DOE/EA--0956

South Fork Snake River/Palisades Wildlife Mitigation Project

Final Environmental Assessment and Finding of No Significant Impact

DOE/EA-0956
September 1995

BONNEVILLE
POWER ADMINISTRATION

SOUTH FORK SNAKE RIVER / PALISADES WILDLIFE MITIGATION PROJECT

ENVIRONMENTAL ASSESSMENT

DOE EA # 0956

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DEPARTMENT OF ENERGY

Bonneville Power Administration

Finding of No Significant Impact and Floodplain Statement of Findings for
South Fork Snake River/Palisades Wildlife Mitigation Project

SUMMARY: BPA proposes to fund the implementation of the South Fork Snake River Programmatic Management Plan to compensate for losses of wildlife and wildlife habitat due to hydroelectric development at Palisades Dam. The Idaho Department of Fish and Game drafted the plan, which was completed in May 1993. This plan recommends land and conservation easement acquisition and wildlife habitat enhancement measures. These measures would be implemented on selected lands along the South Fork of the Snake River between Palisades Dam and the confluence with the Henry's Fork, and on portions of the Henry's Fork located in Bonneville, Madison, and Jefferson Counties, Idaho. BPA has prepared an Environmental Assessment (DOE/EA-0956) evaluating the proposed project. The EA also incorporates by reference the analyses in the South Fork Snake River Activity/Operations Plan and EA prepared jointly in 1991 by the Bureau of Land Management and the Forest Service. Based on the analysis in the EA, BPA has determined that the proposed action is not a major Federal action significantly affecting the quality of the human environment within the meaning of the National Environmental Policy Act (NEPA) of 1969. Therefore, the preparation of an Environmental Impact Statement (EIS) is not required and BPA is issuing this FONSI.

A finding is included that there is no practicable alternative to locating the project within a 100-year floodplain, since it is being proposed to protect and improve riparian wildlife habitat.

Public Availability: BPA will distribute this FONSI to all persons and agencies known to be interested in or affected by the proposed action or alternatives.

FOR FURTHER INFORMATION AND COPIES OF THE EA, CONTACT:
Nancy Weintraub - ECN, Bonneville Power Administration, P.O. Box 3621, Portland, Oregon 97208-3261, phone number 503-230-5373, fax number 503-230-5699; Allyn Meuleman, Bonneville Power Administration, Boise Customer Service Center, 1101 West River St., Suite 250 Boise, Idaho 83702, phone number 208-334-9137; or BPA's toll-free Public Involvement Office line at 1-800-622-4519.

SUPPLEMENTARY INFORMATION: The Pacific Northwest Electric Power Planning and Conservation Act of 1980 requires BPA to implement and fund measures to protect, mitigate, and enhance fish and wildlife on the Columbia River and its tributaries in response to adverse impacts caused by the development and operation of Federal hydroelectric power facilities. BPA and the State of Idaho are proposing the South Fork Snake River/Palisades Wildlife Mitigation Project to compensate for the loss of wildlife and wildlife habitat resulting from the construction and operation of Palisades Dam. The alternatives considered in the EA include: 1) fee-title purchase of land only, 2) conservation easement purchase only, 3) conduct enhancement on purchased lands or easements only, 4) conduct enhancement on existing public lands only, 5) implement a combination of the previously described alternatives; and 6) the no action

alternative. The mitigative actions discussed in this FONSI were incorporated as part of the five action alternatives (see section 2.7 of the EA for the entire mitigation list).

The proposed action is Alternative 5. The activities proposed include purchases of between 100 and 1295 hectares (250 and 3200 acres) of land and/or conservation easements along 98 kilometers (61 miles) of the South Fork Snake River and the lower portion of the Henry's Fork Snake River to protect wildlife habitat, and the implementation of wildlife enhancement measures on acquired and existing public lands to increase the value of the lands to wildlife. Proposed wildlife enhancement measures include fencing of riparian areas to protect habitat from overgrazing by livestock, improving bald eagle nesting habitat through manipulation of cottonwood stands, revegetating suitable areas along the rivers to re-establish deteriorating riparian cottonwood stands, and revegetating agricultural lands with native species to recreate wildlife habitats.

The EA discusses the direct and cumulative impacts of the alternatives. The following paragraphs summarize the identified impacts and discuss their significance. The overall effects on vegetation and wildlife from implementing the proposed action and alternatives would be positive because the amount and quality of native vegetation and wildlife habitat would increase. Wildlife species and their habitats targeted for protection from locally increasing development pressure would be benefitted. Certain enhancement and protection measures would benefit bald eagles and peregrine falcons, the two endangered species found in the area. However, these positive impacts would not be significant because they would occur gradually over a period of years as the parcels are acquired for protection, and as the habitat changes through natural succession and manipulation. Potential negative impacts were identified due to increased recreational use, loss of foraging areas on agricultural fields for some non-target species, noxious weed establishment or introduction on soils disturbed by enhancement measures, and short-term increase in sedimentation from disturbed soils; however, these negative impacts would not be significant because they would be controlled through the use of the best management practices and/or they would be limited in extent or duration.

There would be very few effects on land use. The proposed actions would be consistent with local planning uses and zoning codes, and compatible with adjacent land uses. Any prime or unique farmlands acquired would not be irreversibly converted to non-agricultural uses. Access for Native American subsistence uses would remain the same or be increased. However, any increase in Tribal use is not expected to significantly impact land uses because Tribal uses would be covered by Tribal regulations and would be coordinated, when necessary, between the Tribes, BPA, and the entity designated to manage acquired lands. A wildlife management agreement between the Shoshone-Bannock Tribe and the Idaho Department of Fish and Game would be signed prior to implementation of the proposed action. There would be no effect on the Wild and Scenic River eligibility status of the South Fork Snake River. Public access and recreational use may increase on lands acquired by BPA. However, potentially negative impacts to wildlife resulting from this would be controlled through restrictions on access and certain uses that may disturb wildlife during critical life stages.

Potential socioeconomic effects considered in the EA include changes to lifestyles, community structures, and character, and reductions in tax base resulting from the conversion of agricultural

lands to wildlife uses. These effects would be minimal due to the limited extent of the proposed action. The impacts of ongoing residential and recreational development taking place in the corridor would further diminish any discernible socioeconomic changes related to the proposed action. Effects on cultural resources would be minimized through BPA's commitment to consult with the State Historic Preservation Office and Shoshone-Bannock Tribes regarding the need to develop Historic Property Management Plans for any identified sites. This commitment will be documented in a Programmatic Agreement (draft included as Appendix C of the EA). Terms of the agreement further require that effects to cultural resources be minimized by surveying areas and agreeing upon a consultation process with the Tribes regarding impacts to traditional or contemporary Tribal uses prior to any land purchases.

Erosion and sedimentation from ground-disturbing activities may slightly but temporarily affect water quality and soils. However, significant effects would be unlikely due to the limited extent of such actions and the utilization of best management practices for controlling soil erosion and sedimentation (see sections 2.7 and 3.1.8 of EA). Also, State water quality standards would not be exceeded. Visual resources would not be significantly affected, since most of the proposed activities would either result in no effect or in gradually restoring some of the agricultural sites to a more natural appearance through planting and natural succession.

Floodplain Statement of Findings: Included here is a Floodplain Statement of Findings prepared in accordance with 10 CFR Part 1022. A Notice of Floodplain and Wetlands Involvement was published in the *Federal Register* on May 10, 1994, and a floodplain and wetlands assessment was incorporated in the EA. BPA is proposing to conduct wildlife habitat enhancement actions, including fencing of riparian areas, planting of riparian vegetation, and improving bald eagle nest sites in the floodplain of the South Fork Snake River and its tributaries (maps available at the addresses above). The proposed action must be located in the floodplain because it is intended to enhance the riparian resources located there. Other than no action, alternatives to the proposed enhancement actions were not considered because the proposed actions would not result in long-term adverse effects to or incompatible development in the floodplain or associated riparian wetlands. The proposed action would conform to applicable State or local floodplain protection standards. Potential short-term erosion impacts would be controlled through the implementation of best management practices (see sections 2.7 and 3.1.8 of EA).

BPA will provide 15 days of public review after publication of this statement of findings before implementing the proposed action.

Determination: Based on the information in the EA, as summarized here, BPA determines that the proposed action is not a major Federal action significantly affecting the quality of the human environment within the meaning of NEPA, 42 U.S.C. 4321 et seq. Therefore, an EIS will not be prepared and BPA is issuing this FONSI.

Issued in Portland, Oregon, on September 21, 1995.

/s/ Randall W. Hardy
Administrator and Chief Executive Officer

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CHAPTER 1 - NEED AND PURPOSE FOR ACTION

1.0 INTRODUCTION

The South Fork Snake River (SFSR)/Palisades Wildlife Mitigation Project Environmental Assessment (EA) has been prepared by the Bonneville Power Administration (BPA) to disclose and document the potential environmental effects related to implementing the SFSR Programmatic Management Plan Implementation Phase I. The Programmatic Management Plan proposes various strategies for mitigating certain wildlife habitat losses due to construction and operation of Palisades Reservoir. The overall goal is to protect and enhance riparian habitat along the SFSR below Palisades Reservoir, lower Henry's Fork Snake River, and a portion of the mainstem Snake River upstream of Idaho Falls in southeastern Idaho (Figure 1.1).

Prior to selecting a course of action, the National Environmental Policy Act (NEPA) requires that Federal agencies assess the potential environmental implications of the proposed action and a range of alternatives. The SFSR/Palisades Wildlife Mitigation Project EA has been prepared in order to comply with the requirements of NEPA and with Department of Energy Implementing Procedures and Guidelines for preparing NEPA documents.

1.1 PROJECT BACKGROUND

Palisades Reservoir is located on the SFSR, a tributary of the Columbia River. The dam was constructed in the early 1950's to provide hydroelectric power, irrigation and flood control. The reservoir extends into northwestern Wyoming, inundating 94 kilometers (38 miles) of the SFSR. Construction of the dam and the resulting reservoir eliminated approximately 6,475 hectares (16,000 acres) of wildlife habitat. Operation of the dam also affects wildlife and wildlife habitat downstream on the SFSR by changing the river's flow regime.

The Pacific Northwest Electric Power Planning and Conservation Act of 1980 (Pub. L. No. 96-501) directs BPA to protect, mitigate, and enhance fish and wildlife to the extent affected by development and operation of hydropower projects on the Columbia River system. This act created the Northwest Power Planning Council (NWPPC), that in turn developed the Columbia River Basin Fish and Wildlife Program (Program). The Program's stated goal is to achieve and sustain levels of habitat and species productivity to fully mitigate for the wildlife losses that have resulted from construction and operation of the Federal and non-Federal hydroelectric system. The Program established a four step mitigation planning and implementation process which culminates with the completion of protection and enhancement projects (Table 1.1). The Wildlife Protection, Mitigation, and Enhancement Plan: Palisades Project, produced in the third step of the planning process, identified 18 potential mitigation projects in Idaho and Wyoming. The SFSR area was ranked as the top priority protection and enhancement project.

In 1990, the NWPPC and Idaho Department of Fish and Game (IDFG) developed a public review document which included a summary of wildlife losses at the Palisades Reservoir, mitigation goals, and objectives. Later that year, the NWPPC and BPA approved funding for additional project planning. In 1991, BPA and IDFG jointly began preparing the wildlife mitigation plan and scoping for the project with the involvement of an interagency group that included the Bureau of Land Management (BLM), the U.S. Forest Service (USFS) and the Shoshone-Bannock Tribes.

Table 1.1 Columbia River Basin Fish and Wildlife Program

Step	Action Required	Purpose	Resulting Publication for Palisade Mitigation
1	Wildlife Mitigation Status Reports	Identify on a general level, mitigation previously implemented, required & proposed; current studies and planning.	Wildlife mitigation status report: Palisades Dam and Reservoir.[1]
2	Wildlife Impact Assessments	Quantify wildlife and habitat losses related to project in question.	Wildlife impact assessment, Palisades Project, Idaho.[2]
3	Wildlife Protection, Mitigation, and Enhancement Plans	Propose potential projects to redress wildlife and habitat losses.	Wildlife Protection, mitigation, and enhancement plan: Palisades Project.[3]
4	Implementation of protection, mitigation, and enhancement projects	Develop specific plans and implement measures to mitigate wildlife and habitat losses.	South Fork Snake River Programmatic Management Plan, Implementation Phase I.[4]

[1] Chaney, J.E., and S. Saither-Blair. 1985.
[2] Saither-Blair, S. and S. Preston. 1985.
[3] Meuleman et al. 1986.
[4] Martin, R.C. and H.J. Hansen. 1993.

Drafting of the SFSR Programmatic Management Plan began Step 4 of the Program. The SFSR Programmatic Management Plan Implementation Phase I, the focus of this EA, was completed and published in 1993 by BPA and IDFG.

This EA documents the NEPA review process and environmental effects associated with implementing the SFSR Programmatic Management Plan and each of the alternatives. The alternative selected would establish a foundation for Implementation Phase II of Step 4 (Table 1.1).

Implementation Phase II would begin following completion of this environmental review process and would culminate with the implementation of specific protection and enhancement projects. Phase II would involve the identification of specific mitigation parcels, as well as the detailed planning and implementation of enhancement actions. Additional review and permitting may be required for certain resources before specific projects would be implemented.

1.2 PROPOSED ACTION

BPA proposes to fund the SFSR Programmatic Management Plan prepared jointly by BPA and IDFG. An appropriate land management agency would likely be selected by BPA to implement and administer the management plan. BPA proposes to fund a combination of habitat protection and enhancement measures to permanently protect certain sections of riparian wildlife habitat along 98 kilometers (61 miles) of the SFSR in Madison, Jefferson, and Bonneville Counties, Idaho. Most of the habitat areas to be protected would be purchased in fee title from willing sellers or conservation easements would be purchased from willing landowners; however, BPA may also fund some habitat enhancement on existing publicly-owned lands. In response to public and agency comments regarding this proposed action, similar mitigation

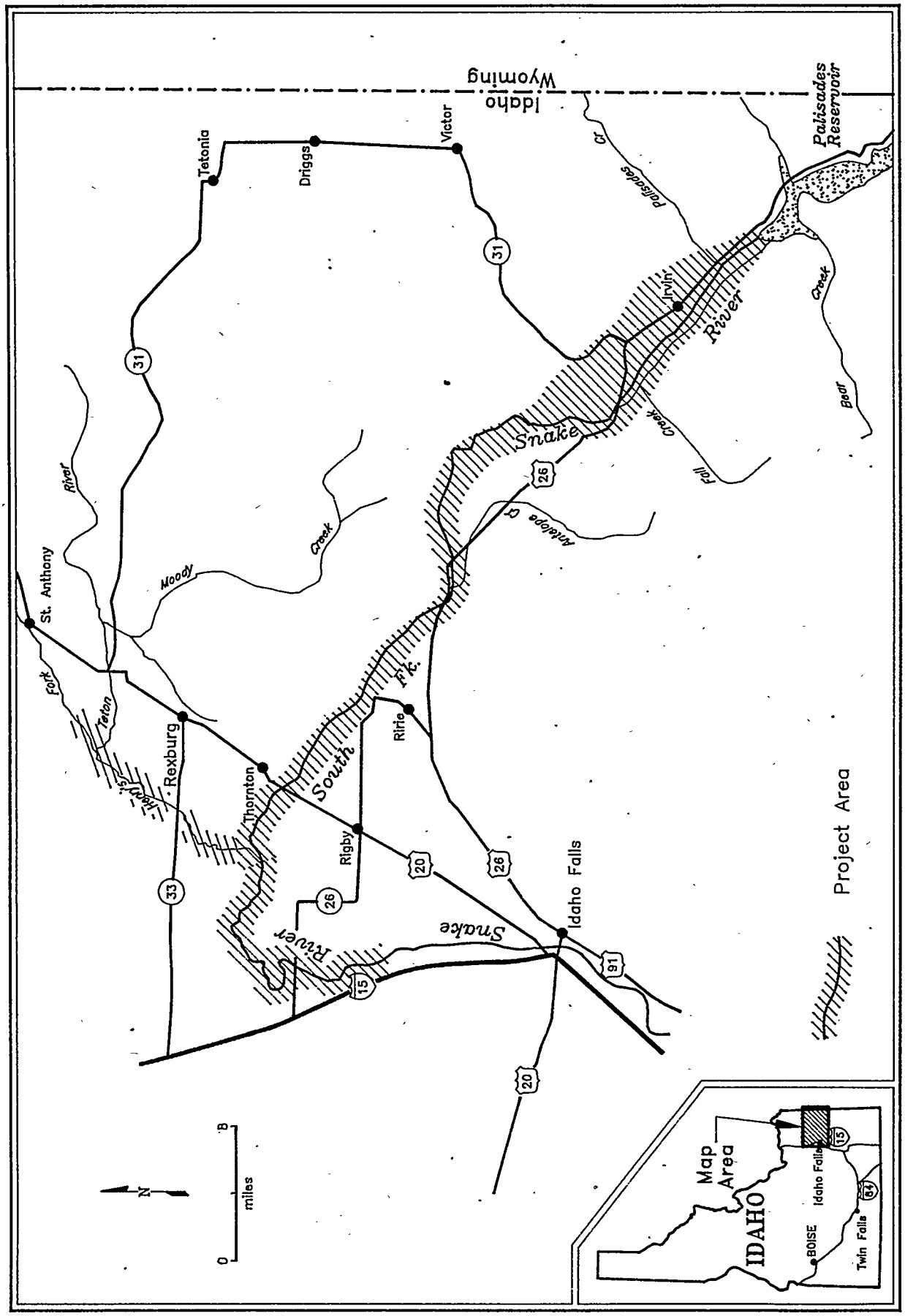

Figure 1.1 South Fork Snake River/Palisades Wildlife Mitigation Project Area

measures may also be conducted along portions of the Henry's Fork Snake River in Madison County and a portion of the mainstem Snake River upstream of Idaho Falls, Idaho (Figure 1.1).

Lands or easements acquired would be managed by an appropriate land management agency, depending on the parcel location and specific project considerations. These land management agencies would most likely include the Bureau of Land Management (BLM), the Forest Service (FS), the Idaho Department of Fish and Game (IDFG), and the Shoshone-Bannock Tribes.

While the SFSR Programmatic Management Plan focuses on bald eagle and associated riparian-dependent species, the proposed actions would benefit a spectrum of target wildlife species chosen by an interagency workgroup. The management plan addresses habitat losses to six general groups of wildlife affected by the Palisades project: big game, furbearers, waterfowl, upland game, raptors, and nongame. Target species within these groups include mule deer, mink, Canada goose, mallard duck, ruffed grouse, bald eagle, peregrine falcon, elk, black-capped chickadee, and yellow warbler (Martin and Hansen 1993). These species were selected either because they are of high priority to State or Federal programs, or because they are representative of groups of species with similar habitat needs (Meuleman et al. 1986).

Proposed habitat protection measures would include acquisition of land and conservation easements from landowners willing to participate in this mitigation project. Acquired parcels or easements are referred to as "mitigation lands." On some mitigation lands, habitat values may be protected or improved by conducting enhancement measures. Proposed habitat enhancement measures could consist of bald eagle habitat improvement, fencing, planting cottonwood seedlings, and revegetating agricultural mitigation lands. Enhancement measures may also be proposed on existing agency lands where such actions are warranted and compatible with agency plans.

The total acreage to be protected and enhanced under this mitigation plan would depend upon progress toward achievement of habitat protection/mitigation goals, availability of BPA funding, presence of willing sellers, and resolution of the hydropower share of the mitigation obligation for Palisades Reservoir. A preliminary estimate is that up to 1,295 hectares (3,200 acres) would be acquired and enhanced under this proposal.

The exact acreage to be acquired would be dependent on the habitat quality of the parcels. Since 0.4 hectares (1 acre) of prime habitat is equal to 1.0 Habitat Unit (HU) for a given wildlife species, and that same site could provide habitat for more than one species, the total number of hectares to be acquired or enhanced would vary. Credit for mitigation conducted on existing Federal lands would be based on the increase in habitat value resulting from enhancement actions.

BPA is committed to this mitigation project on a long-term basis; however, a time schedule for implementing the management plan has not been established. The schedule will depend on BPA funding levels, the availability of mitigation lands for acquisition, and other factors. It is anticipated that implementation would begin during Fiscal Year 1995 and continue until mitigation obligations are met. The estimated 10-year costs of implementing and administering the preferred mitigation measures were included in the Wildlife Protection, Mitigation, and Enhancement Plan for the Palisades Project (Meuleman et al. 1986). The extent of the funding for the entire mitigation effort has not yet been determined by BPA.

1.3 NEED AND PURPOSES FOR ACTION

Mitigation for past wildlife losses due to hydropower dam construction and operation was required by the Pacific Northwest Electric Power Planning and Conservation Act of 1980. In proposing to fund and implement the SFSR Programmatic Management Plan, BPA is responding to the need to mitigate for wildlife habitat losses resulting from the Palisades Reservoir project.

BPA has established the following purposes and objectives of the project:

- *Ensure the long-term availability of riparian and wetland habitat along the SFSR for bald eagles and other species associated with these habitats.*
- *Be consistent with the Pacific Northwest Electric Power Planning Act of 1980 and the Phase 4 Resident Fish and Wildlife Amendments to the Columbia River Basin Fish and Wildlife Program.*
- *Ensure that implementation of wildlife habitat protection and enhancement measures are accomplished in a cost effective and environmentally sound manner.*

The wildlife impact assessment for the Palisades Project (Saither-Blair and Preston 1985) identified a total of 37,068 wildlife HU's lost due to construction and operation of the reservoir (Table 1.2). Implementation of the SFSR Programmatic Management Plan would partially mitigate the habitat losses attributable to BPA. The Plan prescribes mitigation actions primarily to address impacts to breeding or wintering bald eagles and other target wildlife species that utilize riparian habitat. Additional impacts to other wildlife and habitat downstream from Palisades Reservoir have not been completely assessed. Future mitigation projects would be proposed by BPA and other agencies to address such impacts and to fulfill BPA's remaining mitigation obligations due to habitat losses at Palisades Reservoir.

Table 1.2. Summary of Wildlife Habitat Losses Associated with Construction and Operation of the Palisades Project, South Fork Snake River (From Meuleman et al. 1986).

Wildlife Group	Representative target species	Impacted HU's (-)
Raptors	Breeding Bald Eagle, Peregrine Falcon	- 5,941
	Wintering Bald Eagle	- 18,565
Big Game	Mule Deer, Elk	- 2,454
Furbearers	Mink	- 2,276
Waterfowl	Canada Goose	- 805
	Mallard	-2,622
Upland Game	Ruffed Grouse	- 2,331
Nongame	Black-Capped Chickadee	- 1,358
	Yellow Warbler	-716
Total Impact (HU's)		**- 37,068**

1.4 RELATED ACTIONS AND DOCUMENTATION

Various State and Federal agencies and organizations have been active in habitat acquisition and protection efforts in the SFSR corridor. Increasing public use, mounting development pressure and competition for limited resources underscore the need for these agencies to establish long-term management goals to protect the resources along the SFSR.

An interagency work group signed a Memorandum of Understanding (MOU) in 1981 regarding their intent to cooperate in the management of the SFSR. The five agencies involved in the MOU included U.S. Fish and Wildlife Service (USFWS), U.S. Forest Service (USFS), U.S. Bureau of Reclamation (Reclamation), Bureau of Land Management (BLM), and IDFG.

In February 1991, the BLM and USFS produced the SFSR Activity/Operations Plan and EA (BLM and USFS 1991a, 1991b). The intent of this effort was to ensure maintenance of the natural resources on Federal lands along the Snake River. The project was guided by a 15 member task force and took 3 years to complete. Because of the similarity of the BLM/USFS project with the present effort being conducted by BPA, pertinent information in the BLM/USFS EA has been used where possible. This has minimized duplication of efforts and expedited the preparation of this EA.

Mitigation for the selected management alternative in the BLM and USFS EA proposed that Federal agencies and conservation groups acquire 809 hectares (2,000 acres) of private lands from willing sellers along the SFSR corridor. Based on the SFSR Activity/Operations Plan EA, the BLM and the USFS signed a Finding of No Significant Impact in April 1991, and have initiated management activities, including purchases of private lands.

The Nature Conservancy (TNC), a nation-wide nonprofit organization, has been working cooperatively with the BLM to acquire private lands in the lower sections of the study area. BLM and TNC worked together to acquire about 517 acres and a 320-acre conservation easement in the upper sections of the study area. BLM worked independently to acquire an additional 611 acres from willing sellers in the lower sections of the study area (BLM 1995). The Nature Conservancy has contributed finances that have been combined with matching Federal Land and Water Conservation Funds to acquire 1907.64 hectares (4,713.71 acres) so far (Elsbree 1994).

1.4.1 Site Specific Management Classes

To facilitate management objectives within the SFSR corridor, the BLM and USFS (BLM and FS 1991a) classified the SFSR into five site specific management classes (SSMs) which grouped segments with similar site characteristics. The criteria for establishing the SSM class depends on physical setting, water resource development, extent of shoreline development, accessibility, social setting, and management control. The SSMs are defined as follows:

Class I	The most natural, undeveloped, primitive, and inaccessible stretches of the SFSR.
Class II	The stretches of river that have been moderately developed.
Class III	The most developed stretches of river.

The various SSM classes may occur in more than one location. Subclasses A, B, C, and D were designated to differentiate river stretches located between the Palisades Reservoir and the confluence of, and including, the Henry's Fork (North Fork). The subclasses were defined as follows:

Subclass A - Palisades Dam through Lufkin Bottom
Subclass B - Lufkin Bottom to the confluence with the Henry's Fork
Subclass C - Henry's Fork from St. Anthony to confluence with the South Fork Snake River
Subclass D - Confluence downstream to Market Lake Canal

The location of each stream segment is shown in Figure 1.2 (BLM and FS 1991a).

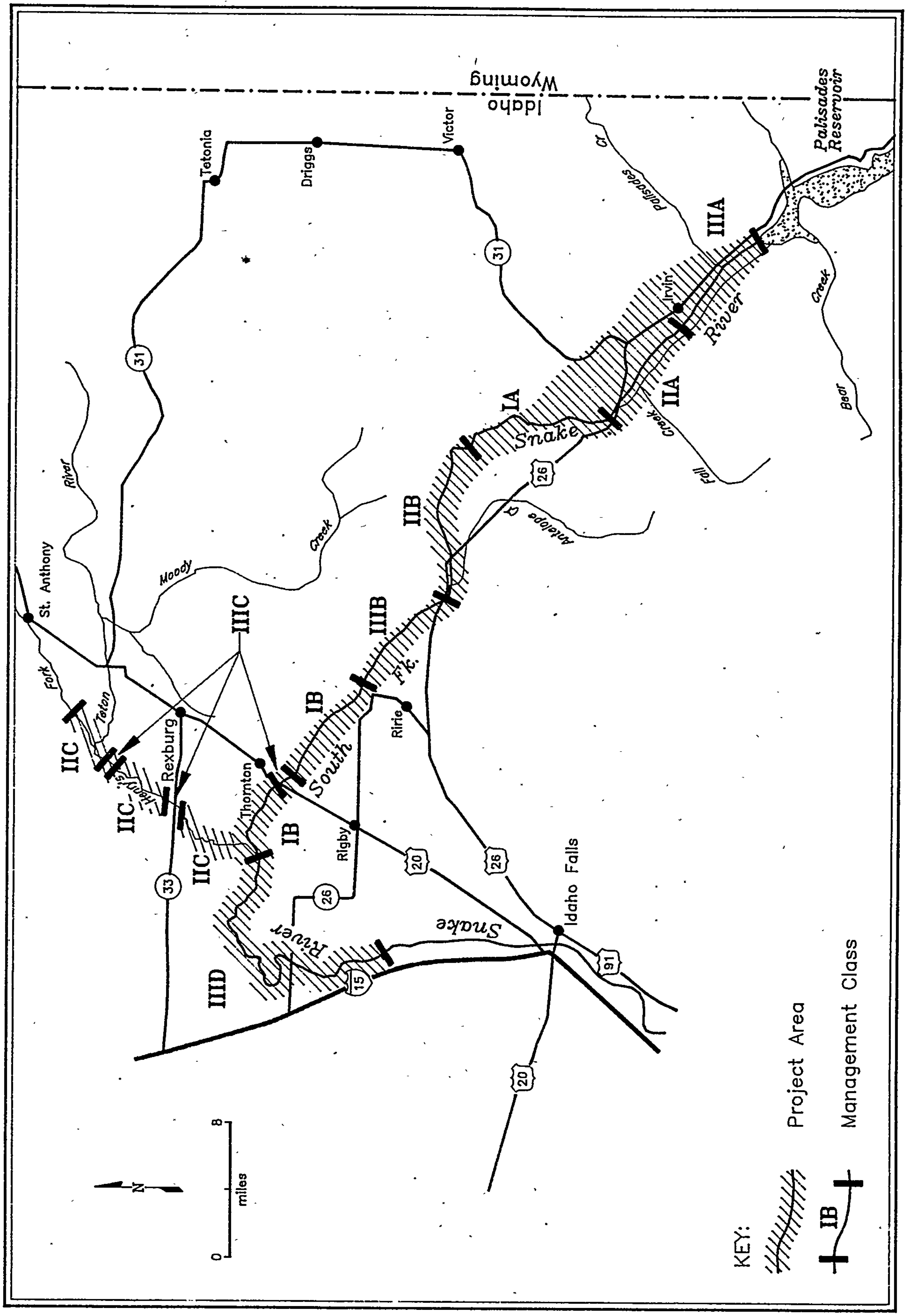

Figure 1.2 Site-Specific Management Classes

CHAPTER 2 - DESCRIPTION OF ALTERNATIVES

2.0 INTRODUCTION TO ALTERNATIVES

Alternatives represent a range of actions that, if implemented, would fulfill the purpose and need of the project. Evaluation of various alternatives helps assure that reasonable courses of action were considered to arrive at appropriate and effective decisions.

Consideration of a full range of alternatives, including no action, is required in order to comply with Council of Environmental Quality guidelines for NEPA documentation. The following alternatives conform with the stated purpose and need of the mitigation project and are proposed for analysis. These alternatives are discussed in greater detail in the following sections.

Alternative 1 - Protect habitat by acquiring available land in fee title from willing landowners.

Alternative 2 - Protect habitat by acquiring conservation easements from willing landowners.

Alternative 3 - Conduct enhancement measures on lands acquired for habitat protection by fencing, improving bald eagle nesting habitat, planting cottonwoods, and revegetating agricultural lands.

Alternative 4 - Conduct similar enhancement measures on lands within the study corridor administered by State and Federal agencies.

Alternative 5 - Utilize a combination of the above alternatives as the Proposed Action.

Alternative 6 - As required by NEPA, evaluate the effects of No Action. In this EA, the No Action Alternative will be the basis for comparing the effects of the previous alternatives.

2.1 ALTERNATIVE 1 - ACQUIRE FEE TITLE ON PRIVATE LANDS

Alternative 1 would involve purchasing land in fee title along the SFSR corridor from willing landowners. Fee title acquisition provides permanent protection of wildlife habitat and affords maximum management control over mitigation lands.

Lands would be acquired based on several factors, including habitat value for target wildlife species, availability, location within the SFSR corridor, and threat of development. BPA would also consider acquisition of water rights that may be available with land parcels. Water rights would be used to ensure adequate flows for vegetation establishment and wildlife uses on mitigation lands.

Lands would be acquired by BPA, or by a state, Tribal, or federal land management agency with funding by BPA. Parcel location would be dependent on the priority of the river segment and SSM class. In general, river segments closer to the Palisades Reservoir have a higher priority for acquisition and protection because of the value for bald eagle foraging and use by associated species. However, high value wildlife habitat in lower priority river segments would also be considered for acquisition.

Under Alternative 1, measures would not be taken to achieve higher habitat values. Implementing enhancement measures on acquired lands would constitute Alternative 3, which is discussed in Section 2.3.

2.2 ALTERNATIVE 2 - ACQUIRE CONSERVATION EASEMENT ON PRIVATE LAND

This alternative would involve acquiring permanent conservation easements from willing landowners in the project area to provide habitat protection for target species. Conservation easements would be acquired by BPA, or by a State, Tribal, or Federal land management agency with BPA funding.

A conservation easement is a legal agreement between a property owner and another party that imposes restrictions on the amount and types of uses that may take place on the land covered by the easement. Restrictions imposed by the conservation easement would be based on the interests of the land owner and the habitat objectives of the easement holder.

Under Alternative 2, willing landowners would agree to grant conservation easements on portions of their land in exchange for compensation from BPA. Procurement of conservation easements would depend on a landowner's willingness to relinquish a measure of control over his/her property. The landowner would retain all other legal rights of ownership not transferred by the easement.

Conservation easements would preclude certain activities that could potentially diminish wildlife habitat values. Activities that would typically be excluded or regulated under the terms of a conservation easement may include grazing, timber harvest, road and building construction, mineral extraction, public access, residential development, and agricultural activities detrimental to wildlife. An individual landowner would not be likely to grant a conservation easement if the terms of agreement unduly restricted the landowner's primary interest in the property.

Conservation easements could take various forms. Terms of easements would vary depending on circumstances, including the landowner's requirements, habitat conditions on a particular land parcel, and BPA's habitat objectives for a given parcel. Conservation easements would be a preferred means of protection when they can provide permanent protection, meet the biological goals for the area, allow necessary management flexibility, and are cost effective, and where they would be preferred by the landowner (Martin and Hansen 1993).

2.3 ALTERNATIVE 3 - CONDUCT ENHANCEMENT MEASURES ON MITIGATION LANDS

Alternative 3 would involve enhancement of wildlife habitat on mitigation lands to derive the maximum wildlife value from each acquired parcel or conservation easement. Proposed enhancement measures include fencing, improving bald eagle nesting habitat, planting cottonwoods, and revegetating agricultural lands.

Enhancement measures would be applied to acquired parcels or easements on a case-by-case basis, depending on the existing habitat conditions and potential for cost effective improvement. BPA would contract with an appropriate land management agency to conduct the following enhancement measures:

Fencing - would exclude livestock from grazing in areas of high or potentially high value habitat. Fencing would be especially beneficial to protect riparian vegetation and to encourage recruitment of young cottonwood trees and other native riparian plants. Existing data indicates that the current rate of

establishment for young cottonwoods is insufficient to replace the mature stands as they age and die (Martin and Hansen 1993).

Improvement of bald eagle nesting habitat - would consist of improving nesting sites by constructing exclosures around nesting areas, improving the nests themselves, and/or modifying nesting trees and potential nesting trees adjacent to existing nest sites. Specific tree and especially crown characteristics are important to eagles in nest tree selection (Martin and Hansen 1993). Modification techniques may include tree topping, pruning, and thinning. Improvement of bald eagle nesting habitat would also follow the existing *"Bald Eagle Management Plan Guidelines for Greater Yellowstone."*

Planting cottonwoods - Seedlings may be planted in suitable areas to augment existing stands or denuded areas. Exposed streambanks, sand, and gravel bars may be more suitable for establishing cottonwood seedlings than areas where the natural recruitment potential has been diminished by excessive grazing or altered flow regimes.

Revegetating agricultural areas - In areas where the riparian vegetation was cleared for agricultural uses such as pasture or crop production, more intense revegetation measures would likely be required to reestablish a cottonwood riparian vegetation complex. Ground-clearing, herbicide application, plowing, and grading may be required to achieve appropriate land contours and to establish desirable soil conditions for plant growth. In addition to cottonwood seedlings, other shrub and tree species would be planted and seeded to achieve initial vegetation composition for the desired wildlife cover type. Erosion control measures, such as those listed as Best Management Practices (BMPs) in the Idaho Forest Practices Act (Idaho Department of Lands 1990), would also be implemented to prevent nonpoint pollution, sedimentation, and damage to mitigation, or adjacent land parcels. Upland agricultural sites may be revegetated to improve the terrestrial prey base for raptors and benefit other species.

2.4 ALTERNATIVE 4 - CONDUCT ENHANCEMENT MEASURES ON EXISTING AGENCY LANDS

Resident Fish and Wildlife Amendments of the NWPPC Program, section 10.2.E.1, requires that BPA "use publicly owned land for mitigation, or management agreements on private land, in preference to acquisition of private land, while providing permanent protection or enhancement of wildlife habitat in the most cost effective manner." Section 4(h)(10)(A) of the Northwest Power Act, however, mandates that "Expenditures by BPA shall be in addition to, not in lieu of, the expenditures authorized or required from other entities under other agreements or provisions of law."

Under Alternative 4, BPA would enter into management agreements with other resource agencies to conduct wildlife enhancement activities on existing State or Federal lands in the SFSR corridor. BPA would agree to fund specific habitat enhancement measures compatible with agency wildlife management plans. Such BPA enhancement efforts would be in addition to those undertaken by the resource agency. Proposed enhancement measures would be similar to those discussed in Alternative 3 (section 2.3).

One potential limitation to the feasibility of this alternative is the availability of enhancement opportunities on Federal land. The USFS and BLM completed the SFSR Activity/Operations Plan EA in 1991 (BLM and USFS 1991a). This document identified resource management needs, including those for wildlife, and prescribed measures to be taken by the responsible agency. Hence, areas where enhancement needs exist may already be identified and proposed for improvement. Nevertheless, opportunities would be sought, whereby BPA would fund enhancement measures beyond those that other resource agencies are obligated to complete. One possible action would be for BPA to provide funds for enhancement of

mitigation lands recently acquired by these agencies under the provisions of the SFSR Activity/Operations Plan EA. Providing funds to enhance state lands may present another mitigation opportunity.

2.5 ALTERNATIVE 5 - CONDUCT A COMBINATION OF PROTECTION AND ENHANCEMENT MEASURES (AGENCY-PREFERRED ALTERNATIVE)

Alternative 5 would involve implementing the key attributes of Alternatives 1 through 4 (sections 2.1-2.4). Under this alternative, a full range of mitigation measures would allow BPA to select and implement the combination of actions that best fit the specific ecological, socioeconomic, and political situation at hand.

The flexibility of Alternative 5 would result in an efficient and cost effective approach to achieve mitigation goals by implementing the appropriate measure as circumstances dictate. For example, a particularly sensitive area may be identified that consists of several parcels under the ownership of various individuals and agencies. The parcels may exhibit varying potential for enhancement. A combination of acquisitions, conservation easements, and enhancement measures could be conducted simultaneously to maximize the wildlife value of those parcels. Similarly, the various mitigation measures could be conducted individually on separate parcels throughout the river corridor. As with Alternative 1, BPA would consider acquisition of any water rights that may be made available with fee title acquisitions.

2.6 ALTERNATIVE 6 - NO ACTION

Under Alternative 6, BPA would not fund or implement the SFSR Programmatic Management Plan (Martin and Hansen 1993). To fulfill its obligation to mitigate for the past wildlife losses associated with the Palisades Reservoir, BPA would need to develop an alternative mitigation proposal. That proposal would be the subject of a separate planning process and NEPA review.

A delayed mitigation plan would result in lost opportunities to mitigate for past wildlife losses. For example, some land parcels now available for acquisition may be sold and converted to uses that may be detrimental to target wildlife species. Delayed mitigation plans would also likely be more expensive to implement. As a result, fewer enhancement or protection measures could be implemented with available funding, and therefore, fewer benefits would accrue to target wildlife species. Other agencies, however, including the BLM and USFS, would continue to implement their management plans for the project area corridor.

Because this alternative would maintain the status quo, it will be the baseline against which the other alternatives are compared. The description of existing conditions in the affected environment (Chapter 3 of this document) describes the status of various resources and wildlife species in the project area.

2.7 FEATURES, MANAGEMENT PRACTICES, AND ACTIONS COMMON TO ALL ALTERNATIVES

Certain factors related to the implementation of wildlife habitat protection and enhancement measures apply equally to and are considered part of all alternatives considered in this EA. These actions are as follows:

Mitigation measures must not affect values for which river segments are considered eligible for BLM Wilderness or Wild & Scenic River designation.

- *The availability of water rights with land acquisitions would be evaluated during land purchase negotiations.*

- *Management of mitigation and/or enhancement lands would be in compliance with regulations of State, Tribal, or Federal agencies that may be involved in managing mitigation lands acquired by BPA.*

- *BPA would be responsible for site clean up and debris removal on acquired mitigation lands in order to achieve maximum wildlife enhancement unless otherwise negotiated as part of the terms of purchase.*

- *BPA and the managing agency(ies) would comply with the provisions established in the Programmatic Agreement regarding historical properties (see also section 3.3.1).*

- *Uses of mitigation lands by Tribal members would be governed by Tribal conservation regulations. BPA would coordinate with the Shoshone-Bannock Tribes regarding Tribal uses of mitigation lands when necessary.*

- *Seasonal land use restrictions may be implemented on BPA-acquired lands to reduce human disturbance to bald eagles and other wildlife during critical life cycle periods.*

- *All enhancement activities would be conducted in accordance with Best Management Practices. Practices pertaining to forest lands are described in the Idaho Forest Practices Act. These practices, where appropriate, would be utilized on mitigation lands. Best Management Practices appropriate for agricultural lands would be determined in consultation with the U.S.D.A. Natural Resources Conservation Service.*

- *Opportunities for wildlife improvement would be identified on a case-by-case basis as fee-title and/or permanent conservation easements are acquired from willing landowners.*

2.8 ALTERNATIVES DELETED FROM FURTHER CONSIDERATION

The SFSR Programmatic Management Plan (Martin and Hansen 1993) examined various mitigation management actions that essentially formed the basis for the previously described EA alternatives. Several strategies were examined in that report that were not recommended for implementation by the interagency study team. In some cases, the measures may not have met BPA goals and objectives, while in others, the practicality or cost effectiveness may have been uncertain or prohibitively expensive.

Certain mitigation measures or strategies were considered in the Management Plan but not recommended for implementation. The following measures discussed in that document were considered not to be viable alternatives, and therefore, are deleted from further consideration in this EA:

1. ***Obtain or augment summer flows in the SFSR.*** Implementation of this alternative would fall under a jurisdiction outside the scope of the mitigation planning process and will be pursued there. One major effort in this regard involves a review and analysis of the Snake River systems operation by the Bureau of Reclamation. The study will help determine opportunities for resource enhancement by modeling flows in the Snake River and tributaries (Salenik 1995).

2. ***Obtain or augment winter flows.*** Jurisdictional limitations discussed for summer flows would also apply to winter flows. In addition, it is questionable whether permanent winter flows could be obtained to meet the goal of permanent wildlife habitat protection.

3. ***Negotiate short-term management agreements with landowners.*** Without the benefit of providing permanent mitigation, short-term management agreements would not comply with the NWPPC program for wildlife mitigation.

4. ***Provide artificial nest poles for bald eagles.*** The interagency study team felt that this alternative would not provide effective mitigation due to the bald eagle's reported preference for nest sites in natural over-mature trees.

5. ***Create side channels to provide feeding areas for bald eagles.*** While this alternative would benefit bald eagles, it would require considerable engineering and construction that would be cost-prohibitive.

Another alternative considered was for BPA to fund enhancement activities on private lands without conservation easements. This alternative would not provide assurance that the mitigation measures would be in place permanently. Therefore, it did not meet BPA requirements and was not considered further.

2.9 COMPARISON OF ALTERNATIVES

The interagency steering committee for the SFSR/Palisades Wildlife Mitigation Project developed a list of concerns to be addressed in this EA. Some of these concerns are the same as expressed during the scoping process for the SFSR Activity/Operations Plan EA (BLM and USFS 1991a). A summary of these concerns and differences in how these issues would be addressed by the various alternatives is presented in Table 2.1.

One key distinction between Alternatives 1 and 2 is the comparison of costs and benefits of fee title acquisition with conservation easements. Compared to fee-title acquisition, the standard conservation easement typically:

- *costs more to negotiate (Diehl and Barrett 1988)*
- *costs less to acquire (Land Trust Alliance and National Trust for Historic Preservation 1990)*
- *costs more to monitor over the duration of the easement (Diehl and Barrett 1988)*
- *provides similar wildlife benefits if the easement allows for habitat enhancement and maintenance; landowners comply with easement terms and conditions; and excess human disturbance of bald eagles does not occur (Land Trust Alliance and National Trust for Historic Preservation 1990)*

Table 2.1. Summary and Comparison of the Effects of the Alternatives for the Palisades/South Fork Snake River Environmental Assessment.

ISSUE OR EFFECT	Alternative 1 - Acquire Fee Title	Alternative 2 - Acquire Conservation Easement	Alternative 3 - Enhancement of Acquired Mitigation Lands	Alternative 4 - Enhancement of Agency Lands	Alternative 5 - Combination of Measures	Alternative 6 - No Action
VEGETATION AND WETLANDS						
Effect to habitats and cover types within the study corridor.	Protection of native vegetation types and associated habitats, especially riparian/ wetlands. Potential for vegetation recovery from past land uses. Potential for vegetation disturbance depends on level of increased recreational use.	Same as Alt. 1 but with less potential for recreation use-related effects.	Same general effects as Alt. 1, with additional beneficial effects related to enhancement and restoration of vegetation types, especially riparian/wetlands.	Few benefits anticipated because few areas of public lands are likely to require vegetation enhancement.	Generally the same as Alt. 3	Continued degradation of vegetation resources due to current land use practices on some areas, otherwise no effect.
Effects on Threatened and Endangered plant species. (U.S. Fish and Wildlife Service consultation required).	None present in corridor.	None present in corridor.	None present in corridor.	None present in corridor.	None present in corridor.	No effect.
Noxious weed situation and local government control program.	No effect.	No effect.	Enhancement measures may create opportunities for noxious weed establishment or introduction. Mitigation and monitoring measures can minimize potential infestations.	Same as Alt. 3 where enhancement conducted; few areas of public land likely to be in need of enhancement.	Same as Alt. 3	No effect.
Potential impacts to riparian/wetland vegetation due to manipulation for target species.	No effect.	No effect.	Overall improvement in quality and quantity of riparian/wetland vegetation types.	Same as Alt. 3 where enhancement conducted; few areas of public land likely to be in need of enhancement.	Same as Alt. 3	No effect.
Effects of shrub/scrub growth in floodplain and related effects on flooding.	No effect.	No effect.	None likely.	None likely.	None likely.	No effect.
Additional analysis and consultation efforts required as actions implemented.	No.	No.	Yes	Yes	Yes	No.

ISSUE OR EFFECT	Alternative 1 - Acquire Fee Title	Alternative 2 - Acquire Conservation Easement	Alternative 3 - Enhancement of Acquired Mitigation Lands	Alternative 4 - Enhancement of Agency Lands	Alternative 5 - Combination of Measures	Alternative 6 - No Action
WILDLIFE						
Impacts to other wildlife species resulting from habitat or cover type manipulation.	No effect.	No effect.	Revegetation of agricultural fields may result in slight loss of foraging area for species such as sandhill cranes and geese.	None anticipated.	Same as Alt. 3	No effect.
Effects of various protection or enhancement measures.	Permanent protection of habitat and possible improvement of habitat conditions by removing destructive land uses. Increase in overall wildlife abundance and diversity expected. Amount of land available for acquisition may be insufficient to fulfill complete mitigation obligation.	Permanent protection of habitat and possible improvement of habitat conditions by restricting incompatible land uses through easement agreements. Increase in overall wildlife abundance and diversity expected, but amount of land involved may be insufficient to fulfill mitigation obligation.	Permanent protection of habitat and enhancement on mitigation lands. Increase in overall wildlife abundance and diversity expected.	Enhancement of specific habitats where compatible with agency management plans, but few opportunities or need for enhancement anticipated.	Similar to Alt. 3, but with some potential to conduct enhancement on existing public lands.	Potential benefits of protection and enhancement foregone.
Potential for negative effects or interactions with nontarget species.	No effect.	No effect.	None likely.	None likely.	None likely.	No effect.
Threatened and endangered animal species presence in corridor and potential for impacts resulting from implementation of alternatives (ESA consultation required).	Permanent benefits due to habitat protection. No adverse effects.	Same as Alt. 1	No adverse effect. Habitat protection and enhancement would benefit bald eagle and peregrine falcon.	Limited opportunities for additional enhancement since agencies required to address T&E needs on public lands.	Same as Alt. 3	No effect.
Commitment to survey/delineate species habitat as specific site acquisitions or enhancement measures are undertaken.	Managing agency will assume responsibility.	Same as Alt. 1	Same as Alt. 1	Same as Alt. 1	Same as Alt. 1	No effect.

ISSUE OR EFFECT	Alternative 1 - Acquire Fee Title	Alternative 2 - Acquire Conservation Easement	Alternative 3 - Enhancement of Acquired Mitigation Lands	Alternative 4 - Enhancement of Agency Lands	Alternative 5 - Combination of Measures	Alternative 6 - No Action
Fisheries issues; special status species in corridor.	Slight potential for improvement related to change in land use on acquired parcels.	Same as Alt. 1	Slight potential for improvement to fisheries due to riparian vegetation enhancement.	Slight potential for cumulative improvement due to riparian vegetation enhancement; few public lands likely to be involved.	Generally same as Alt. 3	Present activities would continue to influence fisheries.
LAND USE						
Coordination with local planning efforts and compliance with zoning codes.	No effect.	No effect.	No effect.	No effect.	No effect.	Development pressure in project area corridor likely to continue.
Compatibility of wildlife/recreation uses with adjacent land uses.	No effect.	No effect.	No effect.	No effect.	No effect.	No effect.
Opposition by adjacent land users.	Unknown.	Unknown.	Unknown.	Unknown.	Unknown.	No effect.
Status of prime farmlands in study corridor.	Acquisition of prime farmland unlikely. If acquired, crop production reduced. No permanent conversion of prime farmland would occur.	Same as Alt. 1	Same as Alt. 1	No effect.	Same as Alt. 1	Potential loss of prime farmland to development.
Native subsistence uses.	Potential benefits.	No effect.	Potential benefits.	No effect.	Potential benefits.	No effect.
Need and responsibility for structure removal and debris clean-up on acquired lands.	Potential need for action by BPA.	Potential need; depends on conditions of easement.	Same as Alt. 1	Not likely on public lands.	Same as Alt. 1	No effect.
Recreational uses and increased public access on acquired lands.	Potential demands for public access.	Lands under conservation easement to remain in private ownership. Public access may be limited by terms of easements.	Same as Alt. 1	Public use controlled under current agency management plans.	Same as Alt. 1	No effect.

ISSUE OR EFFECT	Alternative 1 - Acquire Fee Title	Alternative 2 - Acquire Conservation Easement	Alternative 3 - Enhancement of Acquired Mitigation Lands	Alternative 4 - Enhancement of Agency Lands	Alternative 5 - Combination of Measures	Alternative 6 - No Action
Potential effect on Wild and Scenic River status.	No effect.	No effect.	Low potential for negative effects.	No effect.	Same as Alternative 3.	No effect.
SOCIAL-ECONOMIC						
Changes to lifestyles, community structure and character resulting from the trend of converting local economy from agricultural-based to wildlife/recreation.	More public land would occur in study area. Agricultural land uses slightly diminished.	Slightly less agricultural use of easement lands.	Improvements for wildlife considered desirable by many individuals. Potential for slight reduction in agricultural use.	No effect.	Less private land to be acquired than Alt. 1 and Alt 3.	Continued loss of habitat and agricultural land. Increased pressure for residential development likely.
Tax base reduction resulting from land acquisition.	Slight reduction.	No effect.	Same as Alt. 1	No effect.	Same as Alt. 1	Increase in tax base due to conversion of agricultural land to residential/ recreational land.
CULTURAL RESOURCES						
Historic properties management plan required?	Yes	Yes	Yes	Yes	Yes	No plan necessary.
Potential effects to cultural resources.	Improved legal protection for cultural resources on public land. Some potential for disturbance due to public access.	Public access not anticipated on conservation easements as lands remain in private ownership.	Improved legal protection as in Alt. 1. Pre-disturbance surveys would minimize potential for impacts due to enhancement actions.	Existing public lands will protected. Pre-disturbance surveys would be conducted.	Same as Alt. 3	Development on private lands poses risk of cultural resource disturbance.
Compliance with Federal laws regarding cultural resources.	Yes	Yes	Yes	Yes	Yes	No effect.

WATER, SOIL, VISUAL RESOURCES						
Water quality impacts related to erosion/siltation.	Potential benefits due to change in land use.	Slight potential for positive impacts due to change in land use.	Potential improvements due to change in land use and vegetation enhancement.	Slight potential for improvement--existing resource management practices provide adequate protection.	Same as Alt. 3	Existing problems may be perpetuated.
Acquisition of water rights.	Some potential if water rights available for sale with land parcels.	Unlikely	Same as Alt. 1	None	Same as Alt. 1	No effect.
Potential effects on visual resources.	No effect.	No effect.	None likely. Enhancement could result in positive changes depending on existing conditions and measures selected.	No effect.	Same as Alternative 3.	Increased potential for impaired visual resources due to land development.

CHAPTER 3 - AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

3.0 DESCRIPTION OF STUDY AREA

The SFSR study area encompasses the 98 kilometer-long (61 miles) SFSR corridor in southeastern Idaho between Palisades Dam and the confluence with the Henry's Fork (North Fork) of the Snake River. In response to public and agency concerns over the availability of potential mitigation lands, the study area was expanded to include the Henry's Fork corridor and the portion of the mainstem Snake River upstream of Idaho Falls in Madison, Jefferson, and Bonneville counties (Figure 1.1). The width of the primary study corridor includes the active floodplain, riparian zone, and associated adjacent upland features such as cliffs, slopes, or other landscape features. Socioeconomic concerns would focus on the local communities in the SFSR and Henry's Fork valleys.

The river and associated cottonwood riparian zone is the dominant landscape feature in the study area, surrounded by agricultural fields on the valley floor and benches, and mountains at the higher elevations near the upper end of the study area. Elevations range from about 1,402 meters (4,600 feet) along the SFSR to about 2,438 meters (8,000 feet) in mountainous areas adjacent to the study corridor. The area is becoming increasingly dominated by recreation use as evidenced by the types of residential and commercial development throughout the corridor.

The cottonwood riparian forest associated with the SFSR below the Palisades Reservoir is the most extensive in Idaho and is considered one of the largest and highest quality cottonwood ecosystems in the western intermountain region of North America (BLM and FS 1991a). This unique ecosystem is the focus of present efforts by BPA to protect and enhance wildlife habitat along the SFSR corridor.

The affected environment, direct and indirect effects, and cumulative effects of implementing the various project alternatives are discussed in the following sections. Only those resources and resource issues considered to be pertinent to the project were included in the analysis and documentation of potential impacts.

3.1 NATURAL RESOURCES

The following analysis identifies the affected environment, direct and indirect effects, and cumulative effects associated with each alternative by resource. Resources that are either absent from the project area or are not affected by the proposed alternatives include air quality and hazardous waste and toxic materials. All other resources are discussed in detail below.

3.1.1 Vegetation - Affected Environment

General Vegetation

Vegetation along the SFSR corridor has previously been described in several studies including the BPA report "Wildlife impact assessment: Palisades project, Idaho" (Sather-Blair and Preston 1985). Dominant vegetation was categorized into 11 cover types. With the exception of the area occupied by man-made facilities, the cover types are as follows: riverine, lacustrine, emergent wetland, scrub-shrub wetland,

forested wetland, sagebrush/grassland, shrub-steppe, upland coniferous forests, aspen, and farmland. These cover types are described in detail in Appendix A along with their associated value to wildlife.

Martin and Hansen (1993) estimated the average amount of each cover type for the five SSM river segments per average 40.5 riparian hectares (100 acres) in the SFSR corridor (Table A-1, Appendix A). The construction of the reservoir resulted in a reduction of all ten cover types with the exception of lacustrine open water and emergent wetland. The change in the amount of each vegetation type is shown in Table 3.1.

Table 3.1. The Change in Cover Type Resulting from the Construction of the Palisades Reservoir and Operation Facilities (dam, powerhouse, U.S. Highway 26 and government camp). (Sather-Blair and Preston 1985).

Cover Type	Hectares (Acres)
Riverine	- 364 (900)
Lacustrine	+ 6,313 (15,600)
Emergent Wetland	+ 28 (68)
Scrub-Shrub Wetland	- 337 (832)
Forested Wetland	- 679 (1,677)
Sagebrush/Grassland	- 354 (875)
Shrub-Steppe	- 1,192 (2,946)
Upland Coniferous Forest	- 248 (612)
Aspen	- (500 (1,236)
Farmland	- 2,752 (6,800)

Threatened, Endangered, and Candidate Plant Species

According to the USFWS and the Idaho Conservation Data Center (ICDC), endangered, threatened, or candidate plant species are not known to occur within the project area (ICDC 1994, USFWS 1994).

Noxious Weeds

Numerous invasive plant species may occur in the SFSR corridor, including several different knapweeds (*Centaurea* spp.), common tansy (*Tanacetum vulgare*), Canada thistle (*Cirsium vulgare*), purple loosestrife (*Lythrum salicaria*), leafy spurge (*Euphorbia esula*), musk thistle (*Carduus nutans*), and others. Western riparian ecosystems continue to be adversely impacted by exotic plant invasions resulting from increased disturbance to soils and the introduction of non-native plant species. Current management objectives on federal lands require the treatment of noxious weeds to prevent invasion and further spread of the weeds using integrated pest management methods (BLM and FS 1991a). The State of Idaho policy on noxious weeds is implemented by each county through the cooperative extension service.

Culturally Significant Plant Species

A list of plant species of cultural significance was provided by the Shoshone-Bannock Tribes (Robertson 1993). The list is composed of species which provide some value to the Tribes related to their economical, ceremonial, religious, or medicinal uses. Many of the plants also traditionally provided an important source of food. The identification of the species and their value to the Tribes has been determined primarily through review of literature. As more information becomes available, other species may be added to the list (Robertson 1994a). At this time, more than 300 plant species have been identified as culturally significant, many of which are associated with the previously described cover types in the project area corridor.

3.1.2 Vegetation - Environmental Consequences

Direct and Indirect Effects

Alternative 1 - Acquire Fee Title on Private Lands

General Vegetation - The acquisition of lands in the SFSR corridor would benefit general vegetation by eliminating or restricting land uses that have negatively impacted the native vegetation. Such uses commonly include activities such as grazing, firewood cutting, and various agricultural practices. Purchase in fee title would also preclude future development on mitigation lands, ensuring permanent habitat protection of vegetation resources and habitat.

The cover types that would benefit the most include emergent, scrub-shrub, and forested wetlands. Acquisition efforts may also contribute to the rehabilitation and/or protection of all upland cover types by restricting development and eliminating or reducing grazing pressures. Proper management additionally would result in an increase in the overall diversity and abundance of desirable or native plant species on the acquired lands. Grazing-related effects to vegetation would be reduced under Alternative 1.

Since the mitigation lands would pass from private to public ownership under this alternative, the potential exists for increased public use of these lands. Disturbance of native vegetation could occur in areas of concentrated human use. Heavy use could cause vegetation impacts that may not have been present prior to acquisition.

Degradation of the vegetation by recreation use in heavily used areas can be prevented if the potential problem area is monitored and measures are implemented to control use (see Mitigation and Monitoring Section). Overall, any potential negative effects to vegetation by recreation use would be minor relative to the potential long-term improvement or protection of habitat.

Threatened, Endangered, and Candidate Plant Species - Plant species listed as endangered, threatened, or candidate are not known to occur in the project area corridor. Thus, effects to rare plants under Alternative 1 are not anticipated.

Noxious Weeds - Under Alternative 1, ground altering activities would not occur. The potential for the spread or invasion of noxious weeds would result from existing land use activities on acquired lands. Prevention and control would be part of any management plan implemented on acquired lands.

An overall reduction in the number of noxious weeds may occur as a result of restricting use of the area by cattle. Reduction or elimination of grazing would improve plant vigor and health of desirable species, thereby reducing the potential for invasion or spread of noxious weeds.

Culturally Significant Plant Species - Since many of the culturally significant plant species occur within the project area corridor, the acquisition of lands would indirectly benefit these species by protecting the habitats with which they are associated. Protection of acquired areas would result in greater species richness and abundance of plant species which would likely include culturally significant plants. Although uncontrolled public use of the acquired lands could result in some impacts to such vegetation, these effects could be avoided through changes in management of public use.

Alternative 2 - Acquisition of Conservation Easements

General Vegetation - The effect of acquiring conservation easements on general vegetation under Alternative 2 would be similar to that described for Alternative 1 (the purchase of land in fee title). Conservation easements would be placed under the management of a federal, state, or tribal agency, providing permanent protection of habitat. Restrictions incorporated into the terms of the easement would minimize the potential for impacts to vegetation due to public recreation use.

Threatened, Endangered, and Candidate Plant Species - Plant species listed as endangered, threatened, or candidate are not known to occur in the SFSR corridor.

Noxious Weeds - Because Alternative 2 would not involve any ground altering activities, the potential for the spread or invasion of noxious weeds would be unlikely. Established noxious weeds would be controlled under terms of the conservation easement.

Culturally Significant Plant Species - Since many of the culturally significant plant species occur within the project area corridor, the acquisition of conservation easements would indirectly benefit these species by protecting the habitats in which they are associated. Protection of acquired areas would result in greater species richness and abundance of plant species which would likely include culturally significant plants. Increased public use of the acquired lands may result in the destruction/loss of some vegetation. However, these effects would be minor compared to the beneficial effects of long-term protection of habitat.

Alternative 3 - Conduct Enhancement Measures on Mitigation Lands

General Vegetation - Alternative 3 includes BPA funding of enhancement projects on mitigation lands acquired in fee title or by conservation easement. The potential negative effects and benefits of acquiring mitigation lands to general vegetation have been described under Alternatives 1 and 2.

The effects of the proposed enhancement projects on vegetation are described according to four types of enhancement actions: fencing, planting of cottonwoods, revegetation of agricultural fields, and bald eagle habitat improvements.

The purpose of fencing would be to restrict livestock grazing, allowing recovery of some types of vegetation. Fencing or riparian habitat would slow the gradual loss of forested wetlands and would benefit emergent, scrub-shrub, and forested wetland cover types, and upland vegetation. Benefits to the wetland types would include a gradual increase in structural diversity, improvement of soils, and an increase in the species richness and abundance of plant species associated with the various vegetation types. Fencing in upland habitats would decrease erosion, decrease the potential of noxious weed invasion by controlling

grazing, provide improved waterfowl nesting habitat, and improve habitat conditions for culturally significant plant species.

Insufficient overbank flooding exacerbated by grazing has resulted in a lack of recruitment of young cottonwoods in the project area corridor. Cattle exclusion would allow recolonization and recruitment of young plants which consequently provide for younger, healthier stands of shrubs and trees capable of replacing mature stands.

Cottonwood plantings would directly benefit forested wetlands by improving the structural diversity and by providing recruitment within aging stands of cottonwoods. Negative effects are not anticipated to occur to general vegetation or cover types as a result of this enhancement measure.

In some cases, land acquisitions may require revegetation of agricultural fields. The effort could involve planting of native mixes and/or transplants from the surrounding area. Returning agricultural fields to their natural state could provide additional diversity and abundance of plant species and reduce fragmentation of cover types. Fragmentation is undesirable because the edges of habitats, such as between a forest and a grassland, typically undergo greater fluctuations in temperature, wind, precipitation, and solar radiation (Saunders et al. 1991). Many plants characteristically found in interior habitats require more moderate and stable conditions and cannot withstand the effects of edge. Revegetation efforts would attempt to accelerate the reversion to pre-agricultural status primarily in areas historically dominated by forested wetlands.

Bald eagle habitat improvements could consist of improving bald eagle nests and the trees supporting and surrounding the nest by tree topping, pruning, and thinning. Enhancement measures are not expected to affect the general vegetation of the project area corridor.

Threatened, Endangered, and Candidate Plant Species - Plant species listed as endangered, threatened, or candidate are not known to occur in the project area corridor. Thus, effects to rare plants under Alternative 3 are not anticipated to occur.

Noxious Weeds - Any soil disturbing activity would provide the potential for noxious weed establishment. Possible activities under Alternative 3 that would cause disturbance to the soils would include digging post holes for placement of fences, the planting of cottonwood trees, and the revegetation of agricultural fields. As described in the mitigation and monitoring section, preventative measures would be implemented to eliminate the possibility of invasion in areas where noxious weeds are not currently a problem. In areas where weeds are already established, mitigation and monitoring measures may also be necessary to control the spread of noxious weeds. This may be particularly important when revegetating fields with native mixes since weedy species characteristically out-compete recently planted native plants. BPA would be responsible for funding noxious weed control on acquired mitigation lands.

Culturally Significant Plant Species - The potential negative effects and benefits of acquiring mitigation lands to culturally significant plant species has been described under Alternatives 1 and 2. In addition, some proposed enhancement measures under Alternative 3 would benefit plants identified as culturally significant. In particular, those species associated with emergent, scrub-shrub, and forested wetlands would increase in diversity and abundance through protection and enhancement of riparian habitats by fencing. In addition, since many of the culturally significant plant species are relatively common, they likely occur in the native mixes that would be used in the revegetation efforts of agricultural fields. Negative effects to culturally significant plant species are not anticipated under Alternative 3.

Alternative 4 - Existing Public Land Habitat Enhancement

General Vegetation - Under Alternative 4, the general vegetation of the project area corridor is not anticipated to be negatively affected by the proposed enhancement projects on public lands. Where enhancement measures would be conducted, beneficial effects would be similar to those described above in the discussion of Alternative 3. However, given that resource agencies are already managing public lands in the project area for resource protection, few areas of public lands are expected to require enhancement.

Threatened, Endangered, and Candidate Plant Species - Plant species listed as endangered, threatened, or candidate are not known to occur in the project area corridor. Thus, effects to rare plants under Alternative 4 are not anticipated to occur.

Noxious Weeds - Proposed enhancement activities under Alternative 4 would affect noxious weed populations similarly to those described for Alternative 3.

Culturally Significant Plant Species - Under Alternative 4, effects are not anticipated to occur to culturally significant plant species. Benefits of proposed enhancement measures that would be implemented on public lands are similar to those described above in the discussion of Alternative 3.

Alternative 5 - Combined Enhancement and Protection Measures

General Vegetation - This alternative proposes a combination of the measures described under previous alternatives to protect and enhance cover types in the project area corridor. Depending on the circumstances and condition of the vegetation resource on mitigation lands, a range of techniques could be employed to address project needs. Enhancement measures for improving cover types on lands with existing, optimum wildlife habitat conditions would not be required.

Although few are expected, any negative effects associated with Alternative 5 are discussed under previous alternatives.

Threatened, Endangered, and Candidate Plant Species - Plant species listed as endangered, threatened, or candidate are not known to occur in the project area corridor. Thus, effects to rare plants under Alternative 5 are not anticipated to occur.

Noxious Weeds - The implications of proposed enhancement and protection activities to noxious weed populations are similar to those described for Alternatives 1, 2, 3, and 4.

Culturally Significant Plant Species - The effects of the enhancement and protection measures on culturally significant plant species are described under Alternatives 1, 2, 3, and 4.

Alternative 6 - No Action

Under the No Action Alternative, mitigation lands would not be purchased by BPA and enhancement measures would not be implemented. Changes to the vegetation of the project area corridor would continue to occur under natural and human influences. Continued degradation and loss of the native vegetation would be expected due to increasing development, overgrazing, and recreation pressures. Forested wetland communities, in particular, would undergo a greater loss in acreage than under the action alternatives. This is because natural recruitment of younger stands, which is currently not occurring at a level to replace aging stands, would not be promoted.

Mitigation and Monitoring

General Vegetation - Mitigation and monitoring of activities on public lands would occur under the jurisdiction of the appropriate land management agency. Potential negative effects to vegetation due to ground disturbing activities would be particularly monitored. Seasonal closures of sensitive areas would eliminate use-related impacts. Revegetation and utilization of best management practices as appropriate to prevent erosion would further reduce potential impacts.

It is anticipated that grazing would be reduced or eliminated from mitigation parcels. However, if grazing does continue, grazing management would be implemented to prevent undesirable vegetation impacts.

Threatened, Endangered, and Candidate Plant Species - Mitigation and monitoring measures are unnecessary at this time since no special status species are known to occur within the project area corridor. Protection of any species that may become listed in the future would become the responsibility of the appropriate land management agency.

Noxious Weeds - Proposed enhancement measures under Alternatives 3, 4, and 5 may require mitigation and monitoring measures to control noxious weed invasion. In areas where noxious weeds are not currently a problem, invasion would be prevented by minimizing soil disturbances. If soil disturbances are unavoidable, revegetation of the site with a mix of species that provides an immediate thick cover would minimize the chance of establishment. Any equipment used in the enhancement projects should be cleaned of soil and plant material prior to entering a new area.

In areas where noxious weeds are already established, further disturbance can cause the rapid spread of the species to the affected area. Several methods of control are available, depending on the species and location. The methods include introduction of a biological control agent such as fungus, insect or other pathogens that attacks the weed; destroying the plants through mowing or tilling; and control using chemicals, generally herbicides.

Long-term monitoring may be necessary to ensure complete elimination of the undesired plants or to ensure successful prevention of invasion. The longer the period of establishment, the more difficult noxious weeds are to control. Soils may contain undetectable seed banks, some species of which can remain dormant for several years. Thus, several years of monitoring, consisting of one to two site visits per year, would be required following ground disturbing activities or elimination of existing noxious weed problems.

Culturally Significant Plant Species - Mitigation and monitoring measures implemented to minimize negative effects to general vegetation would also contribute to the viability of populations of culturally significant plant species. In addition, a process to identify culturally sensitive plant species and consult with the Tribes regarding their protection would be developed and documented in the cultural resources Programmatic Agreement prior to ground-disturbing activities.

Cumulative Effects

The various action alternatives considered in this document would have minimal negative effects to vegetation and therefore would not contribute to negative cumulative effects. Negative cumulative effects include loss and degradation of native vegetation types, especially those associated with riparian and wetland areas. Negative cumulative effects to vegetation have resulted and continue to occur due to

activities that include agriculture uses, overgrazing, concentrated recreation use, land development, and hydropower-related operations and past construction.

Positive cumulative effects to vegetation are resulting from implementation of the Snake River Activity/Operations Plan (USFS and BLM 1991b) by the USFS and BLM. In addition, the Nature Conservancy is realizing various protection and enhancement opportunities through private land acquisition and land exchanges. All alternatives considered, except Alternative 6 (No Action), would contribute to the gradual rehabilitation of vegetation and associated resources within the project corridor. The action alternatives would contribute to the positive cumulative effects initiated by others.

3.1.3 Wildlife - Affected Environment

Target Species - Importance and Status

The project area corridor supports more than 260 wildlife species (Meuleman et al. 1986). As many as 156 species of nesting birds potentially occur within the corridor and surrounding area, many of which are associated with cottonwood riparian communities (BLM and FS 1991a). To represent important wildlife groups affected by the Palisades Project, target species were selected by an interagency work group. Species were chosen either because they have a high priority status with state or federal agencies or because they best describe habitat conditions for groups of species with similar habitat needs. The target species selected by the interagency work group include Canada goose, mallard, mink, ruffed grouse, mule deer, bald eagle, black-capped chickadee, and yellow warbler. Peregrine falcon and Rocky Mountain elk were added later.

The IDFG used the Habitat Evaluation Procedure (HEP) developed by the USFWS (1980) to assess wildlife conditions prior to, and following construction of the Palisades Reservoir. HEP is used to determine the amount of habitat available relative to the quality of habitat in terms of HU's. Quality of habitat is expressed as Habitat Suitability Index (HSI) values ranging from 0.0 (poor habitat) to 1.0 (optimal habitat). For a given target species, one habitat unit is equivalent to 0.4 hectare (1 acre) of prime habitat. However, one acre can provide habitat for more than one target species and thus may provide more than one HU, dependent on the parcel of land.

River segments in the study area were prioritized by Martin and Hansen (1993) according to the estimated value of each segment to wildlife (Table B-1, Appendix B). River segments IB and IIB/IIIB (see Figure 1.2) were determined to provide the most overall total HUs for target species per hectare (acre) due to the amount of cottonwood forests and scrub-shrub wetlands. However, the large amount of open water found directly below the Palisades Dam, particularly in segments IIIA and IIA, provide the highest winter habitat value for bald eagle. The open water supports a higher prey base for bald eagles than segments further downstream. Martin and Hansen ranked the river segments based on their value to wildlife: segments IIIA receive the highest priority, followed by IIA, IA, IIB/IIIB, and IB (Table B-1, Appendix B). During the acquisition and/or enhancement process, efforts would be made to protect segments with higher priority values.

The status of each target species and a description of essential habitat characteristics in the SFSR corridor is provided in Appendix B.

Threatened, Endangered, and Candidate Animal Species

In compliance with Section 7(c) of the Endangered Species Act of 1973 (as amended) (ESA), the USFWS provided BPA with a list of threatened, endangered, and candidate species potentially occurring within the project area (Species List # FWS-1-4-94-SP-48, dated February 2, 1994). There are no fish or plant species on the list. Two endangered species (bald eagle and peregrine falcon) and two candidate species (northern goshawk and trumpeter swan) are listed as potentially occurring in the project area. These species are discussed in more detail below. A general discussion of habitat characteristics required by each species is located in Appendix B.

Bald Eagle *(Haliaeetus leucocephalus)*

Bald eagles are listed as endangered by the USFWS under the ESA. Declines were attributed to early uncontrolled shooting, pesticide use, and loss of habitat. While population numbers are increasing in some areas, the degradation of habitat continues to be a long-term threat to the full recovery and maintenance of bald eagle populations.

The study area is part of Zone 18, the Greater Yellowstone Ecosystem Management Zone, of the Pacific Bald Eagle Recovery Plan (USFWS 1986). The Recovery Plan proposes to achieve 50 breeding pairs of bald eagles under recovery efforts for Zone 18.

The extensive cottonwood riparian zone associated with Henry's Fork and SFSR supports the largest concentrations of bald eagles in eastern Idaho (USFWS 1986). Between 40 and 60 bald eagles regularly winter along the SFSR with as many as 80 reported at one time. In addition, the SFSR provides nesting habitat for many of the pairs (approximately 37 percent) that nest within the state (BLM and FS 1991a). Nine nests are currently located along the SFSR (ICDC 1994, USFWS 1994).

Peregrine Falcon (*Falco peregrinus anatum*)

The USFWS recognizes the peregrine falcon as an endangered species under the ESA. Declines which led to the listing of the species are believed to have resulted from the use of pesticides and a reduction in their waterfowl prey base related to loss and degradation of wetland habitat.

Under the American Peregrine Falcon Recovery Plan (USFWS 1984), the recovery objective for Idaho is to achieve and maintain 17 pairs of falcons. A cooperative agreement within Idaho, Montana, and Wyoming has been proposed to establish and maintain 30 nesting pairs of peregrine falcons in the tri-state area by 1990, ten of which would occur in Idaho (Heinrich et al. 1986). To facilitate the recovery of the species, reintroduction efforts have been underway since 1970 involving captive propagation and release into areas with the greatest biological potential. One hack site has been established along Palisades Creek north of the study area. Within the SFSR drainage, two historic nesting sites occurred on cliffs adjacent to the SFSR. Three current nesting sites are known to occur (ICDC 1994, USFWS 1994) as a result of the USFWS efforts to restock SFSR using young produced at the Peregrine Fund facility in Boise, Idaho (BLM and FS 1991a). The corridor may also be used by migrating peregrine falcons.

Trumpeter Swan (*Cygnus buccinator*)

The trumpeter swan was believed to have ranged historically throughout most of North America, but presently has a limited distribution due to over-exploitation. The swanskin trade, in combination with overhunting and habitat destruction, threatened the survival of the species as early as 1912 (Bellrose 1976). During the 20th century, protection and restoration efforts have resulted in the gradual recovery of the population. However, the trumpeter swan is still listed as a Category-2 species by the USFWS (ICDC 1994, USFWS 1994). A Category- 2 status signifies a taxa for which a listing as endangered or threatened is possibly appropriate in the near future but for which conclusive data on biological vulnerability and threat are not currently available to support proposed rules. Current threats involve reduced river flow, heavy ice formation during severe winters, disease and pollution (Spahr et al. 1991). In addition, historic migration pathways have yet to be restored.

Three populations of trumpeter swans are in existence today, one of which is the Rocky Mountain population which breeds along the Rocky Mountains in Canada and in the northern United States. While breeding groups of the Rocky Mountain population have been introduced to several refuge locations in the United States, the Yellowstone-Centennial Valley of northwestern Wyoming and southwestern Montana is recognized as the most important breeding area in the lower 48 contiguous states. An important wintering area is associated with the Henry's Fork of the Snake River near Island Park, Idaho (Bellrose 1976), north of the study area. The SFSR is also used as a wintering area by the trumpeter swan (ICDC 1994). The highest number of trumpeter swans counted on the SFSR during the winter of 1994 was 93. Wintering habitat for the trumpeter swan along the SFSR is closely tied to waters that remain ice free during the winter. These areas are typically associated with springs which feed into the river and support abundant aquatic plant life.

Northern Goshawk (*Accipiter gentilis*)

The USFWS identifies the northern goshawk as a Category-2 species (USFWS 1994). According to the ICDC (1994), the northern goshawk is not known to nest along the SFSR. Nevertheless, all mature coniferous forests and aspen stands greater than 10 hectares (25 acres) within the study area provide suitable nesting habitat for the species.

Culturally Significant Wildlife Species

A confidential list of wildlife species of cultural significance to the Shoshone-Bannock Tribes was provided by the Tribes' Environmental Program.(Robertson 1994b). At this time, more than 28 wildlife species have been identified as culturally significant. Many of them are known to utilize the SFSR corridor and associated cover types. Criteria for consideration as a culturally significant species includes providing value to the Tribes for economical, ceremonial, religious, or medicinal uses, or importance as wild game and/or use for clothing material. As more information becomes available, other species may be added to the list (Robertson 1994a).

3.1.4 Wildlife - Environmental Consequences

Direct and Indirect Effects

Alternative 1 - Acquisition of Land in Fee Title

Target Species - Permanent protection of wildlife habitat for target species in the project area corridor would be accomplished by purchasing land in fee title from willing landowners. Benefits to wildlife could occur in either of two ways: protection of existing high quality habitat, or as a result of changes in land use on acquired parcels resulting in long-term rehabilitation of habitat. BPA would not conduct wildlife habitat enhancement measures under this alternative.

The location and current habitat condition of the acquired lands would determine how much mitigation credit BPA would receive. Habitat values on some parcels that may be available for acquisition could be relatively low, with commensurate reduction in habitat unit values. For BPA to achieve full mitigation credit relying solely on land acquisition would involve purchasing a considerable amount of land. Such large acreages may not be available for purchase within the corridor. Therefore, this alternative may not completely fulfill BPA's mitigation obligation for past losses to target species.

The natural vegetation and resulting wildlife habitat on much of the private land in the project corridor has been altered by traditional management practices. Depending on the parcels involved, the acquisition would benefit wildlife by eliminating or reducing land uses that have negatively affected wildlife habitat. Current and historical land uses that may be eliminated on acquired lands include grazing, firewood cutting, and farming.

Although some wildlife species have shown favorable responses to grazing (i.e., killdeer, horned lark, and common nighthawk), many species depend on ungrazed areas with herbaceous ground cover and high structural diversity (Bock et al. 1992). Species responding negatively to grazing include northern harrier, Baird's sparrow, Cassin's sparrow, and short-eared owl.

Improved habitat management within with the SFSR corridor would likely result in an increase in the overall diversity and abundance of wildlife species on the acquired lands. Prevention of firewood cutting would potentially increase the number of available snags for woodpeckers and other cavity nesters in the upland forest and forested wetland cover types.

Under state or federal management, pressure to allow public access on acquired parcels can be expected. Potential effects to wildlife in areas of concentrated human use include degradation and alteration of habitat, increased disturbance levels during critical periods, displacement of wildlife, and increased poaching. Some species, such as great blue heron and Canada goose, are particularly intolerant of disturbance during incubation and brood rearing. Potential negative effects to wildlife resources related to recreational use can be minimized through seasonal closures to sensitive areas. Overall, potential recreation effects to wildlife would be considered minor relative to the overall gains of long-term protection of the habitat.

Threatened, Endangered, and Candidate Animal Species - Benefits to bald eagle, peregrine falcon, northern goshawk, and trumpeter swan would occur primarily as a result of the long-term, permanent protection of habitat from development and recreation pressures. These special status species would not be negatively affected by the acquisition of land in fee title under Alternative 1. However, full benefits to bald

eagle would not be realized under Alternative 1. Rehabilitation of the cottonwood communities will probably require additional effort, such as implementing the various enhancement measures.

Culturally Significant Wildlife Species - All culturally significant wildlife species occurring within the project area corridor would benefit from the purchase and protection of mitigation lands for reasons previously described under Target Species.

Alternative 2 - Acquisition of Conservation Easements

Target Species - The effect of this alternative on target species and the wildlife groups they represent would be similar to that described for Alternative 1. This alternative relies upon willing landowners to set aside areas of high quality habitat or eliminate certain land use practices for the benefit of wildlife.

Should the conservation easement become an obstacle to the landowner's interest, easement terms may be violated to the detriment of wildlife. Therefore, monitoring of habitat conditions on conservation easements would be necessary to ensure permanent benefits to wildlife.

Threatened, Endangered, and Candidate Animal Species - Endangered, threatened, proposed, or candidate wildlife species would not be negatively affected by the acquisition of conservation easements under Alternative 2. Benefits would be similar to those described under Alternative 1.

Culturally Significant Wildlife Species - Culturally significant wildlife species occurring within the SFSR corridor would benefit from the acquisition of conservation easements as previously described for target species.

Alternative 3 - Conduct Enhancement Measures on Mitigation Lands

This alternative would involve BPA funding the purchase of mitigation lands, either through conservation easements or fee title, and subsequently funding enhancement measures previously described in section 2.3. The potential effects to wildlife of acquiring mitigation lands have been described under Alternatives 1 and 2.

The effects of the proposed enhancement projects on wildlife populations would be related to the following four actions: fencing, bald eagle habitat improvements, planting cottonwoods, and revegetating agricultural fields. Enhancement activities would be not be conducted during critical periods of wildlife use, such as during nesting season. Wildlife species that would particularly benefit from the proposed enhancement measures include many species of waterfowl such as mallard and Canada goose, black-capped chickadee, bald eagle, peregrine falcon, yellow warbler, sandhill crane, ruffed grouse, mink, and all amphibians.

Target Species - All of the target species would benefit from the fencing. The purpose of fencing would be to restrict livestock grazing, thereby allowing vegetation to recover. Fencing would provide benefits to emergent, scrub-shrub, and forested wetland cover types and associated wildlife species. Species inhabiting upland vegetation would also benefit. Long-term, the recovery of the various habitat types would improve the quality of forage and cover once rehabilitation has occurred and cattle are removed from mitigation lands.

There is a very slight potential that fencing could negatively affect some big game wildlife species by restricting access to important resources in the river corridor. This concern can be minimized by using the proper type of fencing in the enhancement efforts.

Bald eagle habitat improvements would consist of improving bald eagle nests and the trees supporting and surrounding the nest by tree topping, pruning, and thinning. This action would not negatively affect any wildlife species, but would provide additional benefits to osprey and other raptors.

Cottonwood plantings would directly benefit wildlife associated with forested wetlands by improving the structural diversity with recruitment of cottonwoods and by ensuring the viability of the aging stands. All target species, and the groups of wildlife they represent, would benefit by efforts to ensure the viability of and to enhance cottonwood forests in the project area corridor. In particular, the action would benefit two target species, also listed as endangered, by providing wintering and nesting habitat for bald eagle and by indirectly improving the prey base of peregrine falcon.

Revegetation of agricultural fields would involve planting of native seed mixes and/or transplanting native vegetation from the surrounding area. Agricultural fields returned to their natural state would provide a greater diversity and abundance of plant and animal species and reduce the amount of human induced fragmentation of cover types. Most wildlife species would benefit from the proposed enhancement measure by the increased amount of available habitat, primarily those associated with riparian types.

Big game species would benefit by the growth of additional forage and cover on revegetated agricultural fields. Species that would be negatively affected consist of those that use agricultural fields for foraging, primarily waterfowl such as mallard, Canada goose, sandhill crane, and raptors searching for mammalian prey.

Threatened, Endangered, and Candidate Animal Species - Enhancement measures would benefit two endangered species by improving wintering and nesting habitat for bald eagle and by improving the prey base of peregrine falcon. Benefits to Category-2 candidate species, the northern goshawk and trumpeter swan, would be minimal since the enhancement efforts would occur primarily in areas not considered critical for the protection of the species. Negative effects are not anticipated to occur as a result of habitat improvement projects.

Culturally Significant Wildlife Species - All culturally significant wildlife species occurring within the project area corridor would benefit from enhancement projects as previously described under Target Species.

Alternative 4 - Existing Public Land Habitat Enhancement

Target Species - Effects of potential enhancement measures on public lands to wildlife under Alternative 4 are similar to those described for Alternative 3. Overall, benefits are anticipated from habitat enhancement on those lands that may be suitable and available for enhancement. Under this alternative, however, the extent of habitat enhancement may be limited since existing agencies may have already addressed habitat improvement needs. Therefore, in comparison to the acquisition of mitigation lands by BPA under Alternatives 1, 2, 3, and 5, this alternative provides less potential for BPA to meet its full wildlife mitigation obligations.

Threatened, Endangered, and Candidate Animal Species - Benefits of enhancement measures to wildlife special status species would be similar to those described under Alternative 3.

Culturally Significant Wildlife Species - All culturally significant wildlife species occurring within the project area corridor would benefit from enhancement projects for reasons previously described under Target Species.

Alternative 5 - Combined Enhancement and Protection Measures

Target Species - Alternative 5 proposes a combination of protection and enhancement measures to be implemented to protect and enhance cover types in the project area corridor. Effects associated with Alternative 5 are discussed individually under previous alternatives.

Because of the flexibility of adapting various protection and mitigation measures to a wide range of conditions, Alternative 5 has the potential to provide the greatest benefit to wildlife compared to the other alternatives. Depending on the circumstances and condition of the existing habitat on mitigation lands, appropriate combinations of protection and enhancement measures could be employed to optimize mitigation credit. Acquired lands with high quality wildlife habitat may not require enhancement measures.

Threatened, Endangered, and Candidate Animal Species - The implications of proposed enhancement and protection activities to wildlife special status species are similar to those described for Alternatives 1, 2, 3, and 4.

Culturally Significant Wildlife Species - The effects of the enhancement and protection measures on culturally significant wildlife species are described under Alternatives 1, 2, 3, and 4.

Alternative 6 - No Action

Changes to wildlife habitat in the project area corridor would continue to occur according to natural and human-induced processes. Continued degradation of wildlife habitat can be expected due to increasing development, overgrazing, and recreation pressures. Forested wetland habitats, in particular, would undergo a greater loss in acreage since natural recruitment of younger cottonwood stands is currently not occurring at a level to replace aging stands.

The continued degradation and loss of cover is directly related to the status of wildlife populations. In general, the loss in habitat would potentially result in a reduction in the overall diversity and abundance of wildlife species in the project area corridor. While protective measures are being implemented to restore populations of bald eagle and peregrine falcon, the ESA does not provide protection for general wildlife communities.

Mitigation and Monitoring

Depending on the Alternative selected and the actions implemented, a monitoring plan would be developed to ensure the effectiveness of BPA efforts to mitigate for wildlife and their habitat. The monitoring plan would include the establishment of permanent sampling points in areas that have been acquired or enhanced to determine changes in habitat conditions through time. Variables specific to target species will be measured to ensure the continuation of benefits related to mitigation efforts.

Mitigation measures that would minimize effects to wildlife during enhancement efforts include creating the least amount of disturbance to soils and vegetation when planting seedlings, fencing, and conducting bald eagle improvements. Critical periods of wildlife use would be avoided for all enhancement activities. Some species of nesting birds, including bald eagles, are easily disturbed and may abandon nests if activities are

conducted nearby during nesting. Fencing to exclude cattle from mitigation lands should be constructed to allow the greatest access by big game wildlife. A schedule for fence maintenance should also be included in the monitoring plan.

Cumulative Effects

Past agriculture uses, extensive livestock grazing, recreation, land development, and hydropower construction and operation have resulted in negative cumulative effects to wildlife resources in the project corridor. Such effects include loss and degradation of habitat, increased stress on populations, and displacement of wildlife species. Wildlife associated with riparian and wetland habitats have suffered the greatest effect.

Endangered species have a high priority with federal agencies and are protected by the ESA. The management goals and objectives specific to the BLM and FS SFSR Activity/Operations Plan EA (1991b) require both of these agencies to implement measures on all SSM classes to enhance and protect habitat, restrict recreational use during critical periods, and maintain or improve production rates to ensure recovery of the species on lands managed by them. These guidelines are further described in their SFSR Activity/Operations Plan. The plan does not provide protection measures for Category-2 species.

State and federal agencies continue to address habitat losses in the project area through various measures, including land acquisition and habitat improvement. These measures are providing beneficial effects to wildlife for target and special status species. The action alternatives proposed in this EA would contribute to these cumulative beneficial effects.

3.1.5 Water Resources - Affected Environment

Water Flow

Flow rates in the SFSR vary greatly from summer to winter as a result of irrigation needs and flood control. Potential flooding within the 100-year floodplain is minimal due to controlled flow releases at Palisades Dam (BLM and FS 1991a). Although flow depletion has affected the riparian ecosystem, part of the project area corridor retains natural fluvial and riparian characteristics that were present prior to settlement by Europeans (BLM and FS 1991a) and subsequent development of the region for agricultural uses.

Based on 37 years of BOR records from 1958 to 1994, the highest average daily flows were nearly 693.35 cubic meters per second (m^3/s) (24,500 cubic feet per second (cfs)) in June 1986 at the Heise gauge (Beus 1994). The lowest average daily flow of 31.13 m^3/s (1,100 cfs) occurred in February 1988 at this station. From 1990-94, average daily flows during the spring and summer months of May through August averaged approximately 303 m^3/s (10,700 cfs) at Irwin, and 319.8 m^3/s (11,300 cfs) downstream at Heise (Beus 1994). For the same months over the 37-year period of record, average daily flows were slightly higher-- 342.43 m^3/s (12,100 cfs) at Irwin, and 365 m^3/s (12,900 cfs) at Heise.

Storage in Palisades Dam reduces winter flows in the SFSR considerably. In the fall and winter months of November through March, 1990-94 average daily flows at Irwin were approximately 36.8 m^3/s (1300 cfs), and 48.11 m^3/s (1700 cfs) at Heise. For the entire 37-year period of record, winter flows averaged about 68 m^3/s (2400 cfs) at Irwin and 79 m^3/s (2800 cfs) at Heise.

By May of each year, approximately 21 percent of the total flow is diverted at Heise for irrigation, with additional diversions downstream. The proportion of flow diverted for irrigation increases in late summer as stream levels drop and diversions for irrigation continue.

Currently, the BOR operation plan calls for minimum winter flows of 34 m^3/s (1,200 cfs) when sufficient water exists. However, releases for salmon flow augmentation on the lower Snake and Columbia Rivers during spring and summer months may restrict BOR's ability to provide the 34 m^3/s (1,200 cfs) target flow during the winter. Prolonged periods of extremely low flows in the study area during winter months could impair resident cutthroat trout populations on which bald eagles feed.

Water Quality

Water quality for the SFSR is rated "good" from Palisades Dam to Heise, and "fair" at the confluence with the Henry's Fork (BLM and FS 1991a). Primary pollutants are sediments derived from agricultural activities and channel erosion processes (BLM and FS 1991a). Livestock are responsible for high coliform levels as rising water inundates river margins where cattle congregate. Tributaries to the SFSR tend to contribute non-point pollutants that exceed water quality standards during periods of high runoff (Drewes 1994).

The State of Idaho Antidegradation Plan (Executive Order No. 88-23) set up a framework to establish certain sections of the SFSR as Designated Stream Segments of Concern (DSSOC). Two DSSOC on the SFSR include Palisade Dam to Irwin, and Irwin to Heise. Water quality is monitored on DSSOC so that water quality degradation does not exceed requirements for the most sensitive beneficial use of the DSSOC, which on the SFSR is salmonid spawning (Drewes 1994).

The SFSR is also a Special Resource Water of the State of Idaho. This designation further requires that appropriate measures be taken as needed to preserve the water's outstanding characteristics or beneficial uses.

3.1.6 Water Resources - Environmental Consequences

Direct and Indirect Effects

Alternative 1 - Acquisition of Land in Fee Title

Acquisition of private land in fee title would not affect stream flow. Maintaining adequate streamflow is important to insure the viability of the riparian wildlife habitat on acquired lands as well as the entire riparian ecosystem. Therefore, the feasibility of acquiring water rights will be determined during land purchase negotiations. Water rights acquired along with land in fee title would be subject to beneficial use requirements for water rights in Idaho. Acquired water rights would be used to irrigate areas revegetated for wildlife habitat and to maintain riparian and wetland vegetation.

Depending on the amount and location of acquired lands, vegetation condition and past land use, conversion of private lands to public lands would theoretically improve water quality in the South Fork and Henry's Fork of the Snake River. Studies indicate lower erosion and sedimentation rates on public versus private lands (BLM and FS 1991a).

Alternative 2 - Acquisition of Conservation Easements

Acquisition of conservation easements by BPA would not affect streamflow levels. Improvements in water quality would depend on the extent and location of conservation easements relative to sediment source areas. Contract terms for conservation easements could minimize on-site activities responsible for erosion and resulting sedimentation pollution.

Alternative 3 - Conduct Enhancement Measures on Mitigation Lands

Water flow would not likely be affected under this alternative, although improved flow conditions could result depending on the revegetation treatment and land use changes on riparian areas.

Increased vegetation cover for wildlife enhancement would have a limited, if even measurable, effect on flow levels in the SFSR. The effects of additional vegetation would be small compared to the density and extent of existing and historic vegetation coverage in the floodplain. Although flow levels fluctuate widely, the threat of significant flooding is minor due to the control of flow releases at Palisades Dam.

A change from private to public land management would likely improve soil stability and water quality over the long-term. Certain land use practices such as timber removal, cattle grazing, and farming are known to contribute to sediment loads and decreased water quality. These types of activities would be curtailed or eliminated on acquired mitigation lands. On acquired parcels where land use practices and vegetation management reduce the potential of erosion and sedimentation, corresponding improvement to water quality would result. Measurable improvements to water quality would depend on the extent of lands to be treated relative to the lands area contributing to water quality problems.

Should revegetation activities associated with wildlife enhancement actions result in disturbance to the soil surface, short-term increases in sedimentation could occur, although this is unlikely given the nature of the enhancement measures. Accepted BMPs for agricultural activities would be followed, thereby minimizing any potential for short or long-term sedimentation. Short-term sediment increases would comply with Idaho water quality standards. Any negative effects to water quality would be minimal and of short duration.

Alternative 4 - Existing Public Land Habitat Enhancement

The potential for Alternative 4 to affect flow levels or improve water quality would be slight. The limited acreage of public lands likely to be involved, combined with the relatively low levels of background erosion and sedimentation contributed by these lands, would offer limited opportunities for water quality improvement related to the wildlife habitat enhancement activities proposed by BPA.

Alternative 5 - Combined Enhancement and Protection Measures

As in previous alternatives, this alternative is not likely to significantly alter flow regimes in the SFSR. Improved flow conditions could result depending on the amount of land involved, revegetation treatments, beneficial land use changes and acquisition of water rights.

The opportunity to employ various wildlife enhancement treatments both on acquired parcels and public lands would result in potential improvements to water quality. As in Alternative 3, the potential

effectiveness of this alternative in improving water quality would depend on background levels of erosion and sedimentation on the land parcels involved relative to the magnitude of the overall problem.

Alternative 6 - No Action

Under Alternative 6, no enhancement or protection activities would be implemented. Therefore, not changes in flow regimes or water quality would occur.

Mitigation and Monitoring

Although the potential for impacts to water resources is slight, Alternatives 3-5 would include the use of BMPs to minimize impacts. Measures that would reduce the potential for impacts include limiting the extent of disturbance, scheduling the timing and duration of surface disturbance to avoid periods of high runoff, and establishing a protective ground cover with vegetation or erosion control matting as soon as possible after ground disturbance.

Water Resources - Cumulative Effects

No significant negative impacts to water resources would occur as a result of implementing Alternatives 1 through 5. Therefore, no negative cumulative effects would occur under these alternatives.

The potential for flooding associated with any project alternative is nil. Increased vegetation growth on the active floodplain would have inconsequential effects on flow levels in the SFSR. Any increases in flow levels that may occur in the SFSR for other reasons would not be affected by project alternatives.

The various alternatives, however, could have effects on water resources that would be considered to be cumulative in nature. Changes in land use that may occur under Alternatives 1, 2, 3, and 5 could contribute to cumulative water quality improvements resulting from the actions of other agencies. Enhancement measure proposed in Alternatives 3 and 5 could also contribute to cumulative water quality improvement should revegetation occur on lands now contributing sediment to surface waters. Alternative 4 would have little cumulative effect due to the small extent of agency lands that would likely benefit from enhancement measures. Alternative 6 would perpetuate existing conditions. Cumulative beneficial effects due to water quality improvements by other agencies may occur; however, negative cumulative effects may also continue unless existing sedimentation sources or land uses detrimental to water quality are controlled by others.

3.1.7 Soils - Affected Environment

Annual sediment yield rates within the project area corridor vary depending on land ownership, soil potential, and vegetative cover (BLM and FS 1991a). Surface erosion on federal lands ranges between 2 and 15 tons per square kilometer (5 and 40 tons per square mile) on soil within forested areas and from 58 to 77 tons per square kilometer (150 to 200 tons per square mile) within brush and grass dominated areas. Private farm and rangelands contribute 245 to 2450 tons/square kilometer (640 to 6,400 tons per square mile). Current conditions and management strategies to minimize soil impacts on existing public lands are defined in more detail in the BLM and Forest Service (FS) Activity/Operations Plan (BLM and FS 1991b).

3.1.8 Soils - Environmental Consequences

Direct and Indirect Effects

Under all alternatives, the amount of soil disturbance depends on the soil characteristics and actions that are implemented on each of the acquired lands. Generally, the change in lands from private to federal status would improve soil stability over time since certain land uses known to contribute to greater soil erosion (i.e., timber removal, extensive cattle grazing, and farming) would be restricted or minimized. However, the potential for recreational use on acquired mitigation lands could cause some negative effects in high use areas as a result of vegetation loss and soil compaction.

The potential for soil impacts are considered low under all alternatives. Potential impacts are similar between all alternatives with the exception that those including enhancement measures (Alternatives 3, 4, and 5) could result in minor short-term increases in soil erosion during revegetation efforts should surface disturbance occur. However, long-term soil stability would be improved following revegetation efforts.

Mitigation and Monitoring

Measures that would reduce potential negative effects to soils during enhancement efforts (Alternatives 3-5) rely heavily on the use of BMPs to minimize impacts to soils and vegetation. BMPs include limiting the extent of disturbance, scheduling the timing and duration of surface disturbance to avoid periods of high runoff, and establishing a protective ground cover with vegetation or erosion control matting as soon as possible after disturbance. Reducing soil impacts due to livestock grazing and recreation use would involve avoiding concentration of these activities at certain times or in areas of sensitive soils.

Cumulative Effects

Existing activities in the project area that can result in negative effects to soils include recreational, agricultural and grazing land uses, and continued development in the project area corridor. While the potential is very low for soil impacts to result from implementing Alternatives 1-5, any such impact would be a cumulative effect, considering the existing land uses.

3.2 HUMAN RESOURCES

3.2.1 Land Use, Cultural and Visual Resources - Affected Environment

General Description

The SFSR portion of the study corridor includes three recognizable sections: 1) the section from Palisades Dam downstream 27 kilometers (17 miles) to Conant Valley is a relatively wide mountain valley (SSM Class IIIA and IIA); 2) a remote and rugged canyon extends from Conant Valley downstream 37 kilometers (23 miles) (SSM Classes IA and IIB); and 3) from Heise, an expansive agricultural floodplain extends 40 kilometers (25 miles) to the confluence with the Henry's Fork of the Snake River (SSM Classes IIIB and IB) (Figure 1.1). Land uses and visual characteristics vary among these sections depending on topography, vegetation, and ownership patterns. The portion of the Henry's Fork in the project area is similar to the lower SFSR.

Generally outstanding scenery along the river corridor is due to the variety and uniqueness of visual landscape features. Panoramic and focal views are dominated by forested slopes, dramatically rugged cliffs, distant mountains, and changes around each river bend. Riparian vegetation frames the river in many areas. Views of the agricultural fields adjacent to the river are mostly blocked by the riparian vegetation or intervening topography. Vegetation consisting of cottonwood and willow, aspen, Douglas-fir, juniper, and sage add interest and seasonal color contrasts.

Land Ownership and Use

About 85 percent of the lands in the SFSR corridor are in public ownership and managed by various federal or Idaho agencies (BLM and FS 1991a). Of these lands, about 65 percent are BLM and 25 percent National Forest. The remaining public lands are controlled by the BOR, Army Corps of Engineers, or the State of Idaho. For a graphic delineation of land ownership in the project area, refer to land ownership maps in the SFSR Activity/Operations Plan EA (BLM and FS 1991b).

Public lands are managed for multiple uses, but recreation, fisheries and wildlife uses are emphasized. Grazing is also allowed on most public lands, but current management direction curtails grazing compared to the extent of prior usage (BLM and FS 1991a).

Most of the private land in the project study area is used for agriculture and grazing, commercial recreation services, and residential uses. Development in the upper third of the corridor is beginning to alter the characteristic agricultural landscape to one dominated by residential and recreational uses. Extensive recreational development, including private campgrounds, cabins, and other services are located along U.S. Highway 26 in this section.

While most of the land in the study area is public, ownership of the river shoreline is almost evenly balanced between private and federal lands in each of the three general sections. Where terrain permits access to the river, recreational homes, farmsteads, or other agricultural uses are evident near the shoreline throughout the corridor.

Approximately 75 percent of the floodplain on federal lands is considered wetland by the U.S. Department of Agriculture (USDA) Soil Conservation Service (BLM and FS 1991a). It is reasonable to assume that this figure would also apply to private lands within the floodplain. While the extent of wetlands on private lands in the SFSR floodplain may limit the development potential of these lands, demand is high for residential building sites adjacent to the river.

Local Land Use Plans

The project area is situated in three Idaho counties. From Palisades Dam downstream to Heise, the SFSR flows through Bonneville County. From Heise to the confluence with the Henry's Fork, the river is the boundary between Madison and Jefferson counties. The portion of the Henry's Fork included in the study area flows through Madison County, and the portion of the mainstem in the study area flows through Jefferson and Bonneville counties. Presently, only Bonneville and Jefferson counties have land use ordinances. Madison County is currently developing a land use plan (Reese 1994).

In Bonneville County, most of the private land is zoned for agricultural uses with some residential subdivisions currently approved for construction (Zaugg 1994). The county requires a 23 meter (75 ft) setback from the river shoreline for building construction. Bonneville County has no other open space or land use regulations applicable to the SFSR corridor.

Jefferson County generally zones lands adjacent to the river as agricultural, with recreational uses zoned in the area near Heise. A 24 meter (80-ft) setback from the river is required in Jefferson County (Smith 1994).

Other Land Management Plans

The FS and BLM have determined that the SFSR, from Palisades Dam to the confluence of the Henry's Fork, is eligible for inclusion in the National Wild and Scenic River System. The factors contributing to this determination include the exceptional cottonwood riparian ecosystem, bald eagle and other wildlife habitat, scenic quality, and recreation opportunities (BLM and FS 1991a). Federal lands in the river corridor are under interim management to protect these values pending a determination of suitability for inclusion in the System. Private lands along the SFSR are not affected by Wild and Scenic River status.

Islands managed by the BLM in the upper section of the study area are considered wilderness study areas although these are not being recommended by BLM for wilderness designation (BLM and FS 1991a). The islands will continue to be managed in compliance with the Interim Management Policy until the issue is reviewed and acted upon by Congress. As with the Wild and Scenic River status, the islands must be managed to protect wilderness suitability values until Congress releases them from consideration for wilderness status (BLM and FS 1991a).

Eleven reaches totaling 39.8 miles of the SFSR were designated in 1990 as "protected areas" by the Northwest Power Planning Council. "Protected area" designation deters hydropower development that could impair biological resources. These reaches of the SFSR were protected because they were judged to provide critical habitat for resident fish and/or wildlife.

Prime Farmlands

Prime farmlands occur on both private and public lands within the study corridor. Fourteen soil types are considered prime farmlands, the majority of which are irrigated lands with crops consisting of hay, grain or potatoes (Harding 1994, USDA SCS 1993). Two soil types, Ririe Silt Loam and Stan Sandy Loam, are considered prime farmland, regardless of irrigation (USDA SCS 1993).

Cultural Resources

The SFSR corridor has experienced considerable use throughout prehistoric and historic times. The SFSR Activity/Operations Plan (BLM and FS 1991a) provides information regarding the status of cultural resources in the study area. Twenty-eight documented cultural resource sites were noted within the 192 kilometers (119 miles) of study area covered by the SFSR Activity/Operations Plan; seventeen sites are on federal land, and eleven are on private lands. Historic sites are related to early exploration and trapping activity as well as settlement and economic development of southeastern Idaho (BLM and FS 1991a).

Cultural resources are protected by the Archaeological Resources Protection Act of 1979 (Antiquities Act). The Antiquities Act prohibits damage, vandalism, or removal of these resources on federal land. Cultural resources on private lands are protected only from willful destruction. Historic and archaeological sites are protected by the National Historic Preservation Act of 1974.

As stipulated in a draft Programmatic Agreement between BPA, the Shoshone-Bannock Tribes, the Advisory Council on Historic Preservation, and the Idaho State Historic Preservation Office (SHPO), BPA will survey properties to be acquired and consult with the SHPO and Tribes on the need to develop historic Properties Management Plans for the management of cultural resources on project lands within the SFSR corridor. The draft Programmatic Agreement is included in Appendix C.

Native American Tribal Uses

The Shoshone-Bannock Tribes, whose government is located in Fort Hall, Idaho, traditionally used and currently retain certain treaty rights on "unoccupied lands" along the SFSR corridor. These rights include hunting, fishing, gathering, religious, and ceremonial uses.

The Historic Properties Management Plan to be prepared by BPA will define a consultation process with the Shoshone-Bannock Tribes to solicit input regarding historic tribal properties and traditional uses in the study area corridor.

3.2.2 Land Use, Cultural and Visual Resources - Environmental Consequences

Direct and Indirect Effects

Alternative 1 - Acquire Fee Title on Private Lands

Land Ownership and Land Use - Effects related to ownership and land use would depend on several factors, including the amount, location, and current use of lands acquired from private landowners. BPA would fund acquisition of only those lands willingly made available by the various private landowners along the South Fork. Individual landowners would control the extent and the types of land made available to BPA for acquisition. The types of lands that would be acquired are preferably those dominated by riparian habitats utilized by target species.

Lands acquired through fee title would be converted to public ownership and would no longer be subject to property taxes. BPA has no authority to pay fees in lieu of taxes to the appropriate taxing authority of the political subdivision. In this case, the taxing authority would be the county governments. The potential loss of property tax revenue would be minimal based on the relatively small amounts of land involved. Any loss of revenue due to Alternative 1 is likely to be offset by revenue generated by the increasing development in the region. If the title is held by the state or another federal agency, payments in lieu of taxes may be made.

Few impacts to land uses would occur under Alternative 1. The amount of land to be acquired and land uses affected would be insignificant compared to the predominant regional agricultural land use base. The amount of land to be acquired by BPA for wildlife protection would be relatively small compared to the current trend and amount of agricultural land conversion to residential use.

Land Use Management Plans - Alternative 1 would have little influence on local land use plans. The conversion of agriculture and grazing lands to uses for wildlife mitigation is not considered incompatible with the existing uses or agricultural zoning (Zaugg 1994).

Alternative 1 would have no effect on either Wild and Scenic River status or interim management, nor would it affect islands considered as wilderness study areas by the BLM.

Prime Farmlands - Because of their use for valuable crop production, few areas of prime farmland are anticipated to be made available for BPA to purchase. If acquisition of areas with prime farmlands were to occur, these lands would likely be removed from agricultural production. However, the prime farmland status and production potential of these lands would not be permanently affected by this alternative.

Cultural Resources - The locations of known cultural resource sites are on file with the Idaho SHPO. Any known cultural resource sites on parcels to be acquired by BPA would receive protection under federal regulations. Since no ground disturbance would occur under Alternative 1, the potential for direct negative effects to cultural resource sites would be slight. However, should increased public access occur on parcels with fragile sites, potential disturbance could result. Protection measures to be implemented under this alternative would be detailed in the Programmatic Agreement on Cultural Resources.

Native American Tribal Uses - The Shoshone-Bannock Tribes would be consulted by BPA as stipulated in the Programmatic Agreement to ensure that traditional tribal uses are addressed. Tribal use on acquired lands would be covered by tribal regulations. Tribal use would be coordinated, when necessary, between the Tribes, BPA, and the entity designated by BPA to manage acquired lands.

Section 10(e) of the Northwest Power Act states that nothing in that Act "shall be construed to affect or modify any treaty or other right of an Indian tribe." Because the proposed wildlife mitigation and protection actions would be taken pursuant to Northwest Power Act authority, BPA's actions shall not affect or modify the tribes' treaty rights.

Neither the proposed action nor the alternative actions would affect or modify the tribes' treaty rights because none of the mitigation actions would change those rights. The treaty rights would remain the same as they were prior to BPA's action. The tribes' ability to exercise their treaty rights would not be diminished. Opportunities for the tribes to exercise their treaty rights could be enhanced by improved habitat, improved access, or additional ceded lands being acquired.

Visual Resources - No alterations would be made on acquired lands. Therefore, no effects to visual resources would occur under Alternative 1.

Alternative 2 - Acquisition of Conservation Easements

Land Ownership and Land Use - Only those lands willingly made available by private landowners for acquisition of conservation easements would be affected under Alternative 2. The extent of control relinquished to BPA for wildlife mitigation would depend on the individual landowners. BPA would have less control over lands subject to conservation easements than on lands acquired in fee title. Conservation easements would remain in private ownership and therefore, would be subject to real estate taxes. Few, if any, effects related to concerns over land use or ownership would occur under Alternative 2, particularly since participation in the conservation easement acquisition program would be self-controlled by individual landowners.

Land Use Management Plans - Alternative 2 would not conflict with local land use plans or effect the land management plans of other agencies.

Prime Farmlands - As with fee title acquisitions under Alternative 1, it is unlikely that landowners would subject valuable farmland to restrictions of conservation easements. The prime farmland status and

production potential of any lands acquired by conservation easement would not be affected by this alternative. However, some agricultural uses may be eliminated on lands acquired for wildlife mitigation.

Cultural Resources - Lands that would be controlled by conservation easements would remain under the ownership of private landowners. Any cultural resources on those lands would also remain in the possession of the landowner. The Programmatic Agreement details appropriate procedures to address cultural resources on private properties affected by Alternative 2.

No disturbance to the land surface would occur under Alternative 2. Therefore, the potential for direct effects to cultural resources would be slight. Should public access be allowed, the potential for impacts would increase.

Native American Tribal Uses - Since lands containing conservation easements for wildlife protection would remain in private ownership, acquisition of the easements would not necessarily convey trespass rights for tribal or public uses. Acquisition of conservation easements would have no effect on tribal uses.

Visual Resources - No alterations would occur to lands controlled by conservation easements. Therefore, no effects to visual resources would occur.

Alternative 3 - Conduct Enhancement Measures on Mitigation Lands

Land Ownership and Use - Private lands would be acquired from willing landowners in fee title or by conservation easements, as in Alternatives 1 and 2. Acquisition of land by BPA would convert a small proportion of private lands in the project area to public land.

Under Alternative 3, enhancement measures would be implemented in addition to land acquisition. The nature of the enhancement measures may eliminate agricultural uses on acquired lands.

Land Use Management Plans - Only the addition of proposed enhancement measures distinguish this alternative from Alternatives 1 and 2. No discernible effects to local land use plans are anticipated. The proposed enhancement measures would not affect either the Wild and Scenic river eligibility of the SFSR or the islands considered as BLM wilderness study areas.

Prime Farmlands - The implementation of Alternative 3, as with previous alternatives, would depend on the extent to which private land owners would agree to sell or place conservation easements on prime farmlands. Enhancement measures proposed under this alternative, if conducted on prime farmland, would convert treated areas from agricultural production to wildlife habitat. However, this would not be an irreversible conversion of prime farmland, nor would the soil types that comprise prime farmlands be affected by implementing enhancement measures. Therefore, the potential for impacts to prime farmlands would be non-existent.

Cultural Resources - Since the potential exists for some land surface disturbances, Alternative 3 would result in an increased potential for effects to occur to cultural resources. Locations of known cultural sites are recorded in the Idaho SHPO office. The Programmatic Agreement on Cultural Resources would detail protection and mitigation measures to be completed prior to any land-altering action to minimize the potential for negative effects to cultural resource.

Native American Tribal Uses - Under the terms of the Programmatic Agreement regarding the implementation of the SFSR/Palisades Wildlife Mitigation Project, BPA would consult with the Shoshone-

Bannock Tribes regarding acquisition and enhancement measures proposed for specific parcels. Treaty rights would not be reduced or adversely affected.

Visual Resources - The potential exists that some negative effects to visual resources could occur if habitat enhancement measures were conducted in such as way as to obstruct or detract from the outstanding scenery. Given the nature of the enhancement measures, such changes are not likely to be noticeable, and would not significantly alter the characteristic landscape along the project area corridor. Where existing debris removal and site clean up could be conducted in connection with wildlife habitat enhancement activities, positive effects to the visual resource could occur. Conversion of land from agricultural to wildlife uses would enhance the natural setting.

Alternative 4 - Existing Public Land Habitat Enhancement

Land Ownership and Use - No effect on land ownership would occur under this alternative since project lands would remain under the management of public land agencies. Opportunities for wildlife habitat enhancement may be limited on long-standing public lands, since the management agencies are likely to be improving habitat under the direction of current management plans. Newly acquired public lands may benefit from BPA enhancement measures.

Opportunities may exist to enhance wildlife habitat on federal lands by adjusting currently permitted uses, such as grazing, through fencing and other enhancement measures. This may have negative effects for current grazing permittees. Seasonal restrictions on public access and use may improve wildlife habitat conditions, although such measures are likely already being implemented.

Land Use Management Plans - The proposed enhancement measures conducted on existing public lands would not be incompatible with existing local land use plans.

Any proposal by BPA to conduct enhancement measures on existing public lands would be subject to thorough review by the appropriate public land management agency. The likelihood of this alternative being implemented depends largely on the willingness of public agencies to make existing lands available to BPA to conduct enhancement measures. Where opportunities exist for BPA to cooperate with the land management agency to enhance wildlife habitat, the types of enhancement measures proposed could be implemented without conflicts with existing agency land management plans. Land management agencies would not be likely to consider enhancement plans where such measures might conflict with existing management plans, such as on the islands considered as BLM wilderness study areas, or along river segments where Wild and Scenic Rivers eligibility values might be affected.

Prime Farmlands - Soil types considered as prime farmland occur to a limited extent on public lands within the project area corridor. This alternative would not permanently affect prime farmland in the study area.

Cultural Resources - As with previous alternatives, BPA would comply with the stipulations of the Programmatic Agreement pertaining to the preparation of an Historic Properties Management Plan. In addition, existing agency guidelines direct management of cultural resources on public lands. These measures would make the possibility of negative effects affecting cultural resources extremely remote.

Native American Tribal Uses - Alternative 4 would not change the status of existing tribal uses on public lands. BPA would be required to consult with the Shoshone-Bannock Tribes before conducting any measures that might affect historic features or traditional/contemporary tribal uses.

Visual Resources - Any enhancement measure conducted on public lands would have to comply with the managing agency's visual resource management guidelines. Therefore, potential visual effects resulting from Alternative 4 are not likely to occur.

Alternative 5 - Combined Enhancement and Protection Measures

Land Ownership and Use - Alternative 5 would provide the opportunity to enhance wildlife habitat on public as well as on private lands acquired from willing owners. Fewer private lands would need to be acquired under this alternative to meet mitigation obligations. Land use on these parcels would change as discussed in previous alternatives. The private land acquired by BPA in fee title from willing landowners would be converted to public land and use would change from agricultural production to wildlife habitat. Such changes would be consistent with existing uses and would affect a relatively small amount of land.

Land Use Management Plans - The combination of land acquisition and enhancement measures proposed under this alternative would not affect local land use plans. Where land use ordinances are in effect, wildlife uses are not considered to be in conflict with existing zoning.

Alternative 5 would require coordination with land use agencies before enhancement measures would be conducted on existing public lands. Such coordination would minimize any chance of conflict with agency management plans.

Prime Farmlands - No effects to the soil types that constitute prime farmlands would occur under Alternative 5. As in previous alternatives, agricultural production on acquired parcels may be eliminated. It is not likely that private landowners would sell prime farmland now under cultivation for wildlife protection or enhancement purposes. The opportunity to conduct enhancement measures on existing public lands would lessen the need to acquire private lands which may include prime farmlands.

Cultural Resources - As in previous alternatives, BPA is drafting a Programmatic Agreement to ensure the protection of cultural resources on any lands to be acquired or enhanced. The stipulations in the Programmatic Agreement would minimize any potential for negative effects to cultural resources.

Native American Tribal Uses - The commitment of BPA to consult with the Shoshone-Bannock Tribes on matters related to land acquisition or enhancement would minimize the potential for negative effects to historic or traditional tribal uses.

Visual Resources - The flexibility inherent in Alternative 5 would minimize the likelihood that visual effects would occur. As in Alternatives 3 and 4, it is unlikely that the scenic qualities of the study corridor would be affected by the potential enhancement measures. Potential improvement to visual resources could result on parcels where debris removal would be conducted in accordance with wildlife habitat enhancement measures.

Alternative 6 - No Action

Land Ownership and Use - The existing land ownership and land use pattern throughout the study corridor, and especially in the upper 32 kilometers (20 miles), are presently changing in response to the

high demand for recreation and residential development. While the rural and agricultural landscape character will remain dominant for some time, land use and ownership changes are becoming more obvious. The No Action Alternative would not change or accelerate the present development trend. Future opportunities for BPA to acquire lands for mitigation would be diminished under Alternative 6.

Land Use Management Plans - The present development trends have prompted local officials in Madison County to initiate land use planning and establish zoning. Bonneville and Jefferson County have land use zoning in place. Alternative 6 would not likely affect local land use plans or zoning efforts. Management of BLM and FS lands would continue as directed under the recently completed SFSR Activity/Operations Plan (BLM and FS 1991b).

Prime Farmlands - The current development trend is converting agricultural lands, including prime farmlands, to residential uses. Alternative 6 would not affect this trend.

Cultural Resources - Since no lands or conservation easements would be acquired under Alternative 6, BPA would have no authority to implement cultural resource protection measures under the stipulations of the Programmatic Agreement. Cultural resources on existing public lands would remain well protected under the provisions of the Antiquities Act, National Historic Preservation Act, and existing agency management plans. The Antiquities Act would provide some level of protection to cultural resources on private land. This Act provides less protection on private land than on public land.

Limited access to private land would minimize deliberate defacing of cultural resources on private lands although these resources would be susceptible to accidental damage occurring as a result of agricultural practices or future development.

Native American Tribal Uses - Tribal rights and uses of lands in the SFSR corridor would remain as they are now. Therefore, no changes in tribal use would occur under Alternative 6.

Visual Resources - Visual resources on public lands would be managed in accordance with agency guidelines and would not be affected by Alternative 6. Continued development on existing private land will eventually alter the characteristic natural or agricultural landscape to a more suburban or recreational residential landscape.

Cumulative Effects to Land Use, Cultural and Visual Resources

Beneficial cumulative effects to land uses associated with wildlife and recreation would occur under Alternatives 1, 2, 3, and 5. These alternatives would contribute to the cumulative effect of converting existing agricultural uses to non-agricultural use. Alternative 4 would have no cumulative effect on land uses since this alternative only involves existing public lands. Alternative 6 (No Action) has the greatest potential for negative cumulative effects to land use. The cumulative effects would be related to conversion of agricultural lands to residential use and would include related impairment of visual resources in the project area corridor.

The potential is very low for negative cumulative effects to cultural resources resulting from implementing Alternatives 1-5. This determination is based on the types of cultural resources likely to be found in the project area, the low level of existing impacts, and the low potential for disturbance resulting from enhancement activities.

Mitigation and Monitoring

With the exception of Cultural Resources, there is little potential for impacts to occur that would require mitigation. To minimize the potential for impacts to cultural resources, BPA is drafting a Programmatic Agreement to ensure the protection of these resources on any lands to be acquired or enhanced. The stipulations in the Programmatic Agreement would minimize any potential for negative effects to cultural resources. In addition, a process to identify culturally sensitive plant species and consult with the Tribes regarding their protection would be developed and documented in the Programmatic Agreement prior to ground-disturbing activities.

3.2.3 Socioeconomics - Affected Environment

The socioeconomic setting of the project that includes areas of Bonneville, Jefferson, and Madison counties. From Palisades Dam downstream, communities in or near the study area are Irwin, Swan Valley, Heise, Ririe, and Lorenzo. Larger regional population centers include Idaho Falls, 56 kilometers (35 miles) southwest of the study area, and Jackson, Wyoming, about 97 kilometers (60 miles) to the east.

Population and Development Trends

The majority of the Bonneville County population is located outside of the project corridor in the Idaho Falls area (Table 3.2). Several smaller communities located along the SFSR corridor include Irwin and Swan Valley. The bulk of the approximately 2,000 residents living in portions of Bonneville County surrounding these small towns are located in unincorporated rural locations.

Table 3.2 Population of Selected Communities near Project Area.

County/Community	1990 Population
Bonneville County	72,207
Idaho Falls Census Division	63,427
Idaho Falls City	43,929
Irwin City	107
Swan Valley Census Division	1,947
Swan Valley City	127
Jefferson County	16,543
Ririe Census Division	1,196
Ririe City	585
Madison County	20,674
Rexburg City	14,302

Source: U.S. Bureau of the Census 1992a, 1992b

In recent years, there has been substantial residential development and a corresponding influx of both year-around and seasonal residents in areas immediately surrounding the SFSR corridor from just below Palisades Dam to the Irwin area. Residential development activities have also increased considerably in the area from Irwin downstream to the Swan Valley area, although the extent of population influx has been somewhat lower than in upstream areas (Parker 1994). Although census data are not available to document post-1990 population change, there has clearly been a significant increase in the population of this part of Bonneville County over the past several years (Serr 1994).

The population of Jefferson County is distributed across a number of relatively small communities and rural areas, with few areas of population concentration in close proximity to the project area corridor. The city of Ririe, located several kilometers (miles) south of the river, had a 1990 population of 585, with approximately 600 additional residents located in surrounding rural areas.

Unlike upstream areas in Bonneville County, there has been relatively little residential development or population growth in areas of Jefferson County adjoining the river corridor. However, recent trends in what appear to be speculative land purchases along the river corridor indicate substantial potential for increased future development pressures as upstream land becomes less available and more costly (Clayton 1994).

The vast majority of the Madison County population is concentrated in or near the city of Rexburg, with only a few hundred residents located in rural-area settlements adjoining the project area corridor. As with Jefferson County, river corridor areas of Madison County have not yet experienced major land development activities due both to the greater distance from Palisades Reservoir and development limitations associated with the presence of wetlands in some river corridor locations (Jeppson 1994). However, many of those who own land in this lower segment of the SFSR corridor anticipate substantial future land value increases and, in many cases, are unwilling to sell land until prices are driven higher by development interests. Recently there has been some indication of speculative purchasing of larger land parcels. Thus, development pressures are expected to increase substantially over the next several years (Clayton 1994).

Social and Economic Conditions and Issues

Much of the area surrounding the SFSR corridor has traditionally supported agricultural activities; farming continues to be a significant contributor to the overall regional economy. In 1990, income from farm operations comprised 4.75 percent of total personal income in Bonneville County, 16.7 percent of total personal income in Jefferson County, and 15.6 percent of total personal income in Madison County (Bureau of Economic Analysis 1993). Most farm operations in the three-county region engage in cattle production along with cultivation of wheat, barley, and hay crops (Bureau of the Census 1989). Outside of major cities, such as Idaho Falls and Rexburg, the dispersed pattern of settlement in small towns and rural areas and the continued importance of agricultural activities contribute to the persistence of a traditional rural-agricultural way of life in the region as a whole.

This traditional social and economic context is undergoing significant transformation in some locations. Downstream areas of the project area corridor in Jefferson and Madison counties continue to exhibit high levels of agricultural land use and only limited shifts in traditional rural lifestyles. However, changes are occurring very rapidly in areas adjoining the upper reaches of the SFSR corridor. In these areas, rapid growth of recreation and tourism activities accompanied by residential land development has significantly

transformed the social and economic setting. Recent estimates indicate that public land grazing along the river corridor provides a total income of approximately $295,000 per year within the local economy and employment for about 13 persons. In contrast, fishing and other associated river recreation was estimated to provide employment for about 284 persons and total income of approximately $5,692,000 per year (USDI-BLM 1991).

Much of the private land in the section of the river corridor from Palisades Dam downstream to the Conant Valley area that was previously in agricultural use has been purchased for residential development. Numerous seasonal and year-around residences have been built in this area since 1990. A number of other land parcels are either already designated for development or are slated for such designation in the near future (Clayton 1994, Serr 1994).

Increased demand for developable parcels along with restricted availability of private lands near the river have resulted in rapid escalation of land prices. Riverfront parcels in the area from Palisades to Irwin have sold recently for as much as $15,000 for residential lots and $50,000 to $100,000 per 0.4 hectare (1 acre) for larger building properties (Clayton 1994, Haack 1994). Demand for lands located farther downstream has also increased significantly, although prices remain substantially lower downstream from the Conant Valley (Clayton 1994).

These conditions have been accompanied by substantial shifts in, and considerable tensions over, the social and cultural characteristics of local communities. While some long-term residents are committed to preserving traditional lifestyles and agricultural land use, others are active proponents of land development and economic growth in recreation and tourism. Other stakeholders in the area are concerned about the effects of both development pressures and traditional agricultural activities on wildlife and fisheries resources and the quality of associated recreational opportunities. Some residents support growth management and land use provisions to control the type of growth that has occurred in other nearby locations such as Jackson Hole. Others oppose any restrictions on land development. These divergent views have resulted in conflict among area residents over land use management and development regulations (Parker 1994).

Other issues of concern expressed by some segments of the area population include feelings of ambivalence and in some cases active opposition to the control of river corridor land areas by federal and state agencies. Such views reflect in part the influence of widely-held rural values which are not supportive of government control in general, particularly in areas such as the SFSR corridor where a high percentage of the land area is already in public ownership (BPA 1993). In addition, there are associated concerns over the potential for government ownership to limit future economic development opportunities or to reduce the private property tax base and the resulting revenues for local governments (Jeppson 1994, Stanger 1994).

There is substantial local concern about the potential withdrawal of lands from private ownership that might produce significantly higher future tax revenues if developed for residential use. For example, agricultural lands in Bonneville County in various uses (dry grazing, irrigated agriculture, etc.) currently produce annual tax revenues to the county of from $0.53 to $6.35 per 0.4 hectare (1 acre). In contrast, non-agricultural land valued at $5,000 per 0.4 hectare (1 acre) generates annual tax revenues in excess of $66.00 per 0.4 hectare (1 acre) at current tax rates (Haack 1994). Substantially greater revenues are typically derived from higher value lands and residential buildings in the area.

3.2.4 Socioeconomics - Environmental Consequences

Direct, Indirect, and Cumulative Effects

Alternative 1 - Acquire Fee Title on Private Lands

Alternative 1 would involve a relatively modest amount of land acquisition by BPA dispersed over various segments of the river corridor. Since BPA would only purchase land from willing landowners, individuals who anticipate selling land for development would not likely be affected by this alternative. Agricultural land uses would continue to prevail in the project study area.

Acquisition of agricultural lands could slightly hasten a reduction in the influence of agricultural activities on the economic and social characteristics of area communities. However, any reductions in agricultural activity that would result from acquisitions associated with this management program would be insignificant in comparison with the overall levels of agricultural land use and production in the three affected counties.

Land acquisition by BPA could theoretically reduce the rate and extent of social and economic change associated with expected increases in residential land development and recreational activities in the area. The extent of land that would be acquired by BPA under this alternative makes this an unlikely outcome.

Implementation of this alternative could result in a perception that opportunities would be lost for some area residents to capitalize on growth-related economic development opportunities. Area residents who advocate more limited growth and a preservation of traditional social conditions would experience increased satisfaction.

In general, prevalent local values oppose additional government land ownership. Perceptions of potentially adverse effects to local government tax revenues could create obstacles to land acquisition efforts, even in lower river locations. In the overall context of increasing tax revenues from residential and other land development activities, the limited amount of land acquisition associated with Alternative 1 would not significantly affect the amount of tax revenues collected by the affected units of government. Loss of tax revenues due to the acquisition of agricultural lands by BPA would, in most cases, be offset by payments or fees in lieu of taxes paid by the entity holding title to the acquired parcel.

There does not appear to be a high level of tension between local governments and federal agencies over management presence or impairment of development due to existing holdings of federal lands. The magnitude of discontent over further federal agency land acquisitions would depend somewhat on the amount of land acquired and the extent to which the affected parcels might have on the potential for future development and potential economic growth in local communities.

The limited amount of privately held riverfront acreage in the upper segments of the SFSR corridor and the rapid escalation of demand and prices for land suitable for development uses are likely to restrict the potential for implementing Alternative 1, particularly in areas upstream from Conant Valley. The greater availability of private lands in areas below the canyon sections of the river and the lower levels of demand for land suitable for residential development in these areas may increase the likelihood of BPA successfully acquiring some private land parcels in these lower reaches of the river corridor. However, BPA will consider acquisition of suitable parcels along the entire project area corridor.

Alternative 2 - Acquisition of Conservation Easements

The potential is very limited for Alternative 2 to alter socioeconomic conditions in the project area. The extent of land involved and the nature of the action associated with this alternative would have few, if any, negative implications associated with land use or development, population growth, and economic activity.

Local concerns about increased federal control over land use and management would likely contribute to some expressions of resentment regarding the acquisition of conservation easements by BPA. Effects on individual landowners would be insignificant since this alternative relies on voluntary participation by willing landowners. However, the restrictions on future development and land use that could accompany conservation easements could elicit concern and dissatisfaction from those concerned about effects on future tax revenues for local government, as well as persons who might envision restrictions on use of some locations for recreational activities. Local community opposition to Alternative 2 would likely be less than would occur in response to Alternative 1.

As with Alternative 1, the potential for BPA to acquire conservation easements may be limited in the upper segments of the river corridor. The rapidly increasing value of developable private properties and high demand for riverfront land parcels may reduce the pool of landowners interested in selling conservation easements. Consequently, the potential for obtaining conservation easements may be higher on lands that have limited development potential due to terrain, presence of wetlands, or access problems, or on lands in the lower river corridor where development pressures remain relatively low.

Alternative 3 - Conduct Enhancement Measures on Mitigation Lands

Because this alternative involves the same land acquisition activities as in Alternatives 1 and 2, effects on area socioeconomic conditions would be very similar to those described for those alternatives. Enhancement projects such as fencing, tree plantings, and revegetation activities would not alter the potential for some local opposition related to increased federal land control and reductions in tax revenues available to local governments. However, such efforts would likely meet with high levels of approval and support among those stakeholders who prioritize enhancement of wildlife and fisheries resources.

To the extent that habitat enhancement programs were designed to use primarily local labor, there could be limited short-term economic benefits for some area residents. Such effects would be minor in the context of the broader regional economy.

Alternative 4 - Existing Public Land Set Aside and Habitat Enhancement

Because Alternative 4 would not involve private lands, it would not raise concerns about restrictions on future development or possible adverse tax revenue effects that would arise under other action alternatives. Although none of these alternatives are expected to cause major shifts in overall development trends or patterns of socioeconomic change in the analysis area, Alternative 4, being confined to existing public lands, would have no such effects.

Existing use of BLM or National Forest lands for grazing or other commercial uses may come under additional scrutiny under this Alternative. However, such uses would be consistent with the 1991 Snake River Activity/Operations plan (BLM/USFS 1991b).

As in Alternative 3, if local labor is used for enhancement projects, there is a potential for this alternative to generate limited and short-term economic benefits for some area residents. Such effects would be minor in the broader economic context.

Alternative 5 - Combined Enhancement and Protection Measures

Socioeconomic effects of Alternative 5 would involve the same types of change as have been outlined for Alternatives 1 through 4. Overall, the effects on patterns of social and economic development and change in the analysis area would be minor. Some local opposition would likely arise due to concerns about increased government control of land in the area and possible effects on tax revenues. Local concerns about specific actions would be less since this alternative would involve reduced reliance on specific mitigation actions. This alternative would likely elicit approval by those favoring habitat protection, but concerned about limitations of the other action alternatives.

Alternative 6 - No Action

Implementation of the No Action Alternative would result in a continuation of existing trends with respect to social and economic conditions in the analysis area. Continued increases in demand for river corridor land development and associated changes in the size and composition of the area population would persist for the foreseeable future. Selection of this alternative at present would likely foreclose future potential for mitigation as land development and recreation use increase.

Mitigation and Monitoring

Social and economic consequences of any of the alternatives would be minor, particularly in the context of broader-scale patterns of development and change already occurring in the analysis area. However, the following mitigation activities would help alleviate the limited adverse socioeconomic effects that could result from the various action alternatives.

BPA would, to the maximum extent possible, coordinate land acquisition and management efforts with ongoing land use planning activities of the affected counties and other local units of government. Active participation in these processes would help to alleviate local concerns about government control of area lands and increase the potential for implementing land management practices that are consistent with the interests and preferences of area residents.

To address public concerns about agency acquisition of private lands and the resulting potential effects on future development opportunities and local government tax revenues, efforts to acquire mitigation lands either in fee title or with conservation easements would also consider parcels with designated wetlands or where terrain or access problems would restrict land development.

Habitat enhancement activities would be implemented in ways to avoid restricting legitimate livestock grazing on adjacent private lands. Terms of fee title or conservation easement acquisition make it unlikely that any such effects would occur.

Cumulative Effects

The current trend of agricultural land conversion to non-agricultural uses would be perpetuated under all alternatives. The rate or extent of change directly attributable to implementing any of the action alternatives would be inconsequential, however. The incremental increase in non-agricultural land uses would be masked by existing development trends throughout the project area.

Tax revenues lost due to converting private agricultural lands to public lands would most likely be offset by agency payments of fees in lieu of taxes, resulting in no net loss to the local community tax base. This effect would be further masked by current development trends that would generate substantially more revenue from residential land development.

Agricultural land uses, community structure, and associated socio-political influences are slowly transitioning to residential and recreational land uses. However, the agricultural setting and community structure are likely to perpetuate for the foreseeable future. Changes in socioeconomic trends now underway would not be greatly affected by these alternatives. Implementation of the various action alternatives involving private land acquisition may contribute to the growing emphasis on habitat protection and enhancement in the project area corridor.

CHAPTER 4 - COMPLIANCE WITH ENVIRONMENTAL PROTECTION STATUES

Various laws, statutes and regulations would apply to the management of lands along the SFSR, including management for wildlife mitigation by BPA. The Idaho Department of Fish and Game (IDFG) has the authority to preserve, protect, perpetuate, and manage all fish and wildlife within the state of Idaho per Idaho Code Section 36-103. As wildlife is found on both public and private lands, IDFG has an interest in the management of all lands and the habitat on those lands. IDFG has the authority to comment on and make recommendations on activities which affect wildlife and wildlife habitat. The Bureau of Reclamation regulates river flow through its operation of the Palisades Reservoir. Traffic on the river is regulated by the local county, the Idaho Outfitters and Guides Board, and possibly others. Lands adjacent to the river are a mix of private, Bureau of Land Management, Targhee National Forest, and IDFG ownerships. Management of the Bureau of Land Management and Targhee National Forest lands is governed by the South Fork Snake River Activity/Operations Plan, prepared jointly by these two agencies in 1991.

The mitigation plan would be subject to regulations established by the State of Idaho, Departments of Water Resources, Parks and Recreation, Health and Welfare, and Lands (USFS/BLM 1991). In addition, federal laws including Section 404 of the Clean Water Act, and Section 10 of the Rivers and Harbors Act, would also apply.

The State of Idaho Antidegradation Plan (Executive Order No. 88-23 established certain sections of the South Fork Snake River as DSSOC. The designated segments include Palisade Dam to Irwin and Irwin to Heise.

4.1 FEDERAL REQUIREMENTS APPLICABLE TO THIS PROJECT

- **Endangered Species Act: 16 U.S.C. 1531 et seq.**

The ESA of 1973, as amended, requires federal agencies to ensure that their actions do not jeopardize endangered or threatened species or their critical habitats. BPA is consulting with the USFWS pursuant to Section 7 of the ESA. This informal consultation will be completed prior to initiation of the project.

- **Cultural Resource Legislation, Executive Order 11593: Archaeological and Historical Preservation Act of 1974, 16 U.S.C. 469 et seq., Pub. L. No. 92-291**

A draft Programmatic Agreement (Appendix C) between BPA, the Shoshone-Bannock Tribes, the Advisory Council on Historic Preservation, and the Idaho SHPO verifies that properties acquired through the mitigation plan will be surveyed for cultural resources. The document also requires consultation with the SHPO and Tribes on the need to develop historic Properties Management Plans for the management of cultural resources on project lands within the SFSR corridor. It will be finalized and its provisions implemented prior to any ground-disturbing activities.

- **Executive Order No. 11990: Protection of Wetlands and Executive Order No. 11988: Protection of Floodplains**

In accordance with the Department of Energy regulations on Compliance with Floodplain/Wetlands Environmental Review Requirements (10 C.F.R. 1022.12), BPA has prepared the following assessment of the impacts of the SFSR/Palisades Wildlife Management Plan on floodplains and wetlands. A notice of floodplain/wetlands involvement for this project was published in the Federal Register on May 10, 1994.

Project Description: The nature and purposes of the proposed action, and alternatives to it, are described in Chapters 1 and 2 of the EA. The Federal Emergency Management Agency delineated the 100-year floodplain for the SFSR on their flood insurance rate maps, developed in 1980 and 1981. The floodplain is generally considered to be the river level at bank full condition because of the presence of Palisades Dam. Wetlands soils have been identified for the counties along the river; these are good indicators of the presence of wetlands. However, site-specific delineations are needed to determine precisely the extent and locations of federally-regulated wetlands. Approximately 75 percent of the federal lands in the river corridor covered by the BLM/FS Snake River Activity/Operations Plan are considered wetlands by the Soil Conservation Service (BLM and FS 1991a). Because of the large study area involved and the uncertainty regarding which parcels would be acquired or enhanced for this project, a map of the floodplains and wetlands has not yet been prepared. Floodplain/wetlands maps would be prepared and considered, where applicable, in the development of detailed management plans for the specific parcels proposed for acquisition.

Floodplain/Wetlands Effects: The acquisition of lands or conservation easements would not, in themselves, cause impacts to floodplains or wetlands. However, the enhancement actions proposed under alternatives 3, 4, and 5 (proposed action) may affect the floodplain or riparian wetlands along the river. The construction of fences to protect riparian areas from cattle could cause minor, temporary impacts to floodplains and wetlands through compaction of soils, potential increase in erosion, and alteration of vegetation. The conversion of land from farming to wildlife use, re-establishment of riparian vegetation, and improvements to bald eagle nesting habitat could also result in similar minor and temporary impacts Long-term positive effects can be expected due to the increases in the extent and quality of riparian vegetation and overall reduction in compaction and erosion from soils exposed through overgrazing and farming. For these reasons, the enhancement actions would result in long-term increases in the natural and beneficial values of the South Fork Snake River floodplain and riparian wetlands.

Alternatives: Because the proposed actions would not result in long-term adverse effects or incompatible development in the floodplain or riparian wetlands, alternatives for actions proposed in these areas were not considered, other than the no action alternative.

- **Effects on the Waters of the United States: Permits for Structures in Navigable Waters, Rivers, and Harbors Act, 33 U.S.C. 401 et seq., Federal Water Pollution Control Act. See 404 as amended.**

Sections 10, 401, and 404 permits may be required for some activities within wetlands and waterways. Although no structures are proposed for navigable waters of the United States, and no discharges of dredged or fill materials into waters or wetlands are proposed, permitting may be required in order to ensure that adequate sediment and erosion control plans are developed for site-specific prescriptions involving stream, wetland, or water source rehabilitation.

- **Resource Conservation and Recovery Act: 42 U.S.C. 6910 et seq.**

This Act regulates the storage, use, and disposal of solid and hazardous waste. An Environmental Land Audit or equivalent examination funded by BPA will be conducted prior to purchase of any real property (e.g., fee title, easements). The Audit will determine whether contaminants are located within the boundaries of the subject property or whether there is a risk of off-site contaminants migrating onto the subject property. To ensure that contaminant concerns have been addressed adequately, the highest level of Audit shall be conducted prior to the selection of individual sites for the project. Herbicide applications shall comply with the requirements of this Act.

- **Effects on the Waters of the United States: Permits for Structures in Navigable Waters, Rivers, and Harbors Act, 33 U.S.C. 401 et seq., Federal Water Pollution Control Act; (See S. 404 as amended); Clean Water Act, 33 U.S. C. 1251 (Public Law 95-217)**

Sections 10, 401, and 404 permits may be required for some activities within wetlands and waterways. Although no structures are proposed in navigable waters of the United States, and no discharges of dredged or fill materials into waters or wetlands are proposed, permitting may be required in order to ensure that adequate sediment and erosion control plans are developed for any site-specific prescriptions involving stream, wetland, or spring rehabilitation.

- **Federal Land Policy Management Act: 43 U.S.C. 136 et seq.**

Project actions that may be conducted in cooperation with the BLM and/or Forest Service on federal lands managed by those agencies would be in compliance with the SFSR Activity/Operations Plan.

- **Wild and Scenic Rivers Act, as amended, 16 U.S.C. 1271 et seq.**

In 1985, segments of the South Fork Snake River were found to be eligible for inclusion in the National Wild and Scenic River System. The river's eligibility for recreational or scenic classifications was based on outstandingly remarkable values that include a unique cottonwood ecosystem, bald eagle and other wildlife habitat, high scenic quality, and recreation opportunities. Implementation of project alternatives on lands owned by the federal government would not diminish the values for which the SFSR has been found eligible for Wild and Scenic River status.

- **Farmland Protection Policy Act: 7 U.S.C. 4201 et seq.**

No adverse effects are expected to project area Unique or Prime Farmland designations because wildlife habitat enhancement and restoration activities are reversible land use conditions that do not preclude future farming practices if required.

- **Federal Insecticide, Fungicide, and Rodenticide Act: 7 U.S.C. 136 et seq.**

This Act regulates the manufacture and use of pesticides. Herbicides (a form of pesticide) may be used to control incompatible weedy vegetation within the project area. When applied, only EPA approved herbicides would be used, and only in accordance with manufacturers' labels. Herbicides would be employed by licensed applicators only on an as-needed basis.

CHAPTER 5 - PERSONS AND AGENCIES CONSULTED

Bonneville Power Administration	Robert Walker, Nancy Weintraub, Phillip Key, Allyn Meuleman, John Rowan
Shoshone-Bannock Tribe	Shaun Robertson
U.S. Bureau of Reclamation	Mike Beus, Eileen Salenik
U.S. Fish and Wildlife Service	Charles H. Lobdell, Rich Howard
U.S. Forest Service, Targhee National Forest	Bud Alford
Idaho Department of Fish and Game	Jerome Hansen, George Stephens, Bob Martin, Stacey Stovall, Kim Ragotskie
Idaho Division of Environmental Quality	Blaine Drewes, Ellen Berggren
U.S. Bureau of Land Management	Don Watson, Charles Horsborgh, Karen Aslett
Bonneville County, Idaho	Will Haack, Steve Serr, Jack Parker, Edith Stanger
Jefferson County, Idaho	Ray Smith
Madison County, Idaho	Jerry Jeppson
University of Idaho Cooperative Extension Service	Gale Harding, Madison County Roger Ashley, Bonneville County
The Nature Conservancy	Mark Elsbree
University of Idaho, School of Forestry	Joseph Ulliman

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APPENDIX A
VEGETATIVE COVER TYPES WITHIN THE SOUTH FORK SNAKE RIVER CORRIDOR

COVER TYPE DESCRIPTIONS

Dominant vegetation along the SFSR has previously been categorized into eleven cover types (Ulliman et al. 1991). With the exception of the area occupied by man-made facilities, the cover types are described below along with their associated value to wildlife. The construction of the reservoir resulted in a reduction of all ten cover types with the exception of lacustrine open water and emergent wetland.

Riverine - Riverine habitat is characterized by the flowing water associated with the SFSR. It includes the main body of the SFSR, backwater areas, intermittent streambeds, and intermittent unconsolidated sandy and/or rocky shores (Ulliman et al. 1991). The riverine habitat provides a source of water for a diversity of wildlife species inhabiting the SFSR corridor. The river also supports fish and waterfowl species that constitute a primary food source for several predatory animals including bald eagle and peregrine falcon.

Lacustrine - Lacustrine environments are natural and man-made areas containing standing open water. Reservoir construction has resulted in increased amount of lacustrine habitats along the SFSR (Ulliman et al. 1991). Although the Palisades Reservoir is considered lacustrine habitat, it is located outside of the study area. No other lacustrine habitat is associated with the SFSR.

Emergent Wetland - Emergent wetlands are characterized by nonwoody vegetation, primarily Kentucky bluegrass (*Poa pratensis*), cattails (*Typha* sp.), and bulrush (*Scirpus* sp.). This vegetation type is typically found along seasonally flooded benches near or in the river bottom. Sedges (*Carex* spp.) occur in areas such as those adjacent to backwaters along the river where the soils are saturated most of the year (Ulliman et al. 1991). Emergent wetlands provide a unique environment for many wildlife species such as red-wing and yellow-headed blackbirds, sandhill crane, gadwall, and American widgeon. The cover type is particularly important to amphibian species because it provides moist conditions with protective cover, an invertebrate prey base, and breeding and egg laying sites.

Scrub-Shrub Wetland - Scrub-shrub wetlands occur along the length of the SFSR and are characterized by both willow (*Salix* sp.) and red-osier dogwood (*Cornus stolonifera*) communities. Dogwood dominated areas additionally contain river birch (*Betula* sp.), white alder (*Alnus rhombifolia*), gooseberry (*Ribes* sp.), wild rose (*Rosa* sp.), quaking aspen (*Populus tremuloides*), snowberry (*Symphoricarpos* sp.), chokecherry (*Prunus virginiana*), and serviceberry (*Amelanchier alnifolia*). Woody vegetation of the dominant species is generally less than six meters in height (Sather-Blair and Preston 1985, Ulliman et al. 1991). Numerous wildlife species are typically associated with shrub-dominated riparian areas. In particular, willow flycatcher, MacGillivrays's warbler, yellow warbler, and yellow-breasted chat utilize scrub-shrub wetland types for nesting and foraging. Several duck species, including mallards, also use the scrub-shrub type for nesting and rearing of young. Mink frequent scrub-shrub wetlands and other riparian habitats. Willow shrub, found in the scrub-shrub wetland type, are a preferred forage species for moose.

Forested Wetland - The forested wetland type occurs along the banks of the SFSR and is dominated by narrow-leaved cottonwood trees (*Populus angustifoia*). Other plant species commonly found in the understory of the cottonwood trees include red-osier dogwood, chokecherry, river birch, white alder,

gooseberry, wild rose, serviceberry, vine maple (*Acer glabrum*), willow, quaking aspen, snowberry and Kentucky bluegrass (Sather-Blair and Preston 1985, Ulliman et al. 1991). Generally, the woody vegetation is 6 meters (18 feet) or more in height.

The SFSR corridor and surrounding area potentially supports 156 species of nesting birds, many of which inhabit cottonwood riparian zones (BLM and USDA-FS 1991a). Species typically associated with riparian woodlands include lazuli bunting, black-capped chickadee, ruffed grouse, and warbling vireo. The mature cottonwoods also provide sites for nest building and perches for bald eagles, rookeries (nest areas) for great blue herons, and nesting and brood rearing habitat for ducks. In addition, cavity nesting species inhabit snags found in aging cottonwood forests (Sedgwick and Knopf 1990).

Undisturbed riparian woodlands offer complexity and diversity of vegetation structure related to multiple layers of herbaceous plants, shrubs and trees. High structural and functional diversity generally support greater wildlife diversity. Riparian woodlands harbor the most species-rich avifaunas of all the major habitats found in the western United States (Knopf et al. 1988). The cover type is particularly important to neotropical migrants; approximately 60 percent of Idaho's neotropical migrant landbirds are associated with riparian habitats (Saab and Groves 1992). In some western states, studies have shown as much as 80 percent of terrestrial wildlife are dependent upon riparian areas at some stage of their lives (Krueper 1992).

Forested wetland communities, including those associated with the SFSR, have undergone considerable loss in area and increased degradation due to overgrazing and water impoundment, regulation, and diversion. In general, recruitment by woody species is prevented by prolonged use by cattle and alteration of stream flow creating structurally and taxonomically impoverished plant and animal communities. The Palisades Dam, in particular, has caused reduced amounts of streambed sediments and stream channel shifting and deposition along the SFSR, thereby, resulting in low cottonwood reproduction. Cottonwoods that are able to sprout are often destroyed by livestock grazing and recreational uses (BLM and USDA-FS 1991a).

In some states, as much as 95 percent of riparian ecosystems have been altered. Currently, less than one percent of the western landscapes contain riparian forests and woodlands (Dobkin 1992, Krueper 1992). In Idaho, the most extensive cottonwood riparian forest occurs below the Palisades Reservoir along the SFSR. This cottonwood gallery is also considered one of the largest of such ecosystems in the western intermountain region of North America.

Sagebrush/Grassland - The sagebrush/grassland communities are thought to have been historically dominated by a variety of native grasses historically shaped by natural fire cycles, drought, and ungulate grazing. Grasslands have undergone considerable loss of acreage and fragmentation due to overgrazing by livestock, agricultural encroachment, and fire suppression. These activities encourage encroachment and proliferation of juniper (*Juniperus* sp.), snakeweed (*Gutierrezia sarothrae*), sagebrush (*Artemisia tridentata*), and rabbitbrush (*Chrysothamnus* sp.). The sagebrush/grassland community that now exists along the SFSR consists of three different classes dominated by mountain mahogany (*Cerocarpus montanus*), sagebrush-bitterbrush (*Artemisia tridentata-Purshia tridentata*), Idaho fescue (*Festuca idahoensis*), and upland shrublands (Ulliman et al. 1991). Upland shrubland communities are characterized by mountain maple (*Acer glabrum*), chokecherry, serviceberry, and other species typical of sheltered locations that trap seasonal moisture (Ulliman et al. 1991). Sagebrush/grasslands provide important habitat for many wildlife species including upland game birds, northern harrier, and short-eared owl. Sandhill cranes have been documented to use the sagebrush/grasslands along the river during spring and fall migrations (Sather-Blair and Preston 1985).

Shrub-Steppe - Shrub-steppe communities are dominated by sagebrush, usually on south facing slopes or on level terrain (Sather-Blair and Preston 1985). Shrub-steppe communities historically contained a large component of robust native bunchgrasses and forbs with little bare ground. The introduction of cattle grazing and fire-suppression have caused a reduction in the relative amount of native grasses and increased the amount of shrubs, bare ground and exotic grasses and forbs. Other shrubs found in this type include bitterbrush, Oregon grape (*Berberis repens*), ceanothus (*Ceanothus velutinus*) and snowberry (Sather-Blair and Preston 1985).

In terms of wildlife, shrub-steppe habitats are relatively species-poor, although some species such as the sage-thrasher, sage sparrow, and Brewer's sparrow are almost exclusively associated with the cover type. Green-tailed towhee and vesper sparrow are also commonly found in this type but occupy other types as well. The shrubland communities are important habitats of wintering range for mule deer and elk due to the relatively low snow-depth that accumulates and the availability of forage plants.

Upland Coniferous Forests - Douglas-fir (*Pseudotsuga menziesii*) dominates the upland coniferous forest type along the north-facing slopes of the SFSR corridor. Subalpine fir (*Abies lasiocarpa*) and lodgepole pine (*Pinus contorta*) dominate the type at higher elevations outside the SFSR corridor. Plants typically found in the understory include mountain maple, Cascade mountain-ash (*Sorbus scopulina*), chokecherry, serviceberry, scouler willow (*Salix scouleriana*), and ninebark (*Physocarpus malvaceus*). Scattered junipers occur primarily on the south-facing slopes. Evidence suggests that juniper has been gradually invading the upland coniferous forest type since 1940 (Ulliman et al. 1991).

Other plants characteristic of juniper areas include mountain mahogany, sagebrush, and bitterbrush (Ulliman et al. 1991). Upland coniferous forests support a large diversity of wildlife including snowshoe hare, porcupine, bears, pine marten, ruby-crowned kinglet, red-breasted nuthatch, and big game species.

Aspen - Aspen communities along the SFSR are dominated by quaking aspen with an understory composed of serviceberry, pinegrass (*Calamagrostis rubescens*), and snowberry (Ulliman et al. 1991). The drier sites also contain sagebrush. In Idaho, extensive stands of aspen rarely occur outside of riparian habitats. Canopy closures are variable. Aspen communities are especially important to species such as the ruffed grouse and red-naped sapsucker.

Historically, aspen was much more abundant than it is now throughout most of the western United States. In the southwest, aspen is estimated to have declined by 46 percent between 1962 and 1986 (USDA-FS 1993) due to fire suppression, conifer invasion, and traditional management practices. Restocking harvested aspen stands with more economically valuable conifer species has been widely practiced.

Farmland - Agricultural lands that are plowed for crops or used as pasture for livestock occur along the SFSR. Primary crops are wheat and alfalfa hay (Sather-Blair and Preston 1985). Many waterfowl species, including mallard, Canada goose, and sandhill crane, concentrate on these fields to feed. In addition, the fields provide unrestricted flight mobility and adequate prey for some raptors such as Swainson's hawk. Other than providing foraging habitat for waterfowl and some upland species, the agricultural fields are of little value to wildlife. The encroachment of the fields and rangeland into natural environments has caused a reduction in the amount of available habitat for other species. In particular, big game winter range is gradually being replaced by farm land in some areas of the corridor (Meuleman et al. 1986).

DISTRIBUTION OF COVER TYPES

Martin and Hansen (1993) estimated the average cover type, in acres, for each of five river segments per average 100 riparian hectares (acres) in the South Fork Snake River corridor. The amounts are shown below in Table A-1.

Table A-1. **Amount of each cover type per average 100 riparian hectares (acres) in South Fork Snake River stream segments (modified from Martin and Hansen 1993). Amounts are in hectares (acres) unless otherwise indicated.**

Cover Type	SSM Classes				
	IIIA	IIA	IA	IIB/IIIB	IB
Riverine	15 km (9 miles)	13 km (8 miles)	18 km (11 miles)	37 km (23 miles)	23 km (14 miles)
Lacustrine	0.0	0.0	0.0	0.0	0.0
Emergent Wetland	0.2 (0.6)	1.2 (2.9)	3.8 (9.4)	0.9 (2.3)	1.5 (3.7)
Scrub-Shrub Wetland	1.3 (3.2)	0.2 (0.6)	1.7 (4.2)	2.5 (6.2)	0.5 (1.1)
Forested Wetland	32.5 (80.3)	21.7 (53.7)	15.5 (38.2)	30.4 (75.2)	36.8 (90.9)
Sagebrush Grassland	0.0	7.7 (19.1)	14.4 (35.7)	7.9 (19.4)	0.2 (0.4)
Shrub-Steppe	*	*	*	*	*
Upland Coniferous Forest	1.7 (4.1)	4.8 (11.9)	9.2 (22.8)	2.0 (4.9)	0.0
Aspen	0.0	0.0	3.0 (7.4)	0.1 (0.3)	0.0
Farmland	*	*	*	*	*

* No value was determined for the amount of shrub-steppe and farmland vegetation types within the SFSR corridor during previous studies.

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APPENDIX B
WILDLIFE CONDITIONS WITHIN THE SOUTH FORK SNAKE RIVER CORRIDOR FOR SELECTED SPECIES

TARGET SPECIES

To represent important wildlife groups affected by the Palisades Project, target species were selected by an interagency work group. Species were chosen either because they maintain a high priority status with state or federal agencies or because they best describe habitat conditions for groups of species with similar habitat needs. The target species initially selected by the interagency work group were Canada goose, mallard, mink, ruffed grouse, mule deer, bald eagle, black-capped chickadee, and yellow warbler. Peregrine falcon and Rocky Mountain elk were added later.

The IDFG used the HEP developed by the USFWS (1980) to assess wildlife conditions prior to, and following construction of the Palisades Reservoir. HEP determines the amount of habitat available relative to the quality of habitat in terms of HUs. Quality of habitat is expressed as HSI values ranging from 0 (poor habitat) to 1 (optimal habitat). One habitat unit is equivalent to 0.4 hectare (1 acre) of prime habitat.

Importance and Status

The status of each target species and a description of essential habitat characteristics in the SFSR corridor is provided below. The descriptions of bald eagle and peregrine falcon, also target species, are located under Threatened, Endangered, and Candidate Animal Species.

Canada Goose (*Branta canadensis*) - The Canada goose was selected as a target species because it is recognized as a regionally important waterfowl species in the project area. Canada geese use the SFSR corridor for wintering, nesting and brood rearing. The SFSR has been identified as one of the most important nesting areas in the area (Krohn and Bizeau 1980). The construction of the Palisades Reservoir and associated facilities resulted in a net loss of 34 kilometers (21 miles) of river, 40.5 hectares (100 acres) of nesting habitat on several islands, and 805 Canada goose HUs (Meuleman et al. 1986).

The majority of nesting by geese within the SFSR corridor takes place on islands (Hanson and Eberhardt 1971, Krohn and Bizeau 1980). Other areas that may be utilized for nesting include flooded bottomlands, marshes, waterfowl impoundments, and islands on lakes and reservoirs (Krohn and Bizeau 1980). Adjacent gentle bank slopes, short grasslands, and open water are important for brood rearing.

Historically, islands were common along the SFSR corridor where the channel was braided resulting in slow moving water and large wetland areas. The loss of the integrity of islands during the nesting season can be traced to pre-1945 when stream flows, altered by the Jackson Lake Dam and Reservoir (built in 1916), commonly reached a four-fold increase (Parker 1973). These fluctuations in stream flows continued until 1972 when the IDFG and the BOR began coordinating efforts to improve flow releases to coincide with recommended ranges (8,000-16,000 cubic feet per second) for nesting waterfowl. Still, data through 1984 indicate less than optimal nesting conditions (Sather-Blair and Preston 1985).

The maintenance of local populations depends on the protection of nesting habitat. Hydroelectric development of the Snake River has gradually inundated nesting habitat (Hanson and Eberhardt 1971). Hydroelectric generation on the SFSR has been determined to reduce goose nesting success by flooding nests and increasing the rate of predation by creating land bridges or shallow water between islands and the mainland. Increased disturbance from recreationists along the SFSR has also resulted in reduced nesting success.

Mallard (*Anas platyrhynchos*) - Mallards are a common species of dabbling duck ranging throughout the Northern Hemisphere. They are considered one of the most abundant ducks in the United States with an extensive breeding range. The Snake River corridor is part of the second most important migration route extending from Alberta to the Snake River near Boise, Idaho. More than 20 waterfowl species have been documented to occur in the SFSR corridor, the mallard being among the most common. The mallard was selected as one of two waterfowl target indicator species. Estimated losses resulting from the construction of Palisades reservoir include 2,622 HUs.

Approximately 50,000 mallard ducks are known to nest within Idaho. Important cover types for nesting and brood rearing include forested and scrub-shrub wetland complexes. More specifically, mallards utilize shallow ponds, lakes, and marshes for breeding, concealing their nests in adjacent dense vegetation. Upland sites are generally preferred to wetland areas for placement of nests. However, most studies indicate that mallards locate nests within 100 meters (328 feet) of water (Bellrose 1976). Common forage material includes aquatic vegetation, grasses, and seeds with aquatic invertebrates and insects also consumed (Ehrlich et al. 1988).

An estimated 440,000 mallards winter in the Snake River Valley (Bellrose 1976). Availability of food during the winter months appears to be a key factor in the selection of wintering habitat with concentrations of mallards forming around wetlands and agricultural fields (Bellrose 1976).

Mink (*Mustela vison*) - The mink was selected to represent the group of aquatic furbearers in the HEP analysis. In Idaho, the mink is considered a furbearer with the IDFG holding responsibility for maintaining an annual harvest. Other aquatic furbearers known to occur in the SFSR corridor include muskrat, beaver, and river otter.

Mink are predaceous mammals depending on fish, small mammals, and waterfowl for food and occupy areas near streams, rivers, and lakes at lower elevations. Tree and shrub cover along the banks of waterways are important for protection from predators and for the prey species it supports.

The continual loss and degradation of wetlands in eastern Idaho have caused a decline in mink numbers. The construction of the Palisades Reservoir resulted in an overall loss of 2,276 HUs for mink. Important vegetation types within the corridor for mink include forested and scrub-shrub wetlands.

Ruffed Grouse (*Bonasa umbellus*) - The ruffed grouse is a native, upland game species and one of the most widely hunted grouse in North America (Cade and Sousa 1985). The ruffed grouse was selected as an indicator of upland game species for the HEP analysis. Other upland game species inhabiting the SFSR corridor include blue grouse, sage grouse, mourning doves and cottontails. The Palisade project resulted in the loss of an estimated 2,331 HUs in aspen and forested wetland cover types.

Ruffed grouse inhabit deciduous and deciduous-coniferous forests with dense understories. Habitat is strongly associated with aspen stands of varying age classes throughout most of the year (Berner and Gysel

1969). In a study of ruffed grouse populations in Minnesota, breeding grouse were rarely found more than 100 meters (328 feet) from stands of aspen (Gullion and Alm 1983). Adult ruffed grouse depend on a variety of vegetation for food, consuming insects to a lesser extent. Aspen buds, twigs, and catkins, in particular, are an important food source during the winter throughout much of their range (Johnsgard 1975). The diet of ruffed grouse is more variable during other seasons with herbaceous vegetation also consumed (Cade and Sousa 1985).

Dense young aspen sapling and pole stands additionally provide protective cover for grouse (Gullion and Alm 1983). Suitable drumming sites, typically logs, are an important component of habitat (Johnsgard 1975). Drumming is a characteristic wing-beating display performed during the breeding season. Nests are often placed in a relatively concealed location such as at the base of a tree, under fallen branches, or in hollows (Ehrlich et al. 1988). Brushy habitats are important for brood rearing. The prevention of natural disturbances in aspen stands have caused even-aged stands of aspen with little regeneration. The understory created by early successional stages of aspen is an important component of habitat for ruffed grouse and other wildlife species.

Mule Deer (*Odocoileus hemionus*) and Elk (*Cervus canadensis*) - The mule deer, and later, Rocky Mountain elk, were selected for the HEP analysis to represent big game species. Other big game species occurring in the project area include moose, mountain goat, black bear, and mountain lion. Use of the SFSR by these species is primarily limited by the amount of human use and the large amount of area converted to farming lands within the study area. In addition, they are more likely to utilize the associated tributaries of the river.

The construction of the Palisades Reservoir and associated facilities was determined to result in the loss of 2,454 HUs for mule deer. This loss is also considered representative of losses in elk habitat. Efforts to compensate for the loss in HUs would additionally benefit other big game species, including elk and moose.

Mule deer use all forest habitats in the spring, summer, and fall, and foothills of sagebrush steppe/wheatgrass mix habitats in winter. Higher elevations are generally preferred, although snow depths force big game to lower elevations during the winter. South facing slopes are important to elk and mule deer during the winter months due to the lower snow depths.

Characteristics important to habitat include year round forage and thermal cover for protection from winter conditions. The SFSR corridor provides forage in the shrub-steppe, aspen, forested wetland, and scrub-shrub wetland cover types. The upland coniferous forests and the forested wetlands both provide thermal cover for mule deer although snow depth may limit use of the area during years of heavy snowfall. The only cover types not considered habitat for mule deer during the evaluation process include farmland, emergent wetland, lacustrine, and riverine (Sather-Blair and Preston 1985).

The Tex Creek and Sand Creek areas provide critical big game winter range in the project area vicinity. The Interagency Workgroup determined that Sand Creek would provide the greatest and most cost-effective benefit to elk and the public in terms of big game winter range mitigation for losses associated with Palisades Dam and reservoir.

Black-Capped Chickadee (*Parus atricapillus*) The black-capped chickadee was selected as a target species to represent wildlife associated with forested wetlands. The Palisades Project resulted in the loss of 1,358 HUs for black-capped chickadee and other species associated with forested wetlands.

Black-capped chickadees are widespread throughout the northern United States. They are typically associated with deciduous or mixed woodlands (Ehrlich et al. 1988). The black-capped chickadee forages by gleaning insects from the bark of trees and may play a role in maintaining healthy forests by aiding in the prevention of insect infestations.

In southern Idaho, riparian woodlands appear to be particularly important for this species (Meuleman et al. 1986). Commonly used nesting trees are willow, cottonwoods, and poplars. Black-capped chickadees depend on the presence of snags within the forested wetland cover type and excavate or enlarge existing cavities for placement of nests (Stauffer and Best 1980). Snags are limited along the SFSR due to the lack of recruitment by woody species resulting from prolonged use by cattle and alterations of stream flow. High snag densities are also important to other forest dwelling species such as bluebirds, woodpeckers, and nuthatches.

Yellow Warbler (*Dendroica petechia*) -The yellow warbler was selected as a target species to represent wildlife species typically associated with scrub-shrub wetlands. The Palisades Project resulted in the loss of 716 HUs for yellow warbler and other scrub-shrub wetland associated species.

The yellow warbler has the largest breeding range of any wood-warbler. Because the yellow warbler winters from the United States southward to Mexico and South America, it is considered to be a neotropical migrant. Preferred habitat for yellow warblers consists of riparian thickets and riparian woodlands with dense understories (Ehrlich et al. 1988). Of particular importance to nesting pairs are scrub-shrub wetlands dominated by willows.

Although yellow warblers can be found throughout Idaho, population numbers have been reported to be declining within the state. Declines can be attributed to loss of habitat resulting from grazing, eradicating willows, drought, and channelizing for flood control and agriculture (Dobkin 1992). Populations have shown a good response to restoration and regeneration of willow (Taylor and Littlefield 1986).

Distribution of Habitat

River segments (defined in Section 1.4.1) along the SFSR were prioritized by Martin and Hansen (1993) according to the estimated value of each segment to target species (Table B-1). River segments IB and IIB/IIIB were determined to provide the most overall total habitat units for target species per hectare (acre) due to the amount of cottonwood forests and scrub-shrub wetlands. However, the large amount of open water found directly below the Palisades Dam, particularly in segments IIIA and IIA, provide the highest winter habitat value for bald eagle. The open water supports a higher prey base for bald eagles than segments further downstream. Martin and Hansen ranked the river segments based on their value to wildlife: segment IIIA received the highest priority, followed by IIA, IA, IIB/IIIB, and IB (Table B-1). During the acquisition and/or enhancement process, efforts would be placed on protecting segments with higher priority values.

THREATENED, ENDANGERED, and CANDIDATE SPECIES

In compliance with Section 7(c) of the ESA of 1973 (as amended), the USFWS provided BPA with a list of threatened, endangered, and candidate species potentially occurring within the project area dated February 2, 1994 (Species List # FWS-1-4-94-SP-48). The list includes two endangered species, the bald eagle and peregrine falcon, and two candidate species, the northern goshawk and trumpeter swan. A general

description of habitat required by each of the species is provided below. Impacts to bald eagles in terms of lost HUs have also been included.

Table B-1. Average number of habitat units present for each target species per 40.5 hectares (100 acres) in the stream segments of the South Fork Snake River corridor *.

Target Species	IIIA	IIA	IA	IIB\IIIB	IB
Canada Goose	2.7	5.8	5.8	5.8	5.8
Mallard	4.4	7.2	7.2	7.2	7.2
Mink	7.6	9.5	9.5	9.5	9.5
Ruffed Grouse	8.5	48.5	25.4	60.3	81.9
Mule Deer\Elk	1.2	8.7	17.7	17.7	11.6
Breeding Bald Eagle	74.0	74.0	74.0	74.0	74.0
Wintering Bald Eagle	100.0	100.0	93.0	93.0	93.0
Black-Capped Chickadee	23.0	42.7	16.4	52.8	72.1
Yellow Warbler	2.8	0.5	3.6	5.3	0.9
Total Habitat Units	**224**	**297**	**253**	**326**	**356**

***(Martin and Hansen 1993)**

Bald Eagle (Haliaeetus leucocephalus) - Bald eagles inhabiting the SFSR during the breeding and nesting season lost an estimated 5,941 HUs as a result of the construction of the Palisades Reservoir. Additionally, approximately 18,565 HUs for wintering bald eagles were lost.

Bald eagles nest in large, prominent trees in a multi-storied forest stand usually in large ponderosa pine, Douglas-fir, and cottonwood trees (DeGraff et al. 1991). A pair may return to the same nest site for many years. Location of nests is dependent on the presence of an adequate food source, primarily fish and waterfowl with rabbits and carrion also consumed to a lesser extent (Paige et al. 1990). Within the SFSR, cutthroat trout (*Salmo clarki*) and whitefish (*Prosopium williamsoni*) provide abundant food for bald eagle (Sather-Blair and Preston 1985).

Foraging habitat consists of large, unobstructed open areas such as large openings in timber stands, river corridors, or lakes (Paige et al. 1990). Particularly in winter, open water is a critical habitat component because it allows access to fish and attracts waterfowl (USDA-FS 1989, Paige et al. 1990). Winter habitat can alternatively concentrate around big game winter range.

Winter perch and roost sites, as well as access to prey, are important habitat characteristics for bald eagles (Paige et al. 1990). Perching sites are located on large trees with open branches allowing easy access. Eagles have daily and yearly fidelity to the same tree for communal roosting. Bald eagles are intolerant of

human disturbance, such as that caused by logging activities and road use, especially during the breeding season (USFWS 1986). Consequently, perches are normally located away from human disturbances or are moved if disturbance materializes.

Peregrine Falcon (*Falco peregrinus anatum*) - Although the peregrine falcon was identified as a target species, the loss in habitat related to Palisades Reservoir was not quantified. However, the loss can be correlated with the reduction in riparian plant communities, specifically forested, scrub-shrub and emergent wetlands (USDA-FS 1989).

Peregrine falcon nesting habitat consists of cliffs, generally between 27 and 91 meters (100 and 300 feet) in height, which often dominate the surrounding landscape and rarely occur above 2590 meters (8500 feet) in elevation (USFWS 1984). Peregrines need a combination of steep vertical surfaces to prevent predation and ledges and cracks for scrapes and roost sites (Kilpatrick 1987). Rock outcrops and talus slopes overlooking large open lakes, meadows, or valley bottoms are also used to a lesser degree for nest sites. Nesting cliffs are typically located within close proximity to abundant and accessible avian prey; usually within 16 kilometers (10 miles) of a forage area. Peregrine falcons also have a strong fidelity to nest sites (USFWS 1984).

Foraging areas generally include forests, grasslands, marshes, and open water bodies where the peregrines' primary prey are available. The majority of their prey consists of small to medium-sized songbirds, shorebirds, and waterfowl (USDA-FS 1989). Peregrines may range long distances in search of prey but may also utilize the same areas for long periods of time. Their winter habitat is selected on the basis of large concentrations of prey birds (USDA-FS 1989).

Trumpeter Swan (*Cygnus buccinator*) - Wintering habitat for the trumpeter swan along the SFSR is closely tied to waters that remain ice free during the winter. These areas are typically associated with springs which feed into the river and support abundant aquatic plant life. Marsh and aquatic plants, mainly pondweed, waterweed, duckweed, and water milfoil, compose the bulk of food consumed (Bellrose 1976). Historically, this type of habitat was abundant along the river. Other waterfowl also depend on open water areas and submerged vegetation during the winter.

Northern Goshawk (*Accipiter gentilis*) -Goshawks often use forested lands opportunistically, nesting in fringe or broken forest areas as well as large, continuous, pristine forest areas (Reynolds 1983). Their favored nesting habitat consists of old growth, coniferous, deciduous, or mixed forest areas, with tall, multi-layered canopies. Preferred areas typically contain good canopy closure but open understory for flight and foraging.

Where possible, goshawks locate their nests on gentle to moderate slopes with northerly aspects adjacent to springs or streams. (Reynolds 1983). Their nesting sites may include between two and five nesting trees within 0.8 kilometer (0.5 mile) of each other (Hayward et al. 1990). Nests are often constructed on the largest tree in the stand (Reynolds 1983). High foliage density generally characterizes the vegetative structure of the nesting habitat.

In addition to nesting in woodlands of large mature trees, goshawks also prefer foraging in such areas near edges or breaks in canopy, which are presumably used as flight corridors (Hayward et al. 1990). Possibly due to availability of prey, the goshawk prefers habitat edges, open areas that are either cleared or burned, or areas along drainages or water courses (Palmer 1988). Goshawks prey on birds such as quail, flickers, jays, American robin, and mammals such as snowshoe hare, tree squirrel, and ground squirrel (Reynolds

1983). Considered a height zone generalist, the goshawk takes prey from the ground to shrub, shrub to tree canopy, and canopy layers (Reynolds 1987).

In areas inhabited by goshawks, they are considered a resident species and typically remain on-site throughout the year (Hayward et al. 1990). Their hunting range may shift during the winter (Palmer 1988).

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APPENDIX C

DRAFT

PROGRAMMATIC AGREEMENT
among
THE BONNEVILLE POWER ADMINISTRATION, THE ADVISORY COUNCIL ON HISTORIC PRESERVATION, AND THE IDAHO STATE HISTORIC PRESERVATION OFFICER
regarding implementation of the
SOUTH FORK SNAKE RIVER WILDLIFE MITIGATION PROJECT

WHEREAS, the Bonneville Power Administration is a Federal Power Marketing Agency (PMA), created under the authority of the Bonneville Project Act (16 U.S.C. §§ 832-832l);

WHEREAS, the Advisory Council on Historic Preservation (Council) was established as an independent agency by the National Historic Preservation Act (NHPA) at 16 U.S.C. § 470I. Within the context of programmatic agreements, the Council "is responsible for commenting to the Agency Official on an undertaking that affects historic properties." 36 C.F.R. § 800.1(c)(1)(iii);

WHEREAS, the role of the state historic preservation officer (SHPO) in regard to programmatic agreements is set out in 36 C.F.R. § 800.1(c)(1)(ii);

WHEREAS, the Bonneville Power Administration (BPA) and other entities such as the Idaho Department of Fish and Game (IDFG); the Bureau of Land Management (BLM); the United States Forest Service (USFS) propose to protect, mitigate and enhance wildlife and wildlife habitat adversely affected by Palisades Dam;

WHEREAS, BPA recognizes that mitigation efforts related to Palisades Dam could possibly affect historic properties and historic resources, whether of Native American origin or not. For the purposes of this PA, the term "historic properties" means any prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion in, the National Register. This term includes artifacts, records, and remains that are related to and located within such properties;

WHEREAS, the parties have consulted with the Advisory Council on Historic Preservation (Council), and among themselves, as required by the National Historic Preservation Act (NHPA) and its implementing regulations;

WHEREAS, the Tribes are not acting in the role of a state historic preservation officer (SHPO) and therefore are not a required party to the agreement, but have been invited to consult and to sign the Agreement in concurrence;

WHEREAS, BPA, in the mitigation effort, may acquire and/or transfer real property or real property interests to other entities who will then assume the responsibility for cultural preservation on said property;

WHEREAS, the legislative history of section 110 of NHPA indicates that "the degree of preservation responsibility be commensurate with the extent of the agency's interest in or control of a particular property;"

WHEREAS, the Interior Secretary's "Standards and Guidelines for Archaeology and Historic Preservation," 48 Fed. Reg. 44,716 (Sept. 29, 1983), are "not regulatory and do not set or interpret agency policy;"

WHEREAS, the identification of historic properties shall be regulated in scope by the effects of the undertaking, so that the Agency Official is responsible only to identify historic properties "that may be affected by the undertaking." See, e.g., 36 C.F.R. § 800.4(b);

WHEREAS, neither the NHPA nor its implementing regulations define the term "consult," a standard dictionary definition shall be used to define the term as meaning to "discuss" or to "seek the opinion of." Webster's Third New International Dictionary 490 (4th ed. 1976);

NOW, THEREFORE, the Council and the parties agree that wildlife and habitat mitigation shall be conducted in accordance with the following stipulations which will fully satisfy BPA's NHPA duties.

STIPULATIONS

BPA will ensure that the following measures are carried out:

1. Survey and Evaluation

The entity responsible for managing lands under the South Fork Snake River Management Plan shall identify and evaluate historic properties potentially affected by land management activities in accordance with the following procedure:

(a) Activities typically requiring survey and evaluation are included in but not limited to those listed in Appendix B. The managing entity will scale the surveys to the project's needs as defined by BPA and endeavour,

where practicable, to conduct surveys in accordance with the Interior Secretary's "Standards and Guidelines for Identification" (48 Fed. Reg. 44,716, 44,720 (Dep't Int. 1983)). Surveys and evaluations by the implementing entity will be conducted in consultation with the SHPO, Tribes, and BPA. Evaluation of historic properties shall be in accordance with 36 C.F.R. part 63, "Determination of Eligibility for Inclusion in the National Register of Historic Places." The managing entity shall forward survey and evaluation results to the SHPO, Tribes and BPA in a timely manner.

(b) Other land management activities (those listed in Appendix A) are generally exempt from the need for advance survey and evaluation. However, the managing entity shall promptly report to BPA, Tribes and the SHPO discovery of potential historic properties resulting from implementation of these activities and of decisions to exempt activities not listed in Appendix A from survey.

2. Historic Properties Management Plan (HPMP)

The managing entity shall prepare an HPMP for projects with properties discovered through implementation of stipulation 1 (above). A single HPMP may be prepared for each parcel of land within contiguous boundaries, or where the managing entity is managing other properties similarly situated, and it may include multiple historic properties. The essence of the HPMP will be to establish processes for integrating the preservation and use of historic properties with the mission and programs of BPA in a manner appropriate to the nature of the historic properties involved, the nature of the South Fork Snake River area, the legislative history of NHPA and the nature of BPA's mission to protect, mitigate, and enhance wildlife habitat, while ensuring an adequate, efficient, economical and reliable power supply for the Pacific Northwest.

a. The HPMP shall be developed in consultation with BPA, the Tribes and the SHPO, and amended as warranted by changing conditions and discovery of additional historic properties.

b. The HPMP should be prepared by or under the supervision of an individual who possesses the qualifications recommended by the Interior Secretary's "Professional Qualifications Standards" (48 Fed. Reg. 44,716, 44,738).

c. The HPMP shall include the following:

1) An overview, synthesizing available information on the history, prehistory, and ethnography of the area, as a context for management of historic properties;

2) an inventory of historic properties present, including a description of each historic property, the significant element or elements of each property that qualifies it for inclusion in the National Register, and appropriate maps, plans, and photographs;

3) the potential for and intended use of historic properties in ways that do not cause significant damage to or deterioration of the property;

4) means to preserve historic properties in place, including protection from vandalism;

5) if treatment other than preservation in place is proposed, the HPMP should also discuss the alternative treatment(s), such as research value, interpretive potential, cultural importance to descendants of site creators, cost of preserving the site in place, or lack of alternatives to achieving a biological result;

6) a balancing of BPA's mission and historic property preservation or other proposed treatments;

7) stipulations for compliance with appropriate sections of NAGPRA (25 U.S.C. §§ 3001-3013), NHPA (16 U.S.C. §§ 470-470x-6), ARPA (16 U.S.C. §§ 470aa-470mm) and the American Indian Religious Freedom Act (AIRFA) (42 U.S.C. § 1996) including definition of a consultation process between BPA and the Shoshone-Bannock Tribes to ensure adequate communication of the actions to be taken under the South Fork Snake River Programmatic Management Plan. Consultation with the Tribes shall be maintained specifically to solicit input on traditional use or other tribal concerns directly related to this process and agreement.

d. The managing entity or BPA will provide copies of the draft HPMP to the SHPO, Tribes, Council and other interested parties for review and comment. BPA will direct the managing entity not to take action with potential adverse effect on a historic property until the HPMP is implemented, or section 106 responsibilities are otherwise fulfilled. The managing entity may use the HPMP for section 106 compliance if the parties also sign the HPMP.

3. Burial Discovery

If human skeletal remains are found during implementation of the South Fork Snake River Programmatic Management Plan, the managing entity shall comply with all applicable provisions of NAGPRA, ARPA and other pertinent laws. The three paragraphs immediately following do not pretend to encompass all ARPA and NAGPRA duties, but describe some duties which are most pertinent to this undertaking.

a. Under ARPA (the Archaeological Resources Protection Act of 1979), archaeological resources may not be excavated, removed, damaged, or otherwise altered or defaced (nor may any of those be attempted) on public lands or Indian lands without a permit to do so. 16 U.S.C. § 470ee. Excavation or removal by Indian tribes or tribal members generally does not require a permit, but is governed by 16 U.S.C. § 470cc(g).

b. Under NAGPRA (the Native American Graves Protection and Repatriation Act), Native American human remains and objects may not be intentionally excavated and removed unless the excavator/remover has first consulted with the appropriate tribe(s) (in the case of Federal lands), or has first obtained the consent of the appropriate Tribe(s) (in the case of tribal lands), among other requirements. 25 U.S.C. § 3002(c).

c. Native American cultural items which are inadvertently discovered require the discovering party to notify both the agency head having primary responsibility for the Federal lands where the discovery is made and also the appropriate tribe(s) if tribal lands are involved. 16 U.S.C. § 3002(d) (emphasis added). Section 3002(d) also requires activities which lead to inadvertent discoveries to be halted when a discovery is made. The discoverer must then make reasonable effort to protect the item(s) discovered and must make notification to the appropriate Federal agency and tribe(s) as set out above.

4. Annual Report

The managing entity shall prepare an annual report regarding implementation of this PA, and shall distribute the report to BPA, the SHPO, the Tribes and the Advisory Council. Annual reports should summarize general land management activities, and specifically describe

survey, evaluation and HPMP activity. The first report is due not later than one year from execution of this PA, or as otherwise agreed in writing by the consulting parties.

5. Amendment of the Agreement

BPA or the SHPO may request that this PA be amended, whereupon the parties will consult in accordance with 36 C.F.R. § 800.13 to consider such amendment. Any amendment or addendum to this agreement shall be executed in the same manner as the original.

6. Dispute Resolution

Should BPA or the SHPO be unable to resolve a dispute regarding implementation of this PA, they may request the further comments of the Council pursuant to 36 C.F.R. § 800.6(b).

7. Termination

BPA or the SHPO may terminate this PA by mutual agreement and by providing 120 days' notice, in writing, to the other parties, provided that the parties will meet during the period prior to termination to seek agreement, amendment, or other action that would avoid termination. It is the intent of the parties that this agreement last for the duration of the South Fork Snake River Programmatic Management Plan. In the event of termination, the land management entity will comply with 36 C.F.R. §§ 800.4-800.6 with regard to land management activities.

Execution of this PA by BPA, the SHPO, the Council, plus concurrence by the Tribes and implementation by the managing entity(ies) demonstrate that BPA has taken into account the potential effects of the South Fork Snake River Programmatic Management Plan, in full compliance with the requirements of the NHPA.

ADVISORY COUNCIL ON HISTORIC PRESERVATION

By: _____ Date: _____

Title: _____

BONNEVILLE POWER ADMINISTRATION

By: _____ Date: _____

Title: _____

IDAHO STATE HISTORIC PRESERVATION OFFICER

By: _____ Date: _____

Title: _____

Concur:
SHOSHONE-BANNOCK TRIBES

By: _____ Date: _____

Title: _____

APPENDIX "A"

Land Management Activities Normally Exempt from Prior Survey and Evaluation

* Acquisition of land in fee
* Acquisition of a conservation easement
* Management of vegetation not associated with structural landscaping (i.e., non-mechanical weed control or tree topping)
* Maintenance of fences not requiring excavation
* Purchase of or transfer of real property or real property interests where the agency in question has little interest in or little control over the particular property
* Construction and/or preparation of wildlife mitigation structures, facilities or alterations to land where such activities will not affect the integrity of the soil nor create a risk of unearthing historical items or resources

APPENDIX "B"

Land Management Activities Normally Requiring Prior Survey and Evaluation

* Construction of buildings, including site preparation
* Removal of buildings more than 50 years old
* Modification of buildings more than 50 years old
* Excavation for trenches, ditches or ponds
* Construction of roads
* Logging