, determine mitigation

needs to compensate for losses, and implement specific actions. Monitoring would be performed to determine if corrective actions are needed to fully meet mitigation needs.

5.2.4 Cultural Resources

Mitigation under all alternatives would occur if cultural resources are present that are eligible for the National Register, and if they are being adversely impacted by reservoir operations or land uses or are being damaged by natural agents. If an action is planned that could adversely impact an archaeological, traditional, or historic resource, then Reclamation would investigate options to avoid the site. Cultural resource management actions for impacted sites would be planned and implemented in accordance with consultation requirements defined in 36 CFR 800, using methods consistent with the Secretary of the Interior's Standards and Guidelines. Some level of relic collection and site looting may occur following the mitigation of a site.