US Army Corps
of Engineers®
Walla Walla District

ENVIRONMENTAL ASSESSMENT

Little Bay Stewardship Project
Dworshak Dam and Reservoir
Ahsahka, Idaho

April 2002

DRAFT
Finding of No Significant Impact
Little Bay Stewardship Project
Dworshak Dam and Reservoir
Ahsahka, Idaho

The U.S. Army Corps of Engineers (Corps) is proposing a stewardship project on selected Corps-administered forest lands encompassing a portion of Dworshak Dam and Reservoir (Dworshak), Clearwater County, Idaho. The proposed project area is located along the Dworshak Reservoir north of Canyon Creek, between river miles 7 and 11. The project area comprises approximately 1,300 acres with actual effects to approximately 800 acres.

The goal of this project is to provide stewardship through the application of ecosystem principles to protect, preserve, and conserve natural resources. This project is designed to meet a primary objective/purpose of enhancing ecosystem integrity in dry and moist lower montane forests (forests in mountain areas) by re-establishing vegetative composition, form, and structure consistent with natural ecosystem processes.

The selected alternative (Forest Thinning and Nonlethal Prescribed Fire) would utilize selective tree removal of shade tolerant species and overstocked early seral (early stages of successional vegetation development) species in conjunction with the use of controlled, low-intensity prescribed burns to emulate natural wildfire effects and bring about a future desired condition based on ecosystem principles. This action is necessary to restore these native habitats to more appropriate conditions given the historical fire regime. Foreseen benefits include enhanced wildlife habitat, reduced fuel loading, and the creation of seedbeds for the regeneration of diminishing seral tree species.

Trees would be sold and removed by means of a Government contract timber sale. One or several Government contracts could be awarded soon after National Environmental Policy Act (NEPA) compliance is complete and would likely conclude late in 2004. Helicopters and skidder/tractors would be used to complete logging. Existing roads would be used to transport logs to mills.

Harvest treatment would occur only in areas observed as having above expected canopy closure for those habitat types. To meet the objective of re-establishing the natural vegetative form and structure, these areas would be thinned to one crown width, leaving dominant and codominant trees. To meet the objective of re-establishing natural vegetative composition, the selection of individual trees to be removed would incorporate the observed need to perpetuate native old-growth ponderosa pine habitats and restore the early seral component within Douglas fir and mixed conifer stands. Thus, within Douglas fir and mixed conifer stands, harvest would promote the occurrence of native seral species, western larch (*Larix occidentalis*) and ponderosa

pine (*Pinus ponderosa*). The overall net change in canopy cover within treated areas would be approximately 50 percent.

Helicopter yarding is proposed to reduce the overall impact of the timber removal operation on the forest. Logging on steep slopes exceeding 35 percent would use helicopters to carry logs (yarding) to landings where they would be prepared for truck transport to mills. Approximately 528 acres would be logged by helicopter.

Prescribed burning would be instituted where appropriate to emulate the natural effects of wildfire. Firebreaks would be constructed to prevent the spread of fire to outlying areas. These breaks would be re-seeded to native grasses following restoration activities. Logging slash (limbs, branches, *etc*.) would be lopped and scattered to facilitate prescribed burning activities within stands of predominately Douglas fir and/or ponderosa pine. Within stands of predominately grand fir and/or western red cedar, slash would be dozer piled and burned to reduce fuel loads. All burning would be executed in accordance with developed burn plans.

Once initial prescribed burns are executed and fuel loads are reduced, the stewardship project area would be monitored to evaluate the need for subsequent prescribed burns. Fire history information suggests that the majority of the habitat types occurring within the stewardship project boundary received frequent underburns. The natural resource management goal, to conserve ecosystem integrity, obligates management to continuously evaluate the effects of fire suppression on native habitat types and to act where appropriate.

A riparian habitat conservation area (RHCA) would be maintained around all water sources to help maintain the integrity of aquatic ecosystems. The Inland Native Fish Strategy (INFISH) (U.S. Department of Agriculture 1995) standards would be used as a guide to protect the reservoir and tributaries feeding Dworshak Reservoir.

All snags would be left unless they present a hazard to logging activities. Leaving the dominant and codominant trees would also provide for snag replacement trees.

A no disturbance zone, with a radius of 150 feet, would be maintained around all raptor nests from March 1 to September 30. If tree removal is needed within this no disturbance zone, the removal would be conducted between October 1 and November 1. In addition, tree removal within the no disturbance zone would not exceed 10 percent of the existing canopy cover, and neither the nest tree(s), nor any other trees within 50 feet of the nest tree, may be removed. A Corps wildlife biologist would survey the sale area prior to harvest activity to determine if there are active raptor nests within the units.

Vegetative communities would be restored to more historically natural conditions by instituting active management to restore ecosystem health through emulating fire, which is beneficial to the ecosystem including all terrestrial plants and animals that have evolved to exist within those systems. The Interior Columbia Basin Ecosystem

Management Project's (ICBEMP) preferred option for land management throughout the Columbia basin ecosystem involves “aggressively restoring ecosystem health through actively managing resources; the results of management can resemble disturbance processes including insects, disease, and fire” (ICBEMP 1996). The restoration of the forest stands would reduce the fuel loads and thus the potential for large-scale wildfires; reduce tree stress, potential for catastrophic insect infestations, and disease events; enhance the vigor and growth of remaining trees; encourage browse production; and perpetuate the habitat type on the landscape (Steele and Geier-Hayes 1995, Kilgore and Curtis 1987). A wide variety of native plants and animals have evolved to exist in many of the habitats described previously. The evolution and occurrence of these species are closely tied to the ecosystem processes that have perpetuated the composition, form, and structure of these vegetative communities. Therefore, all long-term environmental consequences to the current vegetation are expected to be greatly beneficial.

To meet the primary objective of enhancing ecosystem integrity by re-establishing vegetative composition; form; and structure, consistent with natural ecosystem processes, several alternatives were evaluated. Early in the planning stage, it was evident that the use of fire was essential to meeting the primary objective. Re-establishing the native vegetative composition would require the use of fire. Redstem ceanothus (*Ceanothus sanguineus*), the most dominant native forage species, requires heat scarification for seed germination. Fire is also the most efficient and economical method for reducing fuel loading. Therefore, all alternatives considered included the use of fire with the exception of the “No Action” alternative. Allowing wildfire (alternative 2) was eliminated due to the extreme risk associated with the loss of merchantable timber on adjacent lands. Corps land around Dworshak Reservoir is primarily surrounded by timbered land managed for forest products (appendix A, plate 3). Conducting prescribed burns without forest thinning (alternative 3) was also considered but eliminated. Many of the forest stands within the project area contain high densities of small diameter trees. It was anticipated that these trees would likely act as ladder fuel and elevate a prescribed underburn into a catastrophic crown fire. A stand replacing fire would likely spread to adjacent lands and also not meet the primary objective.

Biologists from both the U.S. Forest Service (USFS) Clearwater National Forest and the Idaho Department of Fish and Game were consulted during preparation of a biological assessment (BA). The Corps forwarded the BA to the U.S. Fish and Wildlife Service (USFWS) office in Boise on May 17, 2001. In their letter of June 15, 2001, the USFWS concurred the project may affect, but is not likely to adversely affect bull trout. In a letter dated January 31, 2002, the USFWS also concurred the project may affect, but is not likely to adversely affect, bald eagles.

The Corps prepared a cultural resources investigation report for the proposed project. The report was forwarded to the State Historic Preservation Office (SHPO) on March 7, 2001. In their letter of June 7, 2001, SHPO concurred that work within units 1, 4, 8, 10, and 11 would have no effect on historic properties. The SHPO also requested

additional information on the boundaries of an existing cultural resource site. An addendum to the report was subsequently prepared in coordination with the Nez Perce Tribe and forwarded to SHPO. In their letter of January 10, 2002, SHPO responded that the project can proceed as planned, with the stipulation that if trees cannot be felled toward the center of sale units 1, 2, 6, 7, and 9, the Corps needs to monitor during felling activities.

I have taken into consideration all of the environmental analyses and determinations; cumulative effects; public, agency, and tribal comments; and all applicable laws and regulations. I have determined the overall projected effects of this project are beneficial and would not result in significant impacts to the quality of the human environment. Therefore, an environmental impact statement is not required for this project.

DATE: _____ SIGNATURE: _____

Richard P. Wagenaar
Lieutenant Colonel, Corps of Engineers
District Engineer

ENVIRONMENTAL ASSESSMENT

LITTLE BAY STEWARDSHIP PROJECT

U. S. Army Corps of Engineers
Dworshak Dam and Reservoir
Ahsahka, Idaho

April 2002

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ABSTRACT

The U.S. Army Corps of Engineers (Corps) is proposing a stewardship project on selected Corps-administered forest lands encompassing a portion of Dworshak Dam and Reservoir (Dworshak), Clearwater County, Idaho. The proposed project area is located along the Dworshak Reservoir north of Canyon Creek between river miles 7 and 11. The project area comprises approximately 1,300 acres.

The proposed action could result in the selective harvest of up to 8 million board feet on the Little Bay Stewardship Project. This removal and the subsequent prescribed burn would change the amount, condition, spatial arrangement, structure, and linkages of vegetation patches. The purpose of this project is to modify the existing vegetation with tree removal and prescribed burning for the long-term benefit of the vegetative communities. All proposed treatments are designed to restore the current vegetative communities to more historically natural conditions. All perceived long-term environmental consequences to the health of the forest ecosystem are beneficial.

Dworshak was authorized for construction in Public Law (PL) 87-874, approved October 23, 1962. Authority to manage Dworshak natural resources and to conduct stewardship projects is supported by the Dworshak Final Environmental Impact Statement (Corps 1975a) (incorporated by reference); the Dworshak Public Use Plan (Corps 1970); the Forest Cover Act (PL 86-717); the Flood Control Act of 1962, as amended (PL 87-874); and the Fish and Wildlife Coordination Act (PL 85-624). Agency guidance for implementing land management activities includes Engineer Regulation (ER) 1130-2-540, dated November 15, 1996, *Management of Natural Resources and Outdoor Recreation at Civil Works Water Resource Projects*. Stewardship projects are identified in ER 1130-2-540 as appropriate natural resource management activities.

ENVIRONMENTAL ASSESSMENT
LITTLE BAY STEWARDSHIP PROJECT

April 2002

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1.0 INTRODUCTION

1.1 PURPOSE AND NEED

The goal of this project is to provide stewardship through the application of ecosystem principles to protect, preserve, and conserve natural resources. The primary objective/purpose of the project is to enhance ecosystem integrity in dry and moist lower montane forests (forests in mountain areas) by re-establishing vegetative composition, form, and structure consistent with natural ecosystem processes.

This environmental assessment (EA) identifies and evaluates the anticipated environmental effects of alternatives for accomplishing the project objective/purpose. Measures included in the preferred alternative would be implemented on selected U.S. Army Corps of Engineers (Corps) administered forest lands at Dworshak Dam and Reservoir (Dworshak), Clearwater County, Idaho (see appendix A, plate 1). Such measures would be implemented as interim management while the Dworshak Public Use Plan (Master Plan) (Corps 1970) undergoes updating. A supplement to the corresponding Dworshak Final Environmental Impact Statement (EIS) (Corps 1975a) would evaluate the potential impacts of the proposals presented in the master plan update. Completion of the update and signing of a record of decision for the supplement are not expected until the year 2004 or later. The interim measures contained in the selected alternative would be performed to protect forest health and improve habitat quality.

The need to protect, preserve, and conserve natural resources prior to the completion of the Master Plan update is in response to recent findings of the Interior Columbia Basin Ecosystem Management Project (ICBEMP) and a consensus among regional agencies regarding these findings. The ICBEMP has documented a substantial absence of late seral, lower montane, ponderosa pine (*Pinus ponderosa*) forests within the Clearwater Basin in comparison to historical conditions (ICBEMP 1997). This condition has been attributed to unrestricted logging and fire suppression activities. As a result of the present condition, ICBEMP has also documented a scarcity in associated wildlife (ICBEMP 1997). Many species requiring late seral ponderosa pine forests are scarce or absent within the basin (*e.g.*, white-headed woodpeckers, flammulated owls and pygmy nut-hatches). Regional wildlife biologists have expressed the need to address the situation as soon as possible [personal communication, Dan Davis, U.S. Forest Service (USFS) Clearwater National Forest; Rita Dixon, Idaho Department of Fish and Game (IDFG) Region 2; and Craig Johnson, U.S. Department of Interior, Bureau of Land Management (BLM), Cottonwood, Idaho]. All Federal agencies are required to proactively manage such that sensitive species do not become listed as threatened or endangered under the Endangered Species Act (ESA). As a result, the Corps has determined that the current need substantiates immediate action, prior to completion of the Master Plan and supplemental EIS updates.

1.2 AUTHORITY

Dworshak was authorized for construction in Public Law (PL) 87-874, approved October 23, 1962. Authority to manage natural resources on Dworshak and to conduct stewardship projects is supported by the Dworshak Final EIS (Corps 1975a) (incorporated by reference), the Dworshak Public Use Plan (Corps 1970), the Forest Cover Act (PL 86-717), the Flood Control Act of 1962 as amended (PL 87-874) and the Fish and Wildlife Coordination Act (FWCA) (PL 85-624). Agency guidance for implementing land management activities on Dworshak lands, includes Engineer Regulation 1130-2-540, dated November 15, 1996, *Management of Natural Resources and Outdoor Recreation at Civil Works Water Resource Projects*. This describes the natural resource management mission as “to manage and conserve those natural resources, consistent with ecosystem management principles, while providing quality public outdoor recreation experiences to serve the needs of present and future generations." It further identifies stewardship projects as appropriate natural resource management activities.

1.3 PROJECT LOCATION

The proposed project is located north of Canyon Creek between river miles 7 and 11 (see appendix A, plate 1). The overall size of the project area comprises about 1,300 acres of Corps-administered lands adjacent to Dworshak Reservoir in T37N, R2E, Sec. 6, 7, & 8, T38N, R1E, Sec. 25 & 26 and T38N, R2E, Sec 31, Dent and Ahsahka quadrangles. The total area to be affected by the restoration activities is approximately 800 acres (see appendix A, plate 2).

1.4 MANAGEMENT DIRECTION

There are 18 provisional resource use objectives established for Dworshak (Corps, 1996a). Several of the objectives focus on the forest resources of Dworshak. Objective number 11 explicitly states the need to "maintain a healthy forest ecosystem." The rationale to support this objective comes from the Forest Cover Act (Public Law 86-717) that provides for the protection of forest cover for reservoir areas that fall under the jurisdiction of the Chief of Engineers. It states that reservoir areas will be developed and maintained to assure future resources of available timber and to increase the value of such areas for conservation, recreation, wildlife, and other beneficial uses. To the extent practicable, such development and management would be accomplished in a manner compatible with other project uses. In order to carry out this national policy, the Corps will provide for the sustainable development of forest resources, as well as the establishment and maintenance of other conservation measures on reservoir areas so as to yield the maximum benefit and otherwise improve such areas.

1.5 BACKGROUND

There are 10 habitat types that occur within the proposed project area. The historic fire regime, which characterizes the function of fire as an ecosystem process, varied

between each of these habitat types. Therefore, the affect of past fire suppression to the vegetative composition, form, and structure varied between different habitat types. The fire interval was probably 5-20 years with cool underburns for the ponderosa pine series and 7-25 years for the Douglas fir series (Arno 1980). In northern Idaho, habitat types within the grand fir series have registered repeated underburns that have maintained open, seral species forests prior to 1900 (Arno 1980). The elimination of the historical pattern of frequent low-intensity fires in both ponderosa pine and pine-mixed conifer forests has resulted in major ecological disruptions (Arno 1996). Without frequent fire, timber stands become overstocked and stressed as individual trees compete for limited moisture and nutrients. As a result, stands are more susceptible to beetle infestation, disease, and stand-replacing wildfires (ICBEMP 1997, Greene and Evenden 1996). Overstocking of trees, signs of beetle infestation, and disease are all present within the proposed restoration area. Fire suppression also changes the species composition of certain forest stands. On drier Douglas fir habitat types, many stands experienced frequent, moderately hot burns and thus perpetuated the occurrence of ponderosa pine on the site as the climax species (ICBEMP 1997, Cooper et al. 1991). Fire acted to reduce encroachment of species less fire tolerant and more shade tolerant.

The ICBEMP determined that the North Fork of the Clearwater River subbasin is below the historical range of variability for the lower montane late seral forest and lower montane early seral forest, as a result of logging practices and fire suppression. Furthermore, they state: “Interior ponderosa pine has decreased across its range with significant decrease in old single-story structure. The primary transitions were to interior Douglas fir and grand fir/white fir” (ICBEMP 1997). Based on the biophysical characteristics of the site (*i.e.*, soils, elevation, slope, temperature, moisture, and aspect) and the historical fire regime, the assumed dominant overstory vegetative species within the majority of the project area should be ponderosa pine. Currently, Douglas fir is heavily encroaching on these pine habitats.

Many native species dependent on ponderosa pine forests are now scarce or absent (*i.e.*, white-headed woodpeckers and flammulated owls) within the region. Rocky Mountain Elk, a local species of concern, along with many other wildlife species, require early seral lower montane forests. Within Douglas fir habitat types, wildfires created a mosaic of burned, underburned, and unburned areas up to 200 acres in size, bound by topographic breaks or changes in moisture regimes (*i.e.*, ridges, riparian areas, seeps, or hillside benches). These breaklands, with frequent fire, provide significant winter habitat for ungulates. The historical fire regime ensured that particular species of plants commonly occurred (notably redstem ceanothus, serviceberry, scouler willow, and mountain maple). These shrubs typically exist as single bushes or clumps amidst grass and forb dominated openings on south-facing slopes and are intermixed with forest patches of late mid-seral, mature, and old, uneven age stands. Shrub communities provide important forage for a variety of wildlife, while the forested patches offer thermal and security cover.

In conjunction with biologists from the USFS Clearwater National Forest and in concert with the ICBEMP recommendations, the Corps has concluded that these stand conditions are unnatural, unhealthy, and occurring as a result of fire suppression. The Corps has contracted with Clearwater-Potlatch Timber Protection Association (CPTPA) to suppress fires on Corps administered lands at Dworshak since 1965. Preceding 1965, CPTPA actively suppressed fires on this landscape since 1905 as part of their protection area. Fire is a vital process for ecosystem health within the habitats described above. Furthermore, a wide variety of native plants and animals have evolved to exist in many of the habitats described. The evolution and occurrence of these species are closely tied to the ecosystem processes that have perpetuated the form and structure of the vegetative communities.

2.0 PROPOSED ACTION AND ALTERNATIVES

The Corps identified and evaluated a range of four alternative measures on the basis of their ability to meet the primary objective/purpose of enhancing ecosystem integrity in dry and moist lower montane forests (forests in mountain areas) by re-establishing vegetative composition, form, and structure consistent with natural ecosystem processes. The four alternatives identified are as follows:

1. No Action
2. Allow Wildfire
3. Nonlethal Prescribed Fire
4. Forest Thinning and Nonlethal Prescribed Fire

Early in the planning stage, it was evident that the use of fire was essential to meeting the primary objective/purpose. Re-establishing the native vegetative composition would require the use of fire. Redstem ceanothus, the most dominant native forage species requires heat scarification for seed germination. Fire is also the most efficient and economical method for reducing fuel loading. Based on this, all alternatives considered included the use of fire with the exception of the “No Action” alternative.

Subsequent evaluation of the alternatives resulted in the elimination of alternatives 2 and 3 from continued detailed evaluation. Alternative 2 was eliminated due to the extreme risk associated with the potential loss of merchantable timber on adjacent non-Corps lands; and the potential for the high density of small diameter trees in the project area to act as ladder fuel and elevate a prescribed underburn into a catastrophic crown fire. Adjacent non-Corps lands are managed primarily for forest products. Alternative 3 was eliminated from continued detailed evaluation because of the potential for the high density of small diameter trees in the project area to act as ladder fuel and elevate a prescribed underburn into a catastrophic crown fire. Such a stand replacing fire would likely spread to adjacent lands and also not meet the primary project objective. Additional detailed discussion of alternatives 2 and 3 are contained in sections 2.2 and 2.3, respectively.

Based on the elimination of alternatives 2 and 3 from continued detailed evaluation, alternatives 1 and 4 were carried forward for further evaluation. Subsequent detailed evaluation resulted in the identification of alternative 4 as the preferred alternative.

2.1 ALTERNATIVE 1: “NO ACTION”

The National Environmental Policy Act (NEPA) requires that each EA include a "No Action" alternative against which the effects of all "action" alternatives are measured.

The “No Action” alternative would allow the current stand conditions to persist and fire suppression efforts would continue. Management would continue to monitor stand conditions, but no proactive management would occur. Ongoing activities such as firewood cutting, hunting, berry picking, and recreational activities would continue.

Thinning and implementation of prescribed burns would not occur. Fuel loading would continue to increase and any wildfires occurring in the project area would subsequently be more intense and harder to control.

The primary objective of this project would not be met, and thus directives to proactively manage resources with ecosystem management principles would not be addressed.

2.2 ALTERNATIVE 2: "ALLOW WILDFIRE"

Under alternative 2, the Corps would construct firebreaks around the proposed area and would not suppress wildfires but allow them to burn naturally. Firebreaks would be constructed with dozers, where possible, and by hand in remaining areas. Fire suppression activities currently contracted through the CPTPA would cease for the project area.

Allowing natural wildfires to burn has the potential to achieve the desired goal of enhancing ecosystem integrity by re-establishing vegetative composition, form, and structure consistent with natural ecosystem processes. Several assumptions must be accepted to realize this potential. The occurrences of wildfire starts are random events. Due to the current conditions of the forest stands, the timing of a wildfire or a series of wildfires are crucial to meeting the objective. The amount of early seral species on the site is well below that expected under natural conditions. Furthermore, the current recruitment of these species is insufficient to restore an adequate population of these species on the site. The longer the stands remain in this condition, the more difficult it would be to reach a desired stocking of early seral species. Current seed trees are under stress due to overstocking; their longevity and productivity are threatened. Therefore, in order to meet objectives under this alternative, the Corps assumed that wildfires would start within the proposed area and within a reasonable timeframe.

The historic fire regime within most of these habitat types consisted of frequent (7-25 years) underburns. Stand replacing wildfires were essentially nonexistent in these habitat types. Stand replacing fires would eliminate all tree species on the site, damage the surface soil layer, and would be inconsistent with natural ecosystem processes. Therefore, to achieve the objective, natural wildfires must occur as underburns. Due to the composition of many of the current stands, it is likely that stand replacing fires would occur. Existing small diameter trees would likely act as ladder fuel to elevate a ground fire start to a catastrophic crown fire.

Firebreaks would need to be adequate to eliminate the potential of a wildfire spreading across Corps boundaries. Adjacent lands, owned primarily by private corporations and the Idaho Department of Lands, are timbered and are managed for economic benefits (see appendix A, plate 3). Risk associated with this alternative is presumed high. The size of the necessary firebreaks may reach a point of no return in that the majority of the stands may be eliminated to create appropriate firebreaks. The adjacent land is upslope, markedly elevating the potential for a crown fire.

Based on the improbability of this alternative meeting the objectives and associated risks to overall forest health, this alternative was eliminated from further evaluation.

2.3 ALTERNATIVE 3: "NONLETHAL PRESCRIBED FIRE"

Under alternative 3, the Corps would conduct a prescribed burn without pre-treating the area with harvest activities. Units to be burned would be delineated based on a detailed survey of the area. Firebreaks would be constructed with dozers, where possible, and by hand in remaining areas, to protect adjacent lands and areas within the project not scheduled for burning. Fire fighting crews and equipment would be on hand to act if the fire progressed beyond a desired condition. This alternative has the potential to achieve the desired goal of enhancing ecosystem integrity by re-establishing vegetative composition, form, and structure consistent with natural ecosystem processes. Unlike alternative 2, the use of fire as a management tool would not have to occur as a random event. Prescribed fires would be scheduled to occur within an adequate timeframe and minimize the potential for stand–replacing fires.

As with alternative 2, the potential for a stand-replacing fire would still be high. A stand-replacing fire would be likely with no treatment of current ladder fuels or ground fuels. As previously discussed, a stand-replacing fire would not bring about the desired objective.

The potential negative effects of constructing adequate firebreaks, as described above, would only be slightly reduced in comparison to alternative 2. With a controlled fire, the potential to affect adjacent lands would be lessened and may not require firebreaks as anticipated above. However, with current stand conditions, the juxtaposition of adjacent landowners and the consequences of losing the prescribed fire to adjacent lands would keep the risk of this alternative only slightly lower than that of alternative 2. The risks would still be very great and firebreaks would need to be extensive.

Based on the improbability of this alternative meeting the objectives and associated risks to forest health, this alternative was eliminated from further evaluation.

2.4 ALTERNATIVE 4: "FOREST THINNING AND NONLETHAL PRESCRIBED FIRE" (PROPOSED ACTION)

Alternative 4 includes removal of selected individual and groups of coniferous trees and prescribed burning (see appendix A, plate 1). The project would begin following completion of NEPA documentation and likely finish by late 2004. Ecological restoration concepts and ecosystem management principles would be derived from the most recent scientific knowledge including studies conducted in conjunction with the ICBEMP. The Idaho Forest Practices Act, the USFS Best Management Practices, and Inland Native Fish Strategy (INFISH) [U.S. Department of Agriculture (USDA) 1995] would guide the proposed action. These include management practices for wildlife, water quality and fisheries, visual resource and recreation management, snag management, protection of cultural and historic resources, and protection of threatened and endangered species.

2.4.1 Vegetation

Alternative 4 would accomplish the primary objective by emulating the effects of wildfire, a natural disturbance within ecosystems, through harvest and prescribed burning activities. Alternative 4 addresses a variety of forest conditions including dense mid-seral Douglas fir and mixed conifer stands, old-growth ponderosa pine stands, brush fields, and open grassy meadows.

The proposed action includes thinning the dense mid-seral Douglas fir and mixed conifer stands to within one crown width. Management prescriptions include leaving dominant and codominant conifers with preference for ponderosa pine, western larch, and western white pine. To enhance the existence of the preferred tree species, 100- to 150-foot openings would be created around these trees. Fire would be re-introduced to the landscape through low intensity (nonlethal) underburns.

The proposed action within old-growth ponderosa pine stands would include thinning a portion of the smaller pines and the encroaching Douglas fir. The prescription would incorporate thinning to one crown width followed by low intensity (nonlethal) underburns.

The condition of brush fields would be assessed based on forage potential. If general conditions indicate that plants have outgrown their value as ungulate forage, then those would receive prescribed burns. In brush field areas where prescribed burns are indicated, additional cultural resources and threatened and endangered species coordination would be conducted.

Snag management would be addressed within all forest stands where applicable. All hollow standing trees, dead standing trees, and deadfall would be retained for habitat benefits, except trees that could potentially spread disease and/or insects. Safety hazard trees would also be felled.

2.4.2 Harvest Methodology

Harvest treatment would occur only in areas observed as having above expected canopy closure for those habitat types. To meet the objective of re-establishing the natural vegetative form and structure, these areas would be thinned to one crown width, leaving dominant and codominant trees. To meet the objective of re-establishing natural vegetative composition, the selection of individual trees to be removed would incorporate the observed need to perpetuate native old-growth ponderosa pine habitats and restore the early seral component within Douglas fir and mixed conifer stands. Thus, within Douglas fir and mixed conifer stands, harvest would promote the occurrence of native seral species, western larch (*Larix occidentalis*) and ponderosa pine (*Pinus ponderosa*). The overall net reduction in canopy cover within treated areas would be approximately 50 percent. Forest health would be improved through the harvest of disease- and/or beetle-infested trees that show evidence of the potential to further the spread of these conditions.

2.4.2.1 Timber Removal

Logging on steep slopes exceeding 35 percent would use helicopters to carry logs (yarding) to landings where they would be prepared for truck transport to mills. Approximately 528 acres would be logged by helicopter (see appendix A, plate 2). Helicopter yarding is proposed to reduce the overall impact of the timber removal operation on the forest. Helicopter logging greatly reduces ground disturbance on steep slopes. Helicopter logging would not be conducted between February 1 and August 15, when nesting bald eagles are expected to be in the geographic area (see section 3.5.3).

Conventional logging (*i.e*., tractors and skidders) would be used on gentler slopes up to 35 percent. Approximately 268 acres would be conventionally logged (see appendix A, plate 2).

2.4.2.2 Slash and Prescribed Burning

Prescribed burning would be instituted where appropriate to emulate the natural effects of wildfire. Early native seral conifer species, such as western larch and ponderosa pine, require a bare mineral soil to propagate. Prescribed burning would provide a condition suitable to native conifer species propagation. Firebreaks would be constructed to prevent the spread of fire to outlying areas. Firebreaks would be constructed using tractors within conventional logging units and hand-lines within helicopter units. Topography would also be used as firebreaks within helicopter units. These breaks would be re-seeded to native grasses following restoration activities. To facilitate prescribed burning activities within stands of predominately Douglas fir and/or ponderosa pine, logging slash (limbs, branches, *etc*.) would be lopped and scattered. Maximum slash depth would not be expected to exceed 18 inches from the harvest operation. Scattering of slash would be done to create a uniform fuel bed for a successful prescribed burn and to reduce fire hazards for crown fires. Within stands of predominately grand fir and/or western red cedar, slash would be dozer piled and burned to reduce fuel loads. Both grand fir and western red cedar are much less fire tolerant and the above prescription is designed to protect the trees left. Slash may also be dozer piled and burned on flat to gentle slopes where a broadcast burning would be difficult to achieve. Slash generated from logging activities is suspected to be higher than natural conditions, due to the lack of repeated underburns over the past 75-100 years. Slash would also be pushed away from trees in all areas to further protect trees. Scarification produced by dozer piling would prepare a seedbed for future browse regeneration. All burning would be executed in accordance with developed burn plans.

Once initial prescribed burns are executed and fuel loads are reduced, the stewardship project area would be monitored to evaluate the need for subsequent prescribed burns. Fire history information suggests that the majority of the habitat types occurring within the stewardship project boundary received frequent underburns. The natural resource management goal to conserve ecosystem integrity obligates management to continuously evaluate the effects of fire suppression on native habitat types and to act where appropriate. Ever-changing political environments, Federal policies, funding

availability, and future management vision often preclude management from executing fire management as needed. However, management should regularly prioritize needs regarding fire management and to plan future fire management actions as appropriate to conserve ecosystem integrity. The current work effort to update the Master Plan will address these needs and adequately plan fire management activities.

2.4.2.3 Helicopter Landings

Log landing sites may include existing landings or sites developed within previously established roadways on Corps lands (see appendix A, plate 2). The BLM would acquire all easements on non-Federal property for road and landing use in execution of the timber sale. If additional environmental compliance were required to assess impacts of the activity off Corps property, it would be addressed by BLM in their easements. Upon completion of the timber sale, all debris and slash at the landings would be machine piled and burned, and the landing site would be seeded with grass and fertilized.

2.4.2.4 Roads

Work associated with the proposed action would require the use of existing primitive, gravel, and paved surface roads for landing areas and log transport. A 300-foot section of road previously constructed off Corps property may be relocated to within Corps ownership (plate 2). Roads currently in use would receive necessary maintenance during the logging operation, have erosion bars installed, be seeded to grass upon completion of the sale, and be permanently closed, subsequent to the proposed activities.

2.4.3 Riparian Habitat Conservation Areas

Riparian habitat conservation areas (RHCA) would be maintained around all water sources to help maintain the integrity of aquatic ecosystems by the following: (1) influencing the delivery of coarse sediment, organic matter, and woody debris to streams; (2) providing root strength for channel stability; (3) shading the stream; and (4) protecting water quality. The RHCAs are portions of watersheds where riparian-dependant resources receive primary emphasis, and management activities are subject to specific standards and guidelines. The INFISH (USDA 1995) standards would be used as a guide to protect the reservoir and tributaries feeding the Dworshak Reservoir. These guidelines include standards for timber management, road management, grazing management, recreation management, minerals management, and fire/fuels management within the RHCAs. In short, no timber harvest would be conducted within the RHCAs on this project and the use and construction of roads would minimize sediment delivery to streams. All tributaries within the project area would receive RHCAs in full compliance with INFISH (USDA 1995) guidelines. All intermittent streams would be protected by a 50-foot “no-harvest” buffer and all permanently flowing, non-fish-bearing streams would be protected by a 150-foot “no-harvest” buffer. No fish bearing streams occur within the project area. It should be noted that a great number of

intermittent streams occur within the project, yet only one permanently flowing non-fish-bearing stream occurs in the project area. Also, current mid-summer conditions of this stream would cast doubt on its designation as permanent (Corps 2000). A 50-foot “no-harvest” buffer originating at the high water mark would also be established along the reservoir. This buffer extends 100 feet where it occurs within the home range of an existing bald eagle nest. Approximately 50 percent of the project lies within such a home range. The INFISH (USDA 1995) guidelines for lakes, ponds, and reservoirs include a 150-foot “no-harvest” buffer, which would not be met (for further discussion see appendix B).

2.4.4 Nesting Buffer Zones

A no-disturbance zone, with a radius of 150 feet, would be maintained around all raptor nests from March 1 to September 30. If tree removal is needed within this no-disturbance zone, the removal would be conducted between October 1 and November 1. In addition, tree removal within the no-disturbance zone would not exceed 10 percent of the existing canopy cover, and neither the nest tree(s) nor any other trees within 50 feet of the nest tree would be removed. A Corps wildlife biologist would survey the area prior to harvest activity to determine if there are active raptor nests within the units.

If the Corps confirms an active or historically used goshawk nest, it would be protected by regionally accepted guidelines. Current guidelines for goshawk nest protection are to "protect every known active and historically used goshawk nest site from disturbance." A minimum of " . . . 30 acres of the most suitable nesting habitat surrounding all active and historical nest tree(s) would be deferred from harvest" (Reynolds et al. 1992). These guidelines were established based on studies conducted in the southeastern United States. To establish appropriate guidelines for land managers within the Clearwater region, biologists (Dan Davis, USFS; Rita Dixon, IDFG; and Pat Heglund, Potlatch Corporation) have evaluated the importance of nest protection within the northwest. Their recommendations are as follows: Create a “no-harvest” buffer equal to three nest-tree lengths, create a seasonal buffer where no harvest will occur between March 1 and September 30, and retain 21-inch-diameter trees at breast height (dbh) or greater and a minimum canopy closure of 75 percent within 0.5 miles of the nest. These guidelines would be considered when protecting any observed goshawk nests.

3.0 AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

The affected environment, as described in the following paragraphs, generally includes most of Dworshak Reservoir's natural resources. In most cases, additional emphasis is site specific.

3.1 TOPOGRAPHY AND SOILS

Affected Environment

Dworshak is located within the Clearwater River watershed, a subbasin of the lower Snake River watershed. There are two major tributaries on the north bank: Elk Creek and Little North Fork. Dworshak Reservoir is formed in the steep-sided North Fork and Little North Fork Valleys. Rising abruptly from the reservoir's full pool elevation of 1,600 feet mean sea level (msl), the neighboring mountains and ridges reach elevations of over 5,000 feet msl. Steep slopes dominate the shoreline and Corps lands. Relatively few flat or low-slope areas exist. The major exceptions are the Three Meadows, Elk Creek Meadows, Little Bay, Freeman Creek, and Magnus Bay areas, where benches occur between the reservoir and the mountainous terrain (Corps 1996b).

The soils are composed primarily of underlying rock types that include decomposed granitic and sedimentary materials. In general, the soil layer over the basin is considered to be thin and underlain by impervious parent rock that contributes to the basin's high runoff characteristics (Corps 1996a). The most common types of surface soil are sandy loam, loam, and silt loam, with some clay content indicated in each. Because of the natural forest conditions, layers of organic material have accumulated on the soil surface. This soil is mostly acid, ranging from a parts hydronium (pH) of 5.2 to 6.5. Soil below the surface is low in organic matter, but does support moderate to heavy stands of coniferous timber and understory vegetation on the Corps lands (Corps 1996a). Refer to table 1 for soils and related habitat information.

The following brief descriptions of the main soil types for the Little Bay area was taken from the Soil Conservation Service soil survey conducted at Dworshak in 1986 (Soil Conservation Service 1986).

Johnson-Swayne Complex (JN1). The Johnson-Swayne series consists of deep, well-drained, and slow to moderately permeable soils. These are generally found on canyon sides and benches. This series is generally associated with Douglas fir/ninebark habitat type. The JN1 soils occupy slopes ranging from 20 to 40 percent.

Johnson-Spokane Loams (JN2). The Johnson and Spokane series consist of moderately deep, well-drained, and moderately permeable soils. The Johnson soils dominate north-facing canyon sides and the Spokane soils dominate the south-facing canyon sides. Both soil types occupy slopes ranging from 35 to 75 percent.

Johnson soils are associated with Douglas fir/mallow ninebark habitat and Spokane soils with Douglas fir/common snowberry.

Johnson-Swayne Complex (JN3). This series consists of deep, well-drained soils with slow to moderate permeability. Generally, they are positioned on north-facing slopes ranging from 40 to 75 percent. These soils are associated with Douglas fir/mallow ninebark habitat.

Johnson Loam (JN4). The Johnson Loam series are very deep, well-drained, moderately permeable soils. These soils occur on north- and east-facing canyon sides with slopes of 45 to 65 percent. They are generally associated with Douglas fir/mallow ninebark habitats.

Klickson Silt Loam (KN1). The Klickson series consists of very deep, well-drained soils with a moderate permeability. These soils are usually positioned on north- and east-facing canyon sides ranging from 35 to 90 percent. Associated habitat is Douglas fir/mallow ninebark.

Longpen Silt Loam (LP2). The Longpen series consists of very deep, moderately well-drained soils with slow permeability. These soils are generally found on benches and south-facing canyon sides with 20 to 40 percent slopes. This soil is associated with grand fir/mallow ninebark habitat.

Kooskia Variant Silt Loam (KO3). The Kooskia series consists of deep, moderately well-drained soils with slow permeability. These soils are usually positioned on shoulders, benches, and hillsides with 12 to 25 percent slopes. Ponderosa pine/mallow ninebark is the associated habitat type.

Agatha Gravelly Silt Loam (AG2). The Agatha series consists of deep, well-drained, moderate permeable soils. These soils are usually positioned on north-facing canyon sides with 15 to 40 percent slopes. Associated habitat is grand fir/mallow ninebark.

Gwin-Kettenbach Complex (RG2). The Gwin series are shallow to moderately deep, well-drained soils with moderate permeability. Both soil types are generally located on north-facing canyon sides with 45 to 75 percent slopes. These soils are generally associated with bluebunch wheatgrass/Idaho fescue.

All soil types within the stewardship project boundary have low to medium erodibility (k factor < 0.43).

Table 1. Little Bay Soil Data and Habitat Types: Associated Information and Potential Vegetation

Soil Name	Habitat Type	K Factor[1] Potential Erodibility	Wildlife Habitat Potential	Drainage
Johnson Swayne	PSME[2]/PHMA[3]	k.32 Medium k.32 Medium	Good Good	Well Moderately Well
Johnson	PSME/PHMA	k.32 Medium	Good	Well
Spokane	PSME/SYAL[4]	k.32 Medium	Fair	Well
Klickson	PSME/PHMA	k.37 Medium	Good	Well
Klickson	PSME/PHMA	k.37 Medium	Good	Well
Longpen	ABGR[5]/PHMA	k.43 Medium	Good	Well
Kooskia Variant	PIPO[6]/PHMA	k.37 Medium	Good	Well
Kooskia Variant	PIPO/PHMA	k.37 Medium	Good	Well
Agatha	ABGR/PHMA	k.15 Low	Good	Well
Gwin	AGSP[7]/ADPE[8]	k.20 Low	No data	Well
Kettenbach	AGSP/FEID[9]	k.20 Low	No data	Well
Grangemont Variant	THPL[10]/CLUN[11]	k.37 Medium	Good	Moderately Well
Riswold	THPL/ADPE	k.32 Medium	Good	Well
Elkridge	ABGR/CLUN	k.32 Medium	Good	Well
Riswold	THPL/ADPE	k.32 Medium	Good	Well
Elkridge	ABGR/CLUN	k.32 Medium	Good	Well
Riswold	THPL/ADPE	k.32 Medium	Good	Well

[1] 0 - 0.22 = low hazard; 0.22 - 0.45 = medium hazard; 0.45+ = high hazard
[2] Douglas fir
[3] mallow ninebark
[4] snowberry
[5] grand fir
[6] ponderosa pine
[7] bluebunch wheatgrass
[8] maindenhair fern
[9] Idaho fescue
[10] western red cedar
[11] queencup beadlily

Table 1. Little Bay Soil Data and Habitat Types: Associated Information and Potential Vegetation (Continued)

Soil Name	Habitat Type	K Factor Potential Erodibility	Wildlife Habitat Potential	Drainage
Ford Creek	PIPO/FEID	k.32 Medium	Good	Well
Yakus	PIPO/AGSP	k.20 Low	Poor	Well
Johnson Swayne	PSME/PHMA	k.32 Medium k.32 Medium	Good Good	Well Moderately Well
Jacket	PSME/PHMA	k.37 Medium	No data	Well
Reggear	ABGR/CLUN	k.32 Medium	Good	Moderately Well

Source: Soil Conservation Service 1986.

Environmental Consequences

Alternative 4 (Proposed Action)

Impacts to geology and soils associated with this proposed action include the potential for erosion and sedimentation caused by ground-disturbing activities, such as the development and use of log landing sites and the operation of yarding and skidding equipment. There are 16 different soil types and/or soil complexes occurring on the project area. Based on soil survey data, each of these 16 soil types exhibits low to moderate potential soil erodibility. Each are also considered well-drained to moderately well-drained soils.

The haul roads, skid trails, and landings would cause some scarring of the substrate and increase the effects of erosion on the hillsides to a limited extent. A heavy layer of duff, decaying leaves, branches, needles, *etc.*, would afford some initial protection of the substrate. Use of helicopters on the steeper slopes will greatly reduce ground disturbance. On slopes of less than 35 percent, there will be ground disturbance and scarification.

Typical types of best management practices would depend on site-specific conditions, but would generally include diversion of surface runoff around the sites, berms to prevent runoff to local creeks, erosion bars, and sediment traps.

New road construction would only involve a 300-foot section of Corps roadway. The purpose is to relocate an existing road that travels off Corps property. All project landings and roads would be seeded to grass upon completion of the sale. There would be a 50-foot-wide no-disturbance buffer adjacent to all intermittent streams, a 150-foot buffer adjacent to all perennial streams, a 50-foot no-harvest buffer along the reservoir shoreline, and a 100-foot no-harvest buffer along areas of the reservoir shoreline

occurring within the home range of an existing bald eagle next (refer to section 2.4.3 for related information).

Based on soils data and the pre-established preventative measures, the potential for erosion and sedimentation is expected to be minimal.

Alternative 1 (No Action)

This alternative would have no direct effect on soil resources. However, fuel loads would continue to increase. Higher fuel loads increase the potential for a stand replacing wildfire, which could potentially have a substantial negative effect on soils. Standard recreational activities would continue, but impacts are considered negligible.

3.2 WATER QUALITY

Affected Environment

Dworshak Reservoir is narrow and reaches depths of 600 feet near the forebay area of the dam. Consequently, the lake thermally stratifies every year with a thermocline, the middle layer of water in thermal stratification, at a depth of approximately 40 to 50 feet. Deep-water (below 40 to 50 feet) temperatures remain consistent throughout the year at about 39 degrees Fahrenheit (ºF) [4 degrees Celsius (ºC)] to 41 ºF (5 ºC). The reservoir has been characterized as oligotrophic, which constitutes low productivity and nutrient limited. The oligotrophic characterization of the reservoir indicates exceptional water quality that is low in dissolved solids and devoid of inorganic contaminants [U.S. Department of Energy (DOE 1996)].

No permanent or serious water quality problems have been observed in Dworshak Reservoir since it was completely filled in 1973. Dworshak is approaching equilibrium as a cold, nutrient-poor lake with high water quality, low watershed nutrient contribution, and lack of point sources of pollution. The reservoir's cooling trend, noted in the post-impoundment study, has apparently stabilized. Oxygen depletion and hydrogen sulfide concentrations in the colder noncirculating water, brought about by the decomposition of organics in the first few years after filling, are not expected to recur (Corps 1986).

Environmental Consequences

Alternative 4 (Proposed Action)

The primary water quality impact for the proposed action would be the potential for increased suspended sediment and turbidity in adjacent streams and the reservoir. The sources of these impacts would be the ground disturbance and soil compaction on existing haul roads and landing locations, associated with the operation of equipment and yarding of logs. The likelihood and magnitude of the potential impacts would be greater in the short term, during the actual operation. Increases in suspended sediment and turbidity should be insignificant with proper erosion and sediment control measures.

These increases would most likely occur briefly, in association with summer rainstorms, and probably be confined to a relatively small area.

Erosion and sediment control measures include: (1) limiting harvest from RHCAs; (2) seeding all roads and landings; (3) using berms, water bars, cross draining, diversions, sediment traps, outsloping, and silt fences; (4) scattering slash material; and (5) closing work sites during heavy rains and snow melt periods.

Removal of trees and vegetation would change the water absorption and runoff values of the slopes where timber is removed. Because trees are being selectively removed, and no large open areas are being created, natural revegetation would occur within two growing seasons. Vegetation would retard water runoff and increase the recharge into the ground.

In addition to sediment-related impacts, the proposed actions would have the potential to introduce contaminants to the affected streams and reservoir. The primary mechanism for this type of impact would be accidental spills of fuel or similar toxic products from heavy equipment. Spill prevention and control plans would be required by contractual terms of the timber sale. The plans would include items such as identifying fueling locations, specifying leakproof containers, construction of impervious containment dikes, and cleanup procedures. Compliance with such plans would reduce the possibility of spills to very low levels.

As earlier indicated, there are 16 different soil types and/or soil complexes occurring on the project area. Based on soil survey data, each of these 16 soil types exhibits low to moderate potential soil erodibility. Each are also considered well-drained to moderately well-drained soils. Sediment delivery to streams through runoff is greatly contributive to the soil characteristics. The soil types found within the project boundary should significantly reduce the potential impacts to water quality.

The reservoir shoreline would be protected through 50- to 100-foot no-harvest buffers and through leaving dominant and codominant trees beyond. Due to the current management of Dworshak water reserves, the effects of this project on the water quality of the reservoir would be minimal. Current objectives of flow augmentation to enhance downstream conditions for endangered salmon migration, result in dramatic drawdowns (80 to 155 feet), exposing up to 200 feet of mineral soil around the perimeter of the 54-mile reservoir for most of the year. This creates potential for high levels of erosion and sedimentation. In comparison, impacts to water quality resulting from this project would be negligible.

Alternative 1 (No Action)

This alternative would have no direct effect on water quality. However, fuel loads would continue to increase. Higher fuel loads increase the potential for a stand replacing wildfire, which could potentially have a negative effect on water quality.

3.3 AIR QUALITY

Affected Environment

The Aleutian Low and Pacific High weather patterns strongly influence local climates. The Pacific High dominates during the summer months, resulting in hot and dry weather. Locally, all major river canyons are subject to temperature inversions that can pool smoke in drainage bottoms. Air quality in the analysis area is predominantly rated "good" and meets guidelines established by Idaho air quality laws and the Clean Air Act (CAA) (Corps 1997).

Periodically air quality may be degraded and minor amounts of pollutants may occur from the following: (1) wildfires, (2) prescribed burning, (3) internal combustion engines, and (4) dust from road use. Activities that affect air quality are generally of short duration, lasting from one day to several weeks.

Environmental Consequences

Alternative 4 (Proposed Action)

Impacts to air quality would come from smoke and ash generated during prescribed burning and debris burning at landings, dust from the road surface during hauling activities, and emissions from operating equipment. Impacts from burning would last 1 to 5 days and be short term in nature. Idaho has developed air quality standards and a smoke management plan for northern Idaho. Prescribed fire activities would conform to the standards of the Northern Idaho Airshed Group. Impacts resulting from road use (dust) would likely occur during the timber removal operation, depending on weather. However, only minor, short-term impacts to air quality are expected to occur.

Alternative 1 (No Action)

This alternative would have no direct effect on air quality. However, higher fuel loads increase the potential for a stand replacing wildfire, which could potentially have a negative effect on air quality.

3.4 RESIDENT FISH AND AQUATIC ECOLOGY

Affected Environment

General

Dworshak Reservoir is a deep, oligotrophic storage reservoir with a steep-sided shoreline (Corps 1982). The reservoir stratifies during the summer, providing warm-water habitat in the surface layer and cold water at depth (Corps 1982). Dissolved oxygen is typically sufficient to support fish production. Most phytoplankton and zooplankton production occurs in the epilimnion, the upper layer of a stratified lake,

which generally extends over the upper 40 feet of the reservoir. Current objectives of flow augmentation to enhance downstream conditions for endangered salmon migration, result in dramatic drawdowns (80 to 155 feet), exposing up to 200 feet of mineral soil around the perimeter of the 54-mile reservoir for most of the year. Because of the extensive variation in water surface elevation and contained wave action, aquatic macrophytes are virtually nonexistent along the shoreline and benthic production is low (Corps 1992).

There are no major tributaries and only one perennial stream (unnamed) within the Little Bay Stewardship Project area. Although this stream has not been extensively surveyed, site visits indicate that it is non-fish bearing and would be treated as a permanently flowing non-fish-bearing stream. Typical mid-summer conditions exhibiting very low flows, cast doubt on the designation of the stream as permanently flowing. In addition, there are a number of intermittent streams in or adjacent to the sale units.

Fisheries

Twenty-one fish species inhabit Dworshak Reservoir (Maiolie et al. 1993). Primary sport species present in the reservoir include kokanee, rainbow trout, smallmouth bass, largemouth bass, cutthroat trout, brook trout, mountain whitefish, crappie, and brown bullhead (Maiolie 1988). Because of the steep shorelines and drastic fluctuations in pool level, little shallow-water habitat is available to support natural reproduction of smallmouth bass. Maximum shoreline spawning habitat exists at full pool. Cutthroat and rainbow trout spawn in the tributaries in the spring. Bull trout and kokanee spawn in the fall primarily in the tributaries to the reservoir (Maiolie 1988). It is presumed that mountain whitefish also spawn in the streams or in the North Fork Clearwater River upstream of the reservoir. See table 2 for a list of fish species inhabiting Dworshak Reservoir.

Table 2. Fish Species Inhabiting Dworshak Reservoir

Common Name	Scientific Name
Chiselmouth	*Acrocheilus alutaceus*
Bridgelip sucker	*Catostomus columbianus*
Largescale sucker	*Catostomus macrocheilus*
Sculpin	*Cottus spp.*
Northern pike	*Esox lucius*
Pacific lamprey	*Entosphenus tridentatus*
Brown bullhead	*Ictalurus nebulosus*
Pumpkinseed	*Lepomis gibbosus*
Smallmouth bass	*Micropterus dolomieui*
Largemouth bass	*Micropterus salmoides*
Kokanee	*Oncorhynchus nerka*
Black crappie	*Pomoxis nigromaculatus*
Mountain whitefish	*Prosopium williamsoni*
Northern pike minnow	*Ptychocheilus oregonensis*
Longnose dace	*Rhinichthys cataractae*
Speckled dace	*Rhinichthys osculus*
Redside shiner	*Richardsonius balteatus*
Cutthroat trout	*Oncorhynchus clarki*
Rainbow trout	*Oncorhynchus mykiss*
Bull trout	*Salvelinus confluentus*
Brook trout	*Salvelinus fontinalis*

Source: Maiolie, M.A.; D.P. Statler; and S. Elam 1993.

Environmental Consequences

Alternative 4 (Proposed Action)

Significant impacts to fish and other aquatic organisms are not anticipated. The most likely source of impacts to the aquatic environment is sediment loading or accidental spills. The proposed use of heavy equipment and yarding practices could have limited negative effects for specific tributaries, primarily increasing sediment into nearby streams. This action could potentially affect fish and their food supply (*i.e.*, aquatic invertebrates and attached algae). The potential for these limited negative effects would be minimal due to low to moderate erodibility of soils, designation of existing streams, the creation of RHCAs, the timing of harvest activities, and the application of appropriate erosion control measures. All but one ravine occurring on the site contains either no evidence of past or present flow or is an intermittent stream. The INFISH (USDA 1995) guidelines incorporated here for the establishment of RHCAs allow for the maximum protection of intermittent streams. Timber harvesting would occur during periods when the soils are either dry or frozen to avoid the rainy periods when soil damage would be most severe. The development of standard erosion control measures (see section 3.2) would also minimize adverse water quality impacts.

Accidental spills of toxic substances could cause direct mortality of fish and other aquatic organisms. Spill prevention measures, standard in timber sale contracts, are designed to greatly reduce the potential for significant impacts from accidental spills.

The log landing areas and access roads that would be used for this project were previously constructed for other timber sales. Only one 300-foot section of new road would be constructed and all roads and landing sites would be located outside of designated RHCAs. Thus, the proposed action would meet or exceed the INFISH (USDA 1995) standards for riparian habitat protection regarding log-handling sites. Therefore, no impacts to resident fish and/or aquatic resources are expected from surface runoff.

Alternative 1 (No Action)

This alternative would have no direct effect on resident fish and/or aquatic resources. However, fuel loads would continue to increase. Higher fuel loads increase the potential for a stand replacing wildfire, which could potentially increase erosion and, therefore, have a negative effect on aquatic resources.

3.5 TERRESTRIAL ENVIRONMENT

Currently, a terrestrial resources inventory on Corps-managed lands around Dworshak Reservoir is being conducted by the IDFG. Its primary purpose is to update information regarding terrestrial resources as part of the supplemental EIS and Master Plan updates. Their efforts include the survey of fungi, vascular plants, bryophytes, lichens, and wildlife. An updated list of species is expected to be available in 2002. Therefore, this section presents general information on currently known species occurrences.

Potential impacts of timber removal on vegetation, wildlife, and threatened and endangered species are discussed in the following section. In general, direct negative impacts from the proposed action are anticipated to be minor and insignificant.

3.5.1 Vegetation

Affected Environment

Based on soil data, the following 10 habitat types occur within the project area. (Soil Conservation Service 1986. Refer to table 1, Little Bay Soil Data and Habitat Types, and appendix A, plate 5.)

bluebunch wheatgrass/Idaho fescue (AGSP/FEID)
ponderosa pine/bluebunch wheatgrass (PIPO/AGSP)
ponderosa pine/Idaho fescue (PIPO/ FEID)
ponderosa pine /mallow ninebark (PIPO/PHMA)
Douglas fir/mallow ninebark (PSME/PHMA)

Douglas fir/snowberry (PSME/SYAL)
grand fir/mallow ninebark (ABGR/PHMA)
grand fir/queencup beadlily (ABGR/CLUN)
western red cedar/queencup beadlily (THPL/CLUN)
western red cedar/maindenhair fern (THPL/ADPE)

Within the forested habitat types, the ponderosa pine series represents the driest and warmest habitat types within the stewardship project boundary. This series generally occurs below 4,000 feet msl. Given the dry environment and the historic ecosystem processes, ponderosa pine is the only tree species capable of dominating the habitat types within this series. Fire has had varying effects within this series and all sites probably experienced cool underburns at 5- to 20-year intervals (Arno 1980). The result of such frequent fires was the reduction of litter and duff on most sites and the removal of encroaching Douglas fir on more moist sites. However, with aggressive fire control these “fire climax” pine sites are succeeding to Douglas fir site dominance (Cooper et al. 1991). The PIPO/PHMA habitat type is very limited to northern Idaho and can only be found on northwest to northeast aspects of moderate slopes. It generally occurs below 3,000 feet msl. The PIPO/FEID habitat type is prevalent along the Clearwater drainage on sites drier than PIPO/SYAL. It occurs on gentle to steep slopes of east, south, and west aspects and is not found above 2,500 feet msl. This habitat type has an open, “park-like” appearance because of the low annual stocking capacity. The PIPO/AGSP occurs primarily on steep, south-facing slopes at elevations less then 4,000 feet msl. Ponderosa pine occurs only as a sparse overstory (Cooper et al. 1991).

The Douglas fir (*Pseudotsuga menziesii*) series exhibits a broadband of ecological amplitude throughout northern Idaho. They range from 2,000 to 6,400 feet msl with the majority occurring between 2,500 to 3,700 feet msl. The predominant seral species within this series is ponderosa pine. Although grand fir and western larch can occur on these sites, they are typically limited to microsites. “A vast majority of the stands sampled in this series show signs of past fire; probably all stands have been subjected to cool underburns” (Cooper et al. 1991). Fire intervals averaged 7 to 25 years prior to 1900 (Arno 1980). With frequent moderately hot fires, these sites may sustain ponderosa pine as the dominant overstory species. The PSME/PHMA habitat type is the most widely occurring habitat type of this series in northern Idaho. It generally occurs on southeast to west aspects of low to moderate slopes at elevations between 2,000 and 3,700 feet msl. Ponderosa pine is the major seral tree species within this habitat type The PSME/SYAL habitat type is an incidental in northern Idaho, with most occurrences north of Orofino. It occurs on warm, dry low to middle elevation slopes and benches. Again, ponderosa pine is the major seral tree species and often codominates in mature stands (Cooper et al. 1991).

The grand fir series distribution is in correlation to the inland maritime climate and its moderating effects. This series grades to the PSME series on drier, warmer sites. It ranges in elevation from 1,500 to 6,300 feet msl. On moist sites, grand fir is a major recolonizer and canopy dominant, even following severe disturbance. However, it typically forms a subordinate layer to Douglas fir, the major seral tree species on nearly

all grand fir habitat types. Ponderosa pine does occur as a seral but only on warmer types. "On the Nez Perce and Clearwater National Forests, periodic fires have been a major influence and have resulted in site dominance by *P. ponderosa* and *Pseudotsuga* on warm, dry sites and *P. contorta* on colder sites" (Cooper et al. 1991). Throughout northern Idaho, grand fir habitat types have registered repeated underburns that maintained open, seral species forests prior to 1900 (Arno 1980). The ABGR/CLUN habitat type occurs from 2,000 to 6,100 feet msl. Grand fir is typically the climax dominant and the most consistent dominant of seral stages. The ABGR/PHMA is relatively minor but widely distributed throughout northern Idaho. It ranges from 2,200 to 4,600 feet msl, is one of the driest ABGR habitat types, and occurs almost exclusively on southeast through west slopes except at lowest elevations (Cooper et al. 1991). Grand fir may not be well represented on these sites, because it is nearing its environmental limitations and a history of frequent underburns (Hall 1977).

In northern Idaho, western red cedar (*Thuja* plicata) ranks second only to western hemlock in its restrictive requirements. Western red cedar occurs as far south as the Selway River drainage. Between the Selway River and the Canadian border, western red cedar habitat types can be found on any aspect or slope and at elevations between 1,500 and 5,500 feet msl. Although it can occur on all landforms, western red cedar grows best on toeslopes and bottomlands with high soil moisture. In this series, western red cedar is the climax dominant, however, extreme temperature and soil moisture conditions probably determine the climax tree species on these sites. Major seral species are Douglas fir, grand fir and western white-pine. Ponderosa pine is seldom important to this series, but is conspicuously absent on wet sites. "Fire has been a major disturbance factor in the drier habitat types of the western red cedar series" (Cooper et al. 1991). All stands sampled by Cooper et al. within CLUN, ASCA[1], GYDR[2], and ADPE habitat types had either fire-scared trees or significant amounts of charcoal in the upper horizons. The wetter habitat types (THPL/OPHO[3] and THPL/ATFF[4]) had little evidence of past fire (Cooper et al. 1991). The THPL/ADPE habitat type occurs almost exclusively between the St. Joe and Selway Rivers. Elevations are generally restricted to below 3,000 feet msl. It is found on slopes ranging from 0 to 40 degrees and on all aspects but south. Western red cedar is the major climax species and grand fir is the major seral species. The THPL/CLUN habitat type occurs throughout the range of western red cedar, from the Selway-Bitterroot Wilderness to the Canadian border. The normal elevation range is 2,200 to 4,800 feet msl and has a tendency to occur on warmer southeast to northwest aspects with moderate gradients (10 to 30 degrees) (Cooper et al. 1991).

Current Vegetation and Condition

Current vegetation includes a mix of vegetative cover types throughout the project area influenced by soil types, topography, climate, past management practices, and

[1] wild ginger
[2] oak fern
[3] devil's club
[4] lady fern

ecosystem processes. Fourteen major cover types are found on the lands that surround the reservoir. The identified species include 35 species of grasses, 17 species of grass-like plants, 270 species of forbs, 45 species of shrubs, and 21 species of trees (Corps 1975b). The vegetation types are arranged on an environmental gradient along the reservoir. The drier types are found in the lower end of the pool area (near the dam), while hydrophytic (wetter) types are increasingly encountered farther up the pool. The project area spans a distance of approximately 5 miles in length and up to 1 mile in width and lies within a 1,600- to 2,500-foot elevation zone. A diversified topography varies from flat benches to steep canyon hillsides interlaced with a ridge-draw configuration. The primary aspects are south/southwest/west. This diverse landscape supports a variety of forest stands categorized and described below by the dominant overstory species or dominant vegetative characteristics:

Ponderosa pine: This cover type dominates the drier south aspects. The stands vary from open stands of large mature pines to dense stands of mid-age pines competing with encroaching Douglas fir. As a result of competition from these firs, the pines are beginning to exhibit stress. Ground cover within these stands generally consists of either a thick pine needle mat or old, decadent shrubs. Both are virtually void of any pine regeneration (0 to 20 years).

Douglas fir/Mixed conifer: This cover type consists primarily of Douglas fir with small amounts of ponderosa pine, larch, grand fir, and western white pine. The stand characteristics vary from more open, large, and mature trees to dense, pole-sized Douglas fir. Increment boring revealed that the pole-size Douglas fir stands (12- to 18-inch dbh) consisted of trees approximately 100 years old. Stands are overstocked, suppressed, and in an unhealthy condition as evidenced by crown ratios averaging 20 percent of total height. Ground cover shows minimal tree regeneration. Because of the closed canopy, the ground cover is predominantly built-up slash with very little vegetation. The vegetation that does occur is mostly mallow ninebark, oceanspray, and other less palatable browse species. Several locations indicate the presence of Douglas fir bark beetles, root rot, and disease.

Grand fir/Western red cedar: These stands consist primarily of grand fir on the north slopes and cedar in the draws with a minimum number of Douglas fir scattered throughout the stand. Most of the large grand fir stands show signs of disease and fungus. Some stands exhibit dense overstocking and high competition for nutrients as indicated by low crown-to-height ratios. Ground cover is predominantly built-up fuel, pine needles, and downed logs with very little vegetation. These stands comprise less than 10 percent of the project area.

Brush fields: They comprise approximately 20 percent of the project area. They are a result of logging, roller-chopping, and burning operations conducted within the past 30 years. Most of these brush fields still provide usable browse for ungulates. A variety of browse species occur in the brush fields including mountain maple, serviceberry, and redstem ceanothus.

Open grasslands: These areas consist of both natural grasslands and those that are the result of old homesteads and related pastures. Conifers are beginning to encroach on these areas.

Although it is beyond the scope of this assessment to determine cause and effect, it is intuitive that fire suppression has played a major role in bringing about the current vegetative conditions observed on the site today. Ponderosa pine requires disturbance resulting in a bare mineral soil to propagate. Thus, the thick mat of needles on the forest floor is in all probability resulting in the lack of pine regeneration. Wildfire has the potential to effectively remove the ground cover leaving a bare mineral soil. Other forest health issues, such as beetle infestation, root rot, disease, and a general lack of tree vigor (low crown-to-height ratios) are suggestive that stands are overstocked. Again wildfire has the potential to thin overstocked stands, reducing competition and restoring forest health.

Sensitive Plants

The Idaho Conservation Data Center (CDC) conducted plant surveys within the project boundary in the summer of 2000. They documented the occurrence of three species listed as target species for the Dworshak area. These were Henderson's sedge (*Carex hendersonii*), fern-leaved dessert parsley (*Lomatium dissectum var. dissectum*), and Palouse thistle (*Cirsium brevifolium*) (personal communication, Juanita Lichthardt, CDC, Moscow). A current CDC listing of target plant species and their status for the Dworshak area is provided in appendix C.

Environmental Consequences

Alternative 4 (Proposed Action)

The proposed action could result in the selective harvest of up to 8 million board feet of lumber. This removal and the subsequent prescribed burn would change the amount, condition, spatial arrangement, structure, and linkage of vegetation patches. The purpose of this project is to modify the existing vegetation with tree removal and prescribed burning for the long-term benefit of the vegetative communities. All proposed treatments are designed to restore the current vegetative communities to more historically natural conditions. Therefore, all perceived long-term environmental consequences to the current vegetation are judged beneficial.

The ICBEMP determined that the North Fork of the Clearwater River subbasin is below the historical range of variability for the lower montane late seral forest and lower montane early seral forest as a result of logging practices and fire suppression. Furthermore, they state that, "Interior ponderosa pine has decreased across its range with significant decrease in old single-story structure. The primary transitions were to interior Douglas fir and grand fir/white fir" (ICBEMP 1997). Based on the biophysical characteristics of the site (*i.e.*, soils, elevation, slope, temperature, moisture, and aspect) and the historical fire regime, the assumed dominant overstory climax

vegetative species within the majority of the project area is ponderosa pine. Currently Douglas fir is heavily encroaching on these pine habitats.

The fire regime for the majority of the area was probably cool underburns every 7-25 years (Arno 1980). These natural underburns brought about a persistence of early seral species as the dominant cover type on these sites. The amount of early seral species on the site today is well below that expected under natural conditions. Furthermore, the current recruitment of these species is insufficient to restore an adequate population of these species on the site. The longer the stands remain in this condition the more difficult it would be to reach a desired stocking of early seral species. Current seed trees are under stress due to overstocking; their longevity and productivity are threatened.

Selective retention of dominant and codominant native early seral tree species would increase the representation of these species and perpetuate old-growth forest structure characteristics. Spatial selective timber removal and prescribed burning will also provide a seedbed for natural regeneration of native seral species (Steele and Geier-Hayes 1995).

Current fuel loading is well above that which occurred under natural conditions. Thus, the threat of catastrophic, stand-replacing fires is high. A stand-replacing fire is not characteristic of the historic fire regime determined for these habitat types. The result of such an event would be a loss of a majority of the overstory species and all the associated benefits. The proposed action would reduce fuel loads and lessen the threat of catastrophic fire.

Thinning and prescribed underburning would impact the understory vegetation both short and long term. Thinning would increase the amount of sunlight available to the understory vegetation. Prescribed fire would immediately and temporarily remove the understory vegetation. Although this effect is considered negative, it is recognized as an anticipated step following natural disturbance. This step is necessary to bring about beneficial long-term understory vegetative conditions associated with frequent underburns characteristic of these forest stands. Long-term changes to species composition and form are expected to be highly beneficial. The proposed treatment would remove old decadent brush, built up litter and duff, and thus improve conditions for new vegetative growth. Redstem ceanothus, an extremely nutritious and palatable forage species, requires both heat scarification and cold stratification of the seed to germinate. Fire is a natural and efficient way to accomplish the heat scarification process. This native shrub is abundant within the project area, yet in its current condition is unsuitable for use by ungulates. In general, it occurs on the site as old decadent plants in which the new growth is beyond the reach of foraging deer and elk. Fire would also enhance the production of many other palatable forage species.

No published documents were found that evaluate the effects of prescribed underburning on the sensitive plants identified by the CDC. However, the CDC does not anticipate significant adverse impacts to the species listed (personal

communication, Juanita Lichthart 2001). Open grassy meadows occurring on the site are not scheduled for burning. Most of the sensitive plants identified occur within these meadows.

By instituting active management to restore ecosystem health through emulating fire, vegetative communities would be restored to more historically natural conditions, which is beneficial to the ecosystem, including all terrestrial plants and animals that have evolved to exist within those systems. The ICBEMPs preferred option for land management throughout the Columbia basin ecosystem involves "aggressively restoring ecosystem health through actively managing resources; the results of management can resemble disturbance processes including insects, disease, and fire" (ICBEMP 1996). The restoration of the forest stands would reduce the fuel loads and thus the potential for large-scale wildfires; reduce tree stress and the potential for catastrophic insect infestations and disease events; enhance the vigor and growth of remaining trees; encourage browse production; and perpetuate the habitat type on the landscape (Steele and Geier-Hayes 1995, Kilgore and Curtis 1987). A wide variety of native plants and animals have evolved to exist in many of the habitats described previously. The evolution and occurrence of these species are closely tied to the ecosystem processes that have perpetuated the composition, form, and structure of these vegetative communities. Therefore, all long-term environmental consequences to the current vegetation are expected to be greatly beneficial.

Alternative 1 (No Action)

No short-term impacts are expected under this alternative. Long-term impacts resulting from allowing the current stand conditions to persist are negative. Current species composition, form, and structure are unnatural and lack the ability to adequately support native wildlife species associated with the habitat types represented. The species composition would continue to progress from early to late seral species. The health of early seral dominants would continue to deteriorate as encroaching, more shade tolerant species absorb a larger share of the available nutrients, sunlight, and water. Stand densities, currently higher than under natural conditions, would also continue to increase.

The fuel loading and the potential for large-scale wildfires would only increase with time under the current management strategy. Current fire suppression activities greatly reduce the probability of large-scale wildfire. However, fuel loading would continue to increase and would eventually overcome the ability of fire suppression to effectually protect the area from catastrophic wildfire. This type of wildfire is inconsistent with the habitat types represented within the project area. The resulting loss of vegetation would negatively alter the species composition, form, and structure for decades.

Understory vegetation would also continue to be become increasingly more decadent and unavailable to foraging ungulates. Under the "No Action" alternative, natural habitats historically dominated by early seral species and associated wildlife would be

in danger. The environmental consequences to vegetation associated with this alternative are determined to be negative and expected to be substantial.

3.5.2 Wildlife

The various cover types found along Dworshak Reservoir provide for a multitude of wildlife species. Most wildlife species associated with the cover types found on Dworshak Reservoir are present. The IDFG is investigating the occurrence of amphibians, reptiles, landbirds, small mammals, bats, furbearers, and other wildlife in support of the ongoing Master Plan and supplemental EIS updates. They are also targeting several sensitive species for inventory: northern goshawk, flammulated owl, and lynx.

Dworshak is situated within a region of Idaho where fire has historically been a major factor in influencing both plant and wildlife populations. In particular, the North Fork of the Clearwater River historically supported the second largest elk herd in the Clearwater Basin. During the last 100 years, land managers have suppressed natural fires, which caused a reduction in the number of forest openings especially in the Upper North Fork. Eliminating natural fires in the forest encouraged development of mixed conifer stands, which affected wildlife species and numbers.

Although numerous mammalian species have the potential to exist within the project area, the following discussions and the associated species list (appendix D) will only address species documented within close proximity to the project site.

Affected Environment

Mammals

Big Game: Although moose (*Alces alces*), bighorn sheep (*Ovis canadensis*), and mountain goat (*Oreamnos americanus*) have been observed infrequently on Corps lands, white-tailed deer (*Odocoilius virginianus*), mule deer (*Odocoilius hemionus*), elk (*Cervus elaphus*), American black bear (*Ursus americanus*), and mountain lion (*Puma concolor*) regularly dwell on Dworshak lands.

The reservoir, when originally filled to its maximum elevation (1,600 feet msl), flooded 19,090 acres of big game winter range. Efforts to mitigate for the lost habitat have primarily focused on the replacement of elk winter range. While wildfires on Corps lands are suppressed, harvest and prescribed burning has been an important and well-accepted technique for developing high quality browse. Many acres have already been manipulated by harvest and burning to replace browse lost. Even though past management efforts have concentrated on the needs of wintering elk, the lands around Dworshak Reservoir are also important for a variety of ungulates.

The distribution of big game populations around Dworshak Reservoir is affected by both on and off-site logging activities and recreation activities. Enhanced hunter access into

big game habitat following the establishment of logging roads has substantially affected elk populations and, to lesser degrees, black bear and deer populations. Although nonhunting recreation activities are normally limited to the summer months, calving and fawning areas are sometimes degraded by human intrusion during the spring (Asherin and Orme 1978). The lands surrounding Dworshak Reservoir provide important big game winter range and become increasingly important as winter conditions worsen. During extreme winter weather, elk move to lower elevations (less than 2,500 feet msl). White-tailed deer spend critical winter periods below elevations of 2,000-feet msl (Asherin and Orme 1978).

The Little Bay area is an important area for big game. This is evidenced by studies conducted by Asherin and Orme (1978) and annual big game aerial surveys conducted by IDFG. Both sources indicate high winter use of the area by white-tail deer and elk. Observations of black bears have also been documented within the Little Bay area by investigators (appendix D).

Furbearers: Aquatic furbearers on Dworshak lands include beaver (*Castor canadensis*), mink (*Mustela vison*), and river otter (*Lutra canadensis*). The use of the reservoir by these species is limited because of the extreme water level fluctuations during the fall and spring. Terrestrial furbearers include striped skunk (*Mephitis mephitis*), short-tailed weasel (*Mustela erminea*), coyote (*Canis latrans*), bobcat (*Felis rufus*), badger (*Meles meles*), and raccoon (*Procyon lotor*).

Studies conducted by Asherin and Orme (1978) indicate a high potential for beaver, mink, striped skunk, and coyote to occur within the project area. Other species may occur but are less likely to occur.

Small Mammals: Asherin and Orme (1978) trapped 20 species of small mammals, representing 8 families along Dworshak Reservoir. The deer mouse (*Peromyscus maniculatus*) was the most common small mammal encountered. Vegetative communities with the most diverse populations of small mammals were bracken fern/orchard grass-timothy (8 species), Douglas fir/serviceberry-common snowberry (9 species), and western red cedar/maidenhair fern (11 species). Asherin and Orme (1978) also reported six species of bats along the reservoir, with the little brown bat (*Myotis lucifugus*) occurring most abundantly.

Four species of small mammals were observed at Little Bay area during trapping efforts: boreal redback vole (*Clethrionomys gapperi*), deer mouse, redtail chipmunk (*Tamias ruficaudus*), and Idaho pocket gopher (*Thomomys idahoensis*) (appendix D). Other species may occur but were not observed. One bat species, little brown bat (*Myotis lucifugus*) was observed within the project area. The big brown bat (*Eptesicus fuscus*) was distributed throughout the reservoir and is likely to occur on the site.

Birds

Landbirds: The lands surrounding Dworshak Reservoir support numerous songbirds and other birds throughout the structurally diverse habitats, which have been created both by natural succession and by management actions.

Asherin and Orme conducted landbird surveys within the stewardship project boundary in 1978. The species observed are listed in appendix D. No species observed in the 1978 landbird surveys are on the Federal threatened or endangered species list or on the state-listed species of concern. However, several state-listed species have the potential to occur [*e.g.*, white-headed woodpecker (*Picoides albolarvatus*, peripheral status) and pygmy nuthatch (*Sitta pygmaea*, undetermined status)].

Raptors: Forest-dwelling hawks and owls are well represented on Dworshak lands. Habitat preferences among various species are evident in 1976-77 data from Asherin and Orme (1978). Species that nest in multi-layered habitats include great horned owl (*Bubo virginianus*), northern pygmy-owl (*Glaucidium gnoma*), western screech owl (*Otus kennicottii*), sharp-shinned hawk (*Accipiter striatus*), Cooper's hawk (*Accipier cooperii*), red-tailed hawk (*Buteo jamaicensis*), and American kestrel (*Falco sparverius*). Barred owls (*Strix varia*) and northern goshawks (*Accipiter gentilis*) nest primarily in mature timber with less understory. No raptor species encountered within the stewardship project boundary (appendix D) during the 1976-77 inventories are currently listed as threatened, endangered, or sensitive. However, one federally listed species and several state species of undetermined status have the potential to occur or are known to occur on Dworshak Reservoir today: bald eagle (*Haliaeetus leucocephalus*), northern goshawk, flammulated owl, great gray owl (*Strix nebulosa*), and northern pygmy owl.

Osprey (*Pandion haliaetus*): Summer residents at Dworshak and have been increasing in number since the reservoir was filled in 1973. During a 1994 osprey nest survey, 160 nests were counted along Dworshak Reservoir. A survey done by Dworshak biologists in 2000 identified two existing osprey nests within 300 feet of the shoreline in the Little Bay area. These nests would be evaluated annually prior to seasonal project activities to determine active status.

For discussions regarding northern goshawks, see section 3.5.3.

The project area is within the home range (2.5-mile radius) of an existing bald eagle nest. For the past 2 years, eagles have attempted to nest there; however, on both occasions, the nesting pair has abandoned the nest attempt prior to hatching. Wintering eagles are common on the reservoir. For more information, see section 3.5.3.

Waterfowl: A total of 33 waterfowl species have been observed on Dworshak Reservoir. Three duck species are known to nest along the reservoir: mallard (*Anas platyrhynchos*), wood duck (*Aix sponsa*), and common merganser (*Mergus merganser*).

Waterfowl primarily use the reservoir during their spring and fall migratory periods as a loafing area. Peak waterfowl use occurs during late fall, winter, and spring. Some feeding by geese and puddle ducks occurs along the exposed shoreline during the reservoir drawdown. Extreme fluctuations in the pool level limit the growth of aquatic vegetation, thereby reducing the amount of available food and potential nesting habitat.

Although no site-specific waterfowl surveys were conducted within the Little Bay area, Asherin and Orme (1978) indicated that the highest numbers and diversity of waterfowl were generally associated with subsegment 1 (Dworshak to Dent Bridge). Furthermore, they added that Little Bay was one of seven popular areas for waterfowl within subsegment 1.

Upland Game Birds: Ruffed grouse (*Bonasa umbellus*), the major upland game species on Dworshak lands, inhabit all vegetative communities along the reservoir. However, the highest grouse numbers are found in communities with a multi-layer structure and substantial ground cover. The highest counts of drumming males were obtained in the Douglas fir/serviceberry/snowberry and mixed conifer communities. Other species of minor importance along the reservoir include blue grouse (*Dendragapus obscurus*), spruce grouse (*Dendragapus canadensis*), mountain quail (*Oreortyx pictus*), California quail (*Callipepla californica*), wild turkey (*Meleagris gallopavo*), and gray partridge (*Perdix perdix*) (Asherin and Orme 1978).

Two upland bird species were observed in Little Bay by Asherin and Orme (1978) during surveys, ruffed grouse and California quail (appendix D). Little Bay exhibited the highest total number of ruffed grouse drums in the 1976 surveys.

Environmental Consequences

Alternative 4 (Proposed Action)

Impacts to wildlife would occur primarily as a result of modification of vegetation and through project execution activities. Potential changes in forest composition, form and structure may cause long-term adjustments in wildlife use, while human intrusion would be localized and relatively short lived. There would be displacement of various wildlife species and a likely reduction in habitat for certain resident wildlife species for the duration of the action and recovery periods. Noise would be created from the use of heavy equipment, chain saws, trucks, and helicopters during the logging operation. The animals in the vicinity of the work sites as well as the transportation routes would be subjected to increased noise levels and may relocate into other areas. Displaced animals would have to compete with others in the population for the remaining or adjacent habitat. As revegetation occurs, animal populations would adjust to accommodate the new carrying capacity of the habitat. These impacts would be of short interval (1-3 years) and expected to be negligible.

The long-term changes in vegetation are expected to greatly benefit all native terrestrial species that have evolved to utilize and/or require ponderosa pine and Douglas fir

dominated forests. Many native species (*e.g.*, white-headed woodpeckers and flammulated owls) dependent on ponderosa pine cover types (*i.e.,* late seral ponderosa pine) are now scarce or absent within the region. By emulating fire to restore ponderosa pine cover types, these species would benefit. Whereas, species associated with dense stands of Douglas fir and mixed conifers, which are unnatural for the project area, would experience a loss of habitat. Considering the lack of ponderosa pine cover types within the region; the increasing reduction in wildlife species associated with these cover types; the over-abundance of mid-seral Douglas fir/mixed conifer forests; and the current condition of the Douglas fir/mixed conifer stands within the project area (ICBEMP 1997), the proposed change in species composition, form, and structure is deemed a major beneficial effect to terrestrial species. This trade-off is considered favorable for native wildlife species and substantiates negative short-term impacts and long-term changes in species composition on the site. Due to the above, detailed discussions regarding the environmental consequences on every species or groups of species having the potential to occur on the site will not be presented. The following discussions give special attention to species or groups of species that are more likely to be affected or are of particular interest.

Many big game species heavily utilize the understory browse component of Douglas fir and ponderosa pine forests. The historical fire regime ensured that particular species of plants (notably redstem ceanothus, serviceberry, scouler willow, and mountain maple) occur commonly. These shrubs typically exist as single bushes or clumps amidst grass and forb dominated openings on south-facing slopes intermixed with forest patches of late mid-seral, mature, and old uneven age stands. Shrub communities provide important forage for a variety of wildlife, while the forested patches offer thermal and security cover. Tree removal on the proposed project area would reduce elk and deer thermal cover and hiding cover and increase forage habitat. Forage available in the first several years after the harvest would increase for elk and deer. The Clearwater Elk Initiative (CEI), is a cooperative management effort to restore elk populations to the Clearwater Basin and consists of state and Federal agency personnel and citizen groups. The CEI has identified forage availability as the primary factor leading to the decline of elk numbers within the basin. The CEI is advocating increased disturbance within the basin to promote the production of browse. As a result of this project and like projects being proposed by USFS Clearwater National Forest, long-term benefits to big game should greatly outweigh short-term costs. Remaining trees would continue to provide adequate thermal and hiding cover values for elk and deer. To minimize disturbance to elk and deer, new road construction would be minimal and improved roads would be closed to motorized travel after project completion. Long-term impacts as a result of this project are considered to be beneficial to ungulates.

A diversity of snags, dying green trees and live trees creates habitat and microhabitats for cavity nesting and insect feeding wildlife species. The various insect species attracted to the abundance of dead and dying trees provide an increase in food supply for insectivorous feeding wildlife. Therefore, even though the retention of four snags per acre as nesting habitat is adequate to support cavity nesting bird species, all dead standing trees would be left intact unless they present a safety hazard. Maintaining

current snag densities while leaving dominant and codominant trees, representing snag replacement trees, would minimize the impacts to these species. It is assumed that a small percentage of live trees would be burned and die as a result of the prescribed burns creating additional snags.

Osprey utilize the reservoir for nesting and breeding. The last breeding osprey survey conducted on the reservoir (1994) documented 160 existing nests. Two existing nests occur with the stewardship project boundary. The active status of these nests is undetermined. Due to the large number of nests and breeding pairs, it is highly unlikely that impacts to these two nest sites will adversely affect the population as a whole. However, these nest sites will be protected in accordance with "nesting buffer zones" previously established in this document.

The proposed alternative is expected to restore ecosystem integrity to the lower montane forested land within the project area. Although minimal short-term negative effects are expected, the long-term effects would be greatly beneficial to native wildlife species.

Alternative 1 (No Action)

The effects from "No Action" would be a product of the continuance of the current site conditions. The current vegetative composition, form and structure provides habitat for a variety of wildlife species. Dense stands of Douglas fir and mixed conifers are abundant within the project area and are utilized by many native wildlife species and required by others. Local populations of these species may relocate or be reduced. These cover types within the broader landscape are well above the historical range of variability. As a result of fire suppression, these stands have significantly increased in proportion to other vegetative cover types. In contrast to the current conditions, the expected historical conditions are well below the historical range of variability. The primary effect of this alternative is that the expected vegetative conditions within the project area, given natural ecosystem processes, would not be actualized. Thus, regional populations of the sensitive wildlife species that utilize and/or require the habitat characteristics associated with expected conditions would not benefit and continue to decline. If habitat restoration efforts were not accomplished in the region, these species would likely become threatened under the ESA. Long-term impacts with this alternative are determined to be detrimental to native wildlife populations.

3.5.3 Threatened, Endangered, and Sensitive Species

The ESA provides protection to three animal species and one plant species with the potential to occur on Dworshak Reservoir. The bald eagle *(Haliaeetus leucocephalus)* is undergoing the delisting process and will be protected for 1 year following delisting. The gray wolf (*Canis lupus*) is considered an experimental nonessential population. Bull trout (*Salvelinus confluentus)* was listed as a threatened species in 1998. Ute ladies'-tresses (*Spiranthes diluvialis*) is an orchid that is also currently listed. Reference appendix B, Biological Assessment, for further discussions. Two other species are

being addressed as species of concern because of their identified importance to the ecosystem: the northern goshawk and the westslope cutthroat trout (*Oncorhynchus clarki lewisi)*.

The Corps prepared a biological assessment (BA) for the listed species and determined that the stewardship project "May Affect But is Not Likely to Adversely Affect" the bald eagle (*Haliaeetus leucocephalus*) and bull trout (*Salvelinus confluentus)*. A “No Effect” determination was reached regarding the gray wolf (*Canis lupus*) and Ute ladies’-tresses (*Spiranthes diluvialis*). Effects to westslope cutthroat trout (Oncorhynchus clarki lewisi), a candidate species, were also evaluated and a “No Effect” determination was reached for the species. The Corps forwarded the BA to the U.S. Fish and Wildlife Service (USFWS) office in Boise on May 17, 2001. In their letter of June 15, 2001, the USFWS concurred the project may affect, but is not likely to adversely affect, bull trout. In a letter dated January 31, 2002, the USFWS also concurred the project may affect, but is not likely to adversely affect, bald eagles. Prior to implementation of the selected alternative, the Corps would consult on any new species that may be subsequently listed under ESA.

3.5.3.1 Bald Eagle

Affected Environment

The bald eagle (*Haliaeetus leucocephalus*), primarily a winter resident, is of major ecological and cultural importance at Dworshak Reservoir. Bald eagles can be found throughout the project area during most winters. However, winter use of the reservoir varies greatly based on food availability and weather conditions. They feed primarily on deer, elk carrion, and fish in the open water. Eagles can often be found concentrated in the tailrace area, during reservoir drawdown, perching on a group of conifers on the south bank. Above the dam, when present, eagle observations are consistently associated with the occurrence of carrion and fish, which is typically random. Thus, historic use of lands along the reservoir by eagles is not concentrated. As a result, there are no known perch sites habitually used by eagles above the dam.

Prior to 1999, no eagle nests had been documented within the Clearwater River drainage. However, a bald eagle nest was discovered in 1999 near Cold Springs campground. A pair of eagles attempted nesting in this location in 1999 and 2000. Both nest attempts failed and the nests were abandoned prior to hatching (personal communication, Dan Davis, Clearwater National Forest). During the 2001 breeding season, no nesting activity was observed at this site.

Environmental Consequences

Alternative 4 (Proposed Action)

The determination for the bald eagle is based on several factors. Habitat for wintering bald eagles has increased dramatically as a result of inundating the North Fork

River drainage. Winter use by bald eagles of the North Fork drainage prior to inundation has not been documented; therefore, current use is well above historical conditions. Populations of bald eagles throughout the lower continental United States have also increased dramatically, such that delisting of the species has been authorized and is eminent. Use of Dworshak Reservoir by wintering eagles is not localized and is indiscriminate of habitat. Bald eagles exhibit opportunistic behavior and are found where carrion and abundant prey are found. No habitual perch sites or roost sites have been documented on the reservoir. Therefore, potential impacts from logging operations within the Little Bay area during winter months are minimal. It is likely that bald eagles will be locally displaced. With over 200 miles of created shoreline largely consisting of adequate foraging habitat, localized displacement is deemed a minor impact.

Based on the above discussion, the benefits for winter disturbance restrictions appear negligible. In contrast, costs associated with eliminating winter harvest activity to protect wintering eagles are substantial. If harvest activities are restricted from February through November 15, a host of other wildlife species and recreational activities will be affected. Specifically, adverse impacts to migratory waterfowl, neo-tropical migrants, and breeding raptors could not be avoided. Helicopter activity during the breeding season has the potential to substantially reduce reproductive output for these species. Felling trees during the winter would also provide a short-term food supply for wintering ungulates. Both deer and elk have been noted to forage heavily on moss and lichens from fallen trees. Providing this food supply during times of high energy demands would greatly benefit overall energetics of localized populations of ungulates.

Therefore, harvest activities would be allowed during the winter months. This would have only minor affects to wintering bald eagles, greatly reduce impacts to other wildlife species, and benefit wintering ungulates. This sanction would also afford us the opportunity to restrict all helicopter activity during the general avian breeding season, February 1 through August 15, throughout the entire project.

The project lies within the home range (2.5 miles) of an existing eagle nest. The documented Dworshak nesting pair has not successfully raised and fledged offspring from this particular nest location, and their affinity to this nest site may be relatively weak compared to breeding bald eagles that have a long history of successful fledging from a particular nest site. Also, the topographic features surrounding a particular nest site may have more influence upon eagle responses to aircraft than a single distance applied everywhere. Keeping a ridgeline between the nest site and any aircraft may be effective in reducing disturbance, avoidance, and any chance of abandonment (Montana Bald Eagle Working Group 1991). A major ridgeline separates the nest area from the stewardship project (appendix A, plate 4). Locations of primary use of these areas are also influenced by topography. Therefore, not only does the ridgeline provide screening, but also may affect the selection of perching and roosting sites displacing the primary use away from the project boundary. Guidelines to protect roost trees, perch trees, and potential nest trees within the home range include the establishment of a

100-foot no-cut zone and only limited tree removal will occur throughout. Limited tree removal is designed to retain the dominant and codominant trees, which are of particular value to eagles

Based on these factors and management guidelines documented in the BA (appendix B), this alternative should be sufficient to avoid adverse effects of the nest site area, the primary use area, and a large portion of the home range of the nesting eagles.

Alternative 1 (No Action)

Open perch trees with adequate visibility are important for wintering bald eagles. Allowing shade-tolerant trees to continue to encroach may negatively impact foraging habitat. In contrast, this condition may benefit nesting and roosting habitat. Eagles prefer "screening cover" below nest and roost trees to reduce ground disturbance. In either instance, the "No Action" alternative would have no significant effects to wintering or nesting bald eagles.

3.5.3.2 Gray Wolf

Affected Environment

The gray wolf (*Canis lupus*), an experimental nonessential population, is beginning to re-establish itself in the Clearwater River Basin. The upper reaches of the reservoir are quite remote and could be conducive to wolf habitation. Past coordination with the USFWS indicated that there have been two gray wolves sighted in the vicinity of Dworshak Reservoir near the Grandad Recreation Area. These sightings near the reservoir have all occurred 30-40 miles to the north and east of the stewardship project and during the winter season when access is diminished and there is less likelihood for wolf-human interactions (personal communication, Steve Nadeau, Wildlife Biologist, IDFG 2000). No known wolf sightings have occurred in or near the Little Bay area.

Environmental Consequences

Alternative 4 (Proposed Action)

Based on the territorial nature of the gray wolf, the high level of recreational access, and activity during the summer and fall months, and the absence of sighting within the vicinity, it is very unlikely that wolves would inhabit or use the project area. Dispersing young represent the only plausible possibility for such an occurrence. Based on the great adaptive nature of the gray wolf, the proposed changes to the habitat conditions should have no long-term impacts to wolf habitation. Short-term impacts to wolves could affect distribution of dispersing young in the unlikely event that one is in the area. Habitat improvements would likely improve winter ungulate range, improving wolf prey-base in the project and surrounding area.

If wolf presence, sign, or possible wolf sign is discovered, a Corps biologist would verify the presence. If wolf sign is verified, work would stop and USFWS would be contacted immediately. No work would resume without the concurrence of the USFWS.

The "No Effect" determination for gray wolf is primarily based on their territoriality, adaptive nature, known range of existing populations, and lack of localized sightings and their existence as an experimental nonessential population.

Alternative 1 (No Action)

No impacts to gray wolves are anticipated with the "No Action" alternative.

3.5.3.3 Bull Trout

Affected Environment

Bull trout (*Salvelinus confluentus)*, found in Dworshak Reservoir (Maiolie 1992), was listed as a threatened species by the USFWS in July 1998. No critical habitat has yet been designated. The species spawns from August to November in larger tributaries of the reservoir. They can exhibit both resident and migratory life history stages. Migratory bull trout spawn in tributary streams where juvenile fish rear from 1 to 4 years before migrating to either a lake (adfluvial), river (fluvial), or, in certain coastal areas, saltwater (anadromous) where maturity is reached (USFWS 1998). Maturity is reached in 4-7 years post-hatching. Therefore, bull trout occurring in Dworshak Reservoir are migratory juveniles or adults. Resident and juvenile migratory bull trout prey on terrestrial and aquatic insects, macro-zooplankton, and small fish. Adult migratory bull trout are primarily piscivorous, which is to feed on various fish species (USFWS 1998).

Available historical data does not suggest bull trout spawning/early rearing habitat was inundated when Dworshak or the lower Snake River dams were completed; all evidence suggests that the impounded areas were historically used as adult/subadult foraging and over-wintering areas (USFWS 2000). Spatial and temporal distribution, migration patterns, spawning sites, and basic life history information of bull trout are currently being investigated by IDFG within Dworshak Reservoir.

Although bull trout are found within the Dworshak Reservoir and are currently being studied, no bull trout spawning streams or fish-bearing streams exist within the project boundary.

Environmental Consequences

Alternative 4 (Proposed Action)

As no bull trout spawning streams or fish-bearing streams exist within the project boundary, the potential impacts to bull trout would only exist in the event that the restoration activities had major adverse effects to the water quality of

Dworshak Reservoir. The following conditions, guidelines, and control measures established for this project would minimize the potential for reservoir water quality degradation: (1) The absence of major road construction; (2) the use of helicopter logging on steep slopes; (3) the use of INFISH (USDA 1995) as a guide to establish RHCAs; (4) erosion and sediment control measures; (5) the retention of a substantial overstory; and (6) spill prevention and control plans. There are 16 different soil types and/or soil complexes occurring on the project area. Based on soil survey data, each of these 16 soil types exhibits low to moderate potential soil erodibility. Each are also considered well-drained to moderately well-drained soils. There is potential to have minor runoff but is expected to be minimal and have no significant adverse effects on water quality. The INFISH (USDA 1995) standards would be used as a guide to protect Dworshak Reservoir and streams feeding the reservoir. Only one permanently flowing stream occurs within the project boundary. Riparian habitats of that stream and several intermittent streams would be protected through the INFISH (USDA 1995) standards. The reservoir shoreline would be protected through 50- and 100-foot no-harvest buffers and through leaving dominant and codominant trees beyond. Due to the current management of Dworshak water reserves, the effects of this project on the water quality of the reservoir would be minimal. Current objectives of flow augmentation to enhance downstream conditions for endangered salmon migration, result in drastic drawdowns (80 to 155 feet) and erosion. In comparison, impacts to water quality resulting for this project are negligible. Thus, no significant adverse impacts are anticipated.

Alternative 1 (No Action)

No impacts to bull trout are anticipated with the “No Action” alternative.

3.5.3.4 Ute Ladies’-tresses

Affected Environment

Ute ladies’-tresses, listed as threatened under the ESA, is generally found at relatively low elevations in mesic or wet meadows along permanent streams and about springs and major desert lakes of Nevada, Utah, and Colorado. These sites are commonly subject to intermittent and unpredictable inundation, and the plants often emerge from shallow water (Sheviak 1984).

Ute ladies’-tresses have been found in eastern Idaho, southwestern Montana, and east of the Cascades Mountains in Washington. These are the closest known locations of this plant. Recent plant surveys (summer 2000) of the Little Bay project area conducted by the CDC resulted in no detection of Ute ladies’-tresses.

Environmental Consequences

Alternative 4 (Proposed Action)

Recent plant surveys (summer 2000) of the Little Bay project area conducted by the CDC resulted in no detection of Ute ladies'-tresses. Within the region, this species is predominantly found in broad and meandering floodplains and is not likely to occur in or around Dworshak Reservoir, which is surrounded by steep breaklands (personal communication, Juanita Lichthardt, CDC, Moscow).
Because habitat for Ute ladies'-tresses is lacking, we anticipate no risk of disturbance to the plant or its habitat. A "No Effect" determination was reached for this species.

Alternative 1 (No Action)

No impacts to Ute ladies'-tresses are anticipated with the "No Action" alternative.

3.5.3.5 Sensitive Wildlife Species

Affected Environment

Northern goshawks (*Accipiter gentilis*) are classified as a Species of Special Concern by the IDFG, Sensitive Species by USFS Region 4 and BLM in Idaho, and as a "watch" species by the USFWS. Due to the protected status of goshawks and the increasing concern about goshawk population status in parts of its range, researchers are attempting to gain a better understanding of goshawk habitat characteristics and how land management activities may affect those habitat characteristics. The USFWS has indicated that the most likely areas for northern goshawk nesting territories contain mature and old growth stands of timber over 25 acres that contain Douglas fir, aspen, and western larch and have a canopy closure of 60 percent or more. Within these stands, goshawks generally select areas with more open understories. Dworshak does contain areas suitable for nesting goshawks, but no nests have been documented on Corps land. Recent attempts to locate nests have resulted in the discovery of one nest just off Corps property near Little Bay.

Environmental Consequences

Alternative 4 (Proposed Action)

Northern goshawks are resident species within the geographic area of Dworshak Reservoir and are listed as an undetermined species by the State of Idaho. Fire suppression in ponderosa pine, mixed species, and spruce-fir forests has resulted in dense, single-story forests with few openings. This alternative is designed to protect mature and old-growth forests. Recommendations for goshawk management presented by Braun and others in 1996, included "In the absence of frequent ground fire, healthy southwestern ponderosa pine forests need management (*e.g.*, removal of small trees) to enhance forest stand variability necessary to maintain diverse assemblages of

animals to ensure that significant areas will attain and sustain successional stages and character of pre-settlement forests." This alternative is designed to accomplish this objective. They further state that prescriptions for habitat management to enhance conditions for northern goshawks must be ecosystem specific. Fuel accumulation may also result in stand-replacing fires. Large, stand-replacing fires can destroy large blocks of northern goshawk habitat, resulting in a uniform habitat instead of a mosaic of open and forested areas (Reynolds et al. 1992). Proposed changes in the forest conditions described in this alternative are anticipated to benefit northern goshawks. However, much is dependant on the amount and structure of the new understory following prescribed burning and the change in form of remaining dominant trees. Short-term effects would be highly beneficial. If the height of the understory vegetation is maintained through herbivory or through frequent ground fires, then the long-term effects would also be beneficial. Canopy closure is estimated to be 40 to 60 percent following thinning. If the crown widths of remaining dominant trees increase due to an increase in sun exposure, the canopy may reach a preferred state for nesting goshawks. However, potential nesting habitat would exist in RHCAs and in untreated areas of dense grand fir/red cedar.

Although no goshawk nests have been documented on Corps property, all nests found would be provided appropriate protection as determined by regional biologists (see section 2.1.5). To establish appropriate guidelines for land managers within the Clearwater region, biologists (Dan Davis, USFS; Rita Dixon, IDFG; and Pat Heglund, Potlatch Corporation) have evaluated the importance of nest protection within the northwest. Their recommendations are as follows: create a "no-harvest" buffer equal to three nest-tree lengths, create a seasonal buffer where no harvest will occur between March 1 and September 30, and retain trees 21-inch dbh or greater and a minimum canopy closure of 75 percent within 0.5 miles of the nest. These guidelines would be considered when protecting any observed goshawk nests.

Alternative 1 (No Action)

The "No Action" alternative would not bring about the understory conditions preferred by goshawks. The lack of frequent ground fires characteristic of these habitat types have degraded potential goshawk habitat. The current overstory canopy closure conditions are conducive to goshawk nesting, but the abundance of small diameter conifers are counter-productive. Open understories are highly preferred to allow foraging within the forest stands. Under current conditions the forest stands are inadequate as habitat for northern goshawks. Continuing these conditions would not benefit northern goshawks.

3.5.3.6 Sensitive Fish Species

Affected Environment

The distribution and abundance of westslope cutthroat trout has declined throughout its former range since the late 1800s (Liknes and Graham 1988). The decline of cutthroat trout has been attributed to overfishing, genetic introgression, competition with

nonnative species (especially stocked rainbow trout), and habitat destruction. As a result of recent study findings, indicating that many healthy populations still exist and thrive in Idaho waters, the USFWS denied listing the westslope cutthroat. The species is listed as a sensitive species in Idaho. Westslope cutthroat occurs in the reservoir and spawns in larger tributaries. It has been documented to occur in the following creeks feeding Dworshak Reservoir; Long Meadow, Elk, Cranberry, Swamp, Weitas, Gold, Benton, Little North Fork of the Clearwater, Breakfast, and North Forth of the Clearwater (Clearwater Subbasin; www.StreamNet.org).

Environmental Consequences

Alternative 4 (Proposed Action)

Significant impacts to westslope cutthroat from activities associated with the stewardship project are not anticipated. As no fish-bearing streams exist within the project boundary, the potential impacts to westslope cutthroat would only exist in the event that the restoration activities had major adverse effects to the water quality of Dworshak Reservoir. For further discussion, see section 3.5.3.

Alternative 1 (No Action)

No impacts to westslope cutthroat are anticipated with the "No Action" alternative.

3.6 RECREATION

Affected Environment

Dworshak is the only large lake with a forested shoreline found within a 100-mile radius of Orofino, Idaho. It is an important regional recreation resource for eastern Washington and central Idaho. Because of the remote nature of the North Fork there is limited road access and development has been minimal. The most popular activities include boat-in camping, boating, water-skiing, fishing, hunting, and hiking. Facilities include 7 boat launch sites, 2 developed Class "A" full service campgrounds, 2 primitive campgrounds, a marina, and over 80 boat-accessible mini-camps. Annual visitation to the reservoir is approximately 150,000. Within the habitat restoration boundaries, there are seven mini-camp sites.

Environmental Consequences

Alternative 4 (Proposed Action)

The Little Bay Stewardship Project area is managed for vegetation, general wildlife, and low-density recreation. There are no established hiking trails and sportsman access is by the reservoir or along unimproved roads located on neighboring lands.

Logging truck traffic on existing roads in the area would cause additional dust and disturbance to area users. All logging operations will adhere to a 100-foot no-disturbance zone around the seven mini-camp sites within the treatment area. Smoke generated by prescribed burns would have the potential to disturb mini-camp users. Signing will be installed at each mini-camp to inform the public of ongoing logging and prescribed burning activities in the area. Safety and increases in noise and dust are primary concerns. The limited magnitude of the operation would have insignificant impacts on the overall reservoir area.

The development of increased browse vegetation in the harvest areas may increase the deer and elk numbers. The minor increases in populations of these species may increase the number of hunters and the number of animals harvested at the project. Increased animal numbers also provide more opportunities for wildlife viewing. The magnitude of increased use and its indirect effects is not expected to be so great or geographically concentrated that significant user-related problems would occur.

Alternative 1 (No Action)

Recreation would not likely be impacted be this alternative.

3.7 AESTHETICS

Affected Environment

The Corps' visitation figures indicate sightseeing is the primary motivation for visiting Dworshak. Dworshak, located 1.5 miles upstream from the mouth of the North Fork Clearwater Canyon, impounds a 54-mile long reservoir. When full, the reservoir created by the dam is enhanced by 184 miles of scenic shoreline winding through the timbered canyons of the western slopes of the Bitterroot Mountain Range (Corps 1996a). Over 100 mini-camps were placed along the shoreline to blend in with the landscape. Scenic natural meadows, mixed conifers, openings, brush fields along with logging roads, and burned and logged areas (both on Dworshak land and on adjacent property) are visible from the reservoir.

Environmental Consequences

Alternative 4 (Proposed Action)

Short-term adverse effects would include the blackened appearance of the soil surface and a lack of ground vegetation, following the prescribed burn. The short-term adverse effects are expected to occur for approximately 1 year following the burn. Visible disturbed areas, such as exposed landings, would be seeded to native grasses to speed rehabilitation. Mitigating measures would include providing buffer zones along the reservoir, perennial streams, and mini-camps; locating landing sites outside of view of the reservoir; minimizing development of new roads; and using best management practices to control erosion damage. Re-vegetation is likely to begin to reduce visual

effects from project activities within 6 months and nearly eliminate them within a year. The long-term effects are anticipated to be beneficial. The proposed work would remove insect-infested trees, reduce stand density, and create open areas resulting in a "park-like" setting.

Effort would be put into public relations regarding this project. Ideas brought to the table are informational kiosks at high-use mini-camps within the project boundary, displays at the visitor's center, and the use of public media. A combination of these will be used to mitigate temporary aesthetic impacts.

Alternative 1 (No Action)

Aesthetics would not likely be impacted by this alternative.

3.8 CULTURAL RESOURCES

Affected Environment

The archaeological record indicates that the Dworshak area has been continuously inhabited for the past 10,000 years (Ames 1980). The subsistence pattern of the prehistoric inhabitants of the Clearwater Valley was based on a hunting, fishing, and gathering economy. A stable utilization of the resources is reflected through time, with slightly greater dependence on fishing and processing of plant foods reflected in the tool assemblages of the last few millennia (Mattson et al. 1982). The archaeological resources at Dworshak are closely related to Nez Perce culture as the Clearwater River and its tributaries have been used by the Nez Perce Indians since early times. The Euro-American presence in the area began with Lewis and Clark's journey through Orofino in 1805 and continues to the present day.

Approximately 450 cultural resource sites have been identified to date within the boundaries of Dworshak. Of this total, 428 are prehistoric, 16 have both prehistoric and historic components, and 10 are of historic origin (Cannell 2001).

There are potentially eligible prehistoric and historic sites in this proposed project. The historic contexts to which they are related include prehistoric archaeology, agriculture, Native American, architecture, settlement: 1855-1890, Interwar: 1920-1940, Pre-Modern: 1940-1958, and transportation.

Environmental Consequences

Alternative 4 (Proposed Action)

Many of the recorded archaeological sites are well away from unit boundaries in both elevation and distance. Several are located in the near vicinity of sale units and are at risk for inadvertent impacts due to the placement of summer work camps, creation of vehicle parking areas, log decks, and/or tree felling. Historic roads and trails present in

sale units may be used although no realignments of these historic features would be done.

Activities that have the greatest potential to impact buried historic properties include road realignment, skidding, decking at landings, and creation of equipment parking, and materials storage areas. Tree felling, camping, log loading, and log transport have a lesser impact potential.

There is a minimal to moderate potential threat to the integrity of historic properties as a result of this project. Although there are recorded archaeological sites in the area of this proposed project, the activities would be managed to avoid impacts to known and recorded cultural resources and properties that are potentially eligible for listing in the National Register of Historic Places.

These sites will require special consideration during sale activities including: (1) dropping trees upslope from site boundaries and lifting logs away from the reservoir edge; (2) crossing historic road segments at right angles where previous disturbance has occurred; and (3) ensuring that historic roads are not used as skid trails. Given these considerations, it has been determined that there is "No Effect" to cultural resources.

The Corps prepared a cultural resources investigation report for the proposed project. The report was forwarded to the State Historic Preservation Office (SHPO) on March 7, 2001. In their letter of June 7, 2001, SHPO concurred that work within units 1, 4, 8, 10, and 11 would have no effect on historic properties. The SHPO also requested additional information on the boundaries of an existing cultural resource site. An addendum to the report was subsequently prepared in coordination with the Nez Perce Tribe and forwarded to SHPO. In their letter of January 10, 2002, SHPO responded that the project can proceed as planned, with the stipulation that if trees cannot be felled toward the center of sale units 1, 2, 6, 7, and 9, the Corps needs to monitor during felling activities. See appendix E for SHPO response letters.

Alternative 1 (No Action)

Cultural resources would not be impacted by this alternative.

4.0 CONSULTATION AND COORDINATION

4.1 DISTRIBUTION

The following is a listing of individuals, organizations, agencies, and tribes to which the EA or information on the EA was distributed. Paper copies of the EA were distributed to those marked with an asterisk. Information on how to view the EA on the District's web site and on procedures for obtaining a paper copy was distributed to all others on the list.

Table 1. Distribution List

Name	Business/Group
Anderson, John	
Annis, Duane	U.S. Forest Service
Beck, John	
Bellaty, Jim*	Idaho Department of Environmental Quality
Bifford, Leann*	Senator Craig's Office
Bigger, Sarah*	Senator Crapo's Office
Bowser, Dave	
Brandt, Joanne	
Bray, Barbara	
Bretz, Vern	U.S. Forest Service
Browning, Dennis	
Burnham, Rick	
Carroll, Frank*	
Carter, Qwen	Nez Perce Tribe
Clay, Mike	Orofino Chamber of Commerce
Coonts, Larry	
Corrao, Vincent*	
Craig, Mark*	U.S. Department of Interior, Bureau of Land Management
Crawford, Linda	
Crawford, Mike	
Crumb, Eugene	
Cuddy, Chuck*	
Danley, Greg	
Davis, Dan*	Clearwater National Forest
Dawson, Larry*	Clearwater National Forest
Deyo, Joanne	
Duncan, Maxine	
Erbst, John*	
Florance, Doug	
Gabriel, Phil & Kathleen	

Table 3. Distribution List (Continued)

Name	Business/Group
Galantuomini, David*	
George, Brad	Idaho Department of Fish and Game
Gochner, Doug*	Clearwater National Forest
Godawa, Michelle*	U.S. Forest Service
Graham, Bill*	Idaho Department of Water Resources
Greene, Ed and Betty	
Groen, Cal*	Idaho Department of Fish and Game
Haller, Greg	Nez Perce Tribe
Hanna, Mike*	
Hansen, Bruce	USDA/NRCS
Hanson, Keith	
Harper, Dennis*	Orofino Chamber of Commerce
Hartig, Ron	
Hasenoehrl, Mary*	USS Mike Crapo
Hatch, Charles*	University of Idaho- CNR
Heath, Travis and Linda	
Hendrix, Larry and Dorothy	
Hill, Neal	
Irby, Alex*	
Izard, Sue	Nez Perce Soil and Water Conservation
Jenks, Clark	
Johnson, Greg	
Johnston, Phil	
Jones, Monica	
Kaula, Harold and Sue	City of Orofino
King, Stephen	
Konkol, Don*	
Laam, Rick	City of Orofino
Lang, Paul	Orofino Chamber of Commerce
Lindahl, Ed*	
Lohn, D. Robert	National Marine Fisheries Service
Lozar, Ed and Annie	
McNall, Cloann	Clearwater Tribune
Medley, Sandy*	Orofino Chamber of Commerce
Miller, Bill	U.S. Fish and Wildlife Service
Moore, Jo and Dick	
Mulligan, Bill*	
Murphy, Elayne	U.S. Forest Service
Nadeau, Steve*	Idaho Department of Fish and Game
Neuenschwander, Leon*	University of Idaho

Table 3. Distribution List (Continued)

Name	Business/Group
Nilsson, Jon and Ann	
Osburn, Darrel and Linda	
Parker, Dave and Bert*	
Penny, Samuel N. *	Nez Perce Tribe
Pippenger, Joe*	City of Orofino
Polito, Peggy	
Presnell, Larry and Mary	
Rhodes, Mark	Idaho Department of Fish and Game
Richardson, Pat	
Roehr, Tim*	
Rosetti, Sam	
Sands, Mark*	Idaho Department of Fish and Game
Sater, Mark	
Schoen, Dave	
Schrader, Shannon	
Schwartz, Mike	
Shelly, Gary*	Idaho Parks and Recreation
Sprute, Sherri*	Representative Butch Otter
Stark, Wendell	
Statler, Dave*	Nez Perce Tribe
Suk, Greg	City of Orofino
Suk, Sally and Tom	U.S. Forest Service
Swayne, K.M. (Mark)	
Tetwiler, Michael	
Turlington, Scott*	Office of Governor Kempthorne
Weeks, Michael*	
Weimer, Lane	
West, Steve *	Idaho Department of Environmental Quality
White, Sue	U.S. Forest Service
Willard, John	
Yucenovich, Gary*	U.S. Department of Interior, Bureau of Land Management
Zodrow, Ozz and Marlene	
	U.S. Fish and Wildlife Service

Source: Corps 2001.

5.0 COMPLIANCE WITH ENVIRONMENTAL PROTECTION STATUTES AND REGULATIONS

The following paragraphs address the principal environmental review and consultation requirements applicable to this project. Pertinent Federal statutes, executive orders (EO), and executive memorandums are included.

5.1 HISTORIC PRESERVATION ACT, AS AMENDED: EXECUTIVE ORDER 11593, PROTECTION AND ENHANCEMENT OF THE CULTURAL ENVIRONMENT, MAY 13, 1971

The National Historic Preservation Act (NHPA), as amended, directs Federal agencies to assume responsibility for all cultural resources under their jurisdiction. Section 106 of NHPA requires agencies to consider the potential effect of their actions on properties that are listed or are eligible for listing in the National Register of Historic Places. The NHPA implementing regulations require that the Federal agency consult with SHPO, tribes, and interested parties to ensure that all potentially significant cultural resources are adequately identified, evaluated, and considered in planning for a proposed undertaking.

The proposed actions are in compliance with the NHPA and EO. See section 3.8 for further discussions related to compliance.

5.2 CLEAN AIR ACT, AS AMENDED

The CAA, amended in 1977 and 1990, was established “to protect and enhance the quality of the nation’s air resources so as to promote public health and welfare and the productive capacity of its population.” The CAA authorizes the Environmental Protection Agency (EPA) to establish National Ambient Air Quality Standards to protect public health and the environment. The CAA establishes emission standards for stationary sources, volatile organic compound emissions, hazardous air pollutants, and vehicles and other mobile sources. The CAA also requires the states to develop implementation plans applicable to particular industrial sources.

Compliance with the standards of the Northern Idaho Airshed Group is discussed in section 3.3. The proposed actions are in compliance with the CAA. Pursuant to Section 176(C) and 309 of the Act, this environmental assessment will be provided to the EPA.

5.3 FEDERAL WATER POLLUTION CONTROL ACT (CLEAN WATER ACT)

The Federal Water Pollution Control Act is more commonly referred to as the Clean Water Act (CWA). This act is the primary legislative vehicle for Federal water pollution control programs and the basic structure for regulating discharges of pollutants into waters of the United States. The CWA was established to “restore and maintain the chemical, physical, and biological integrity of the nations waters.” The CWA sets goals

to eliminate discharges of pollutants into navigable water, protect fish and wildlife, and prohibit the discharge of toxic pollutants in quantities that could adversely affect the environment. The Act has been amended numerous times and given a number of titles and codifications.

This project would not result in the discharge of dredged or fill material below the line of ordinary high water of any waters subject to regulation under the CWA. Therefore, a 404(b)(1) evaluation has not been prepared. No effluent would be discharged in association with this work. General discussion of potential impacts of the proposed action upon water quality are addressed in section 3.2.

5.4 ENDANGERED SPECIES ACT OF 1973, AS AMENDED

The ESA, amended 1988, establishes a national program for the conservation of threatened and endangered species of fish, wildlife, and plants and the habitat upon which they depend. Section 7(a) of the ESA requires Federal agencies to consult with the USFWS and the NMFS, as appropriate, to ensure that their actions are not likely to jeopardize the continued existence of endangered or threatened species or adversely modify or destroy their critical habitats.

Section 7(c) of the ESA and the Federal regulations on endangered species coordination (50 Code of Federal Regulations, Section 402.12) require that Federal agencies prepare BAs of the potential effects of major actions on listed species and critical habitat.

The Corps prepared an evaluation of the potential effects of the proposed action upon listed species and consulted with the USFWS. The USFWS concurred with the Corps determination that the project “may affect, but is not likely to adversely affect” bull trout and bald eagles. No species that are under the jurisdiction of NMFS occur within the proposed project boundary.

5.5 FISH AND WILDLIFE COORDINATION ACT

The FWCA of 1980 requires consultation with USFWS when any water body is impounded, diverted, controlled, or modified for any purpose. The USFWS and state agencies charged with administering wildlife resources are to conduct surveys and investigations to determine the potential damage to wildlife and the mitigation measures that should be taken. The USFWS incorporates the concerns and findings of the state agencies and other Federal agencies, including NMFS, into a Coordination Act Report that addresses fish and wildlife factors and provides recommendations for mitigating or enhancing impacts to fish and wildlife affected by a Federal project. The Federal project must include justifiable measures that address USFWS recommendations and concerns. Federal agencies that construct or operate water-control projects are authorized to modify or add to the structures and operation of those projects to accommodate the means and measures for conservation of fish and wildlife.

This project is being coordinated with the USFWS. Because the proposed action would not impound, divert, control, or modify any water body, a Coordination Act Report has not been prepared.

5.6 MIGRATORY BIRD TREATY ACT, AS AMENDED

The Migratory Bird Treaty Act implements various treaties and conventions between the U.S. and Canada, Japan, Mexico, and the former Soviet Union for the protection of migratory birds. Under the Act, taking, killing, or possessing migratory birds is unlawful.

Various provisions to protect active nesting raptors, as well as historical and active goshawk nests, have been incorporated. In addition, monitoring of nesting activities would occur during the harvest operation to develop an understanding of migratory bird use. Additional discussions of the potential impacts of the project upon birds are discussed in section 3.5.2.

5.7 NATIONAL ENVIRONMENTAL POLICY ACT

This EA has been prepared and is being circulated to agencies and the public for review and comment pursuant to requirements of NEPA. No impacts significantly affecting the quality of the human environment have been identified at this time. If no such impacts are identified during the public review process, compliance with NEPA would be achieved upon the signing of a Finding of No Significant Impact (FONSI). However, if such impacts were identified during the public review, an EIS would be required. Compliance with NEPA would then be achieved upon completion of an EIS and the signing of a Record of Decision.

5.8 WILD AND SCENIC RIVERS ACT

The Wild and Scenic Rivers Act designates qualifying free-flowing river segments as wild, scenic, or recreational. The act establishes requirements applicable to water resource projects affecting wild, scenic, or recreational rivers within the National Wild and Scenic Rivers System, as well as rivers designated on the National Rivers Inventory. Under the Act, a Federal agency may not assist the construction of a water resources project that would have a direct and adverse effect on the free-flowing, scenic, and natural values of a Federally designated wild or scenic river. If the project would affect the free-flowing characteristics of a designated river or unreasonably diminish the scenic, recreational, and fish and wildlife values present in the area, such activities should be undertaken in a manner that would minimize adverse impacts and should be developed in consultation with the National Park Service.

No rivers designated as “wild and scenic” occur within or near the proposed project area.

5.9 NORTHWEST ELECTRIC POWER PLANNING AND CONSERVATION ACT (NORTHWEST POWER ACT)

Congress passed the Northwest Power Act on December 5, 1980. This law created the eight-member Northwest Power Planning Council (NPPC), an interstate agency whose members are appointed by the Idaho, Montana, Oregon, and Washington governors. The NPPC was entrusted with adopting a Fish and Wildlife Program for the Columbia River Basin by November 1982 and preparing a 20-year Regional Electric Power and Conservation Plan by April 1983. These plans are periodically updated and amended.

The NPPCs Fish and Wildlife Program established a number of goals for restoring and protecting fish and wildlife populations in the basin. These goals led to changes in the operation of the Coordinated Columbia River System during the mid-1980s. One of the most notable changes resulted in the Water Budget, which provides for the release of specific amounts of water in the upper Columbia and Snake Rivers to help juvenile salmon migrate downstream in the spring. More recently, the NPPC developed its own proposals to protect threatened and endangered salmon stocks. The NPPC has completed amendments to its Columbia River Basin Fish and Wildlife Program. The amendments adopted to date include mainstem survival, harvest, production, habitat, flow measures that can be used to increase salmon and steelhead runs, and resident fish and wildlife measures.

The proposed action does not conflict with the requirements of the Act or the Columbia Basin Fish and Wildlife Program.

5.10 EXECUTIVE ORDER 11988, FLOODPLAIN MANAGEMENT, MAY 24,1977

This EO requires Federal agencies to evaluate the potential effects of any actions they might take in a floodplain and to ensure that planning, programs, and budget requests reflect consideration of flood hazards and floodplain management. If a Federal agency program will affect a floodplain, the agency must consider alternatives to avoid adverse effects in the floodplain or to minimize potential harm.

The proposed project would not occur in a floodplain.

5.11 EXECUTIVE ORDER 11990, PROTECTION OF WETLANDS, MAY 24,1977

This EO encourages Federal agencies to take actions to minimize destruction, loss, or degradation of wetlands and to preserve and enhance the natural and beneficial values of wetlands when undertaking Federal activities and programs. Any agency considering a proposal that might affect wetlands must evaluate factors affecting wetland quality and survival. These factors should include the proposal's effects on the public health, safety, and welfare due to modifications in water supply and water quality; maintenance

of natural ecosystems and conservation of flora and fauna; and other recreational, scientific, and cultural uses.

Wetlands would not be impacted by the proposed action.

5.12 EXECUTIVE ORDER 13175, CONSULTATION AND COORDINATION WITH INDIAN TRIBAL GOVERNMENTS, NOVEMBER 6, 2000

This EO requires establishment of regular and meaningful consultation with tribal officials in development of Federal policies that have tribal implications to strengthen the United States Government-to-Government relationships with Indian tribes and to reduce the imposition of unfunded mandates upon Indian tribes.

Consultation and coordination was initiated with the Nez Perce Tribe on December 12, 2001, and is ongoing. Consultation and coordination will continue throughout the EA development process, public review period, and conclude with the signing of a FONSI. Results of consultation and coordination will be documented in the FONSI.

5.13 COUNCIL ON ENVIRONMENTAL QUALITY MEMORANDUM, AUGUST 11, 1980, ANALYSIS OF IMPACTS ON PRIME AND UNIQUE AGRICULTURAL LANDS IN IMPLEMENTING NATIONAL ENVIRONMENTAL POLICY ACT

This Council on Environmental Quality (CEQ) Memorandum establishes criteria to identify and consider the adverse effects of Federal programs on the preservation of prime and unique farmland; consider alternative actions, as appropriate, that could lessen adverse effects; and ensure Federal programs are consistent with all state and local programs for protection of farmland.

Impacts to prime or unique farmlands would not occur.

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APPENDIX C

Current CDC Listing of Target Plant Species and Their Status for the Dworshak Dam and Reservoir Area

APPENDIX C

Current CDC Listing of Target Plant Species and Their Status for the Dworshak Dam and Reservoir Area

Habitat	Scientific Name	Common Name	Life Form	Heritage Rank[2]
	VASCULAR PLANTS			
Forest	*Cardamine constancei*	Constance's bittercress	F	G3/S3
Humid forest	*Carex hendersonii*	Henderson's sedge	F	G5S3
	Cypripedium fasciculatum	Clustered lady's-slipper orchid	F	G4S3
	Eburophyton austiniae	Phantom orchid	F	G4S3
	Polypodium glycyrrhiza (outcrops)	Licorice fern	FE	G5S1
	Thelypteris nevadensis	Sierra woodfern	FE	G4S1
	Trientalis latifolia	Western starflower	F	G5/S3
	Viola sempervirens	Redwoods violet	F	G5/S3
Old-growth forest	*Botrychium crenulatum*	Moonwort	FE	G3/S1
	Botrychium montanum	"	FE	G3/S1
	Botrychium lanceolatum var. *lanceolatum*	"	FE	G5T4/S3
	Botrychium minganense	"	FE	G4/S3
Outcrops and grassland	*Aster jessicae*	Jessica's aster	F	G2
	Calochortus nitidus	Broad-fruit mariposa lily	F	G3/S3
	Cirsium brevifolium	Palouse thistle	F	
	Lomatium dissectum var. *dissectum*	Fern-leaved desert parsley	F	G5T5/S1
	Lomatium salmoniflorum	Salmon-flowered desert parsley	F	G3/S2
	Mimulus alsinoides		F	G5S1
	Mimulus ampliatus	Ample monkey-flower	F	G1/S1
	Mimulus clivicola	Bank monkey-flower	F	G3

Current CDC Listing of Target Plant Species and Their Status for the Dworshak Dam and Reservoir Area (Continued)

Habitat	Scientific Name	Common Name	Life Form[1]	Heritage Rank[2]
	Pentagramma triangularis ssp. *Triangularis*	Gold-back fern	FE	G5T5/S1
Meadows	*Haplopappus hirtus* var. *sonchifolius*		F	G4T3/S1
	Waldsteinia idahoensis	Idaho strawberry	F	G3/S3
Riparian	*Blechnum spicant* (also seeps)	Deerfern	FE	
	Corydalis caseana ssp. *hastata*		F	
	Dodecatheon dentatum	White shooting-star	F	
	Petasites frigidus var. *palmatus*		F	G5S1
	Rubus spectabilis	Salmonberry	S	
	Triantha occidentalis ssp. *brevistyla*		F	G5S1
Seeps	*Asplenium trichomanes*		FE	G5S1
BRYOPHYTES[3]				
Amphidium californicum				
Bryum calobryoides				
Buxbaumia aphylla				
Dendroalsia abietina				
Homalothecum arenaria				
Hookeria lucens				
Meesia longiseta				
Orthotrichum flowersii				
Orthotrichum hallii				
Orthotrichum holzingeri				
Orthotrichum striatum				
Rhizomnium nudum				

Current CDC Listing of Target Plant Species and Their Status for the Dworshak Dam and Reservoir Area (Continued)

Habitat	Scientific Name	Common Name	Life Form	Heritage Rank[2]
Scapania bolanderi				
Schistostega pennata				
Sphaerocarpos hians				
Tayloria spp.				
Tripterocladium spp.				
LICHENS				
Cladonia transcendens				G4/S2
Cladonia verruculosa				G3/S1
Collema crurtisporum				G1/S1
Collema furfuraceum				G5/S1
Hypogymnia apinnata				G4/S1
Hypogymnia enteromorpha				G4/S1
Lobaria hallii				G4/S1
Lobaria linita				G4/S1
Lobaria scrobiculata				G3G4/S1
Physcia semipinnata				G5/S1
Pilophorus acicularis				G4/S1
Pseudocyphellaria anthraspis				G4/S1
Ramalina thrausta				G4/S1
Sphaerophorus tuckermanii				G4/S1
Thamnolia vermicularis				G?/S1

Source: Juanita Lichthardt, Idaho Conservation Data Center.

NOTES

1. F = forb or herb; FE = fern or fern ally; G = graminoid; S = shrub; T = tree; M = moss; L = lichen.

2. Idaho Conservation Data Center Ranks (Master 1991):

Each rank (1-5) is preceded by a geographic indicator. Subspecific taxa have an additional trinomial indicator which refers to the global rank of only the subspecific taxon.

Indicators:
G = Global rank indicator; denotes rank based on range-wide status of the species.
T = Subspecific (trinomial) rank indicator; applied after the global rank for subspecific taxa (*e.g.*, G5T2).
N = National ranks indicator; applied to a taxon based only on its populations or occurrences within the borders of a nation (including Alaska and Hawaii for the U.S.)
S = State rank indicator; applied to a taxon based only on its populations or occurrences within the borders of a state.

Ranks:
1 = Critically imperiled globally because of extreme rarity (typically less than 6 occurrences, less than 1,000 individuals or very few remaining acres) or because of some factor(s) making it especially vulnerable to extinction.
2 = Imperiled globally because of extreme rarity (typically 6-20 occurrences, 1,000-3,000 individuals, or few remaining acres) or because of some factor(s) making it very vulnerable to extinction throughout its range.
3 = Rare or uncommon (typically 21 to 100 occurrences or 3,000-10,000 individuals) throughout its range; or found locally, even abundantly, in a restricted range (*e.g.*, in a single state or physiographic region); or vulnerable to extinction throughout its range because of specific factors.
4 = Widespread, abundant and apparently secure globally, though it may be quite rare in parts of its range, especially at the periphery (typically more than 101 occurrences and more than 10,000 individuals); some cause for long-term concern exists.
5 = Demonstrably secure, widespread and abundant globally; although it may be quite rare in parts of its range, especially at the periphery.

3. From Christy, J.A. and J.S. Harpel. 1997. Rare bryophytes of the interior Columbia River basin and northern Great Basin, USA J. Hattori Bot. Lab. No. 82:61-75.

APPENDIX D

List of Animal Species Observed in and Around Little Bay

APPENDIX D

List of Animal Species Observed in and Around Little Bay

Common Name	Scientific Name	SEASON Sp	Su	Fa	Wi
BIRDS					
Anseriformes (swans, geese, & ducks)					
Mallard	*Anas platyrhynchos*	X	X	X	X
Wood Duck	*Aix sponsa*	X	X		
Common Merganser	*Mergus merganser*	X	X	X	
Galliformes (gallinaceous birds)					
Ruffed Grouse	*Bonasa umbellus*	X	X	X	X
California Quail	*Lophortyx californicus*	X	X	X	X
Falconiformes (vultures, hawks, & falcons)					
Sharp-Shinned Hawk	*Accipiter stiatus*	X	X	X	
Bald Eagle	*Haliaeetus leucocephalus*	X		X	X
Osprey	*Pandion haliaetus*	X	X		
Columbiformes (pigeons & doves)					
Mourning Dove	*Zendidd macroura*	X	X	X	
Strigiformes (owls)					
Great Horned Owl	*strix nebulosa*	X	X	X	X
Apodiformes (swifts & hummingbirds)					
Rufous Hummingbird	*Selasphorus rufus*	X	X		
Piciformes (woodpeckers)					
Northern Flicker	*Colaptes auratus*	X	X	X	X
Passeriformes (perching birds)					
Western Wood Pewee	*Contopus sordidulus*	X	X		
Black-Billed Magpie	*Pica pica*	X	X	X	X
Common Raven	*Corvus corax*	X	X	X	X
Black-Capped Chickadee	*Parus atrieapillus*	X	X	X	X
Mountain Chickadee	*Parus gambeli*	X	X	X	X
Red-Breasted Nuthatch	*Sitta canadensis*	X		X	X
Winter Wren	*Troglodytes troglodytes*			X	X
Gray Catbird	*Dumetella carolinensis*	X	X		
American Robin	*Turdus migratorius*	X	X	X	
Varied Thrush	*Ixoreus naevius*	X	X		
Hermit Thrush	*Catharus guttata*	X	X		
Swainson's Thrush	*Catharus Ustulata*	X	X		
Townsend's Solitare	*Myadestes townsendi*	X	X		
Golden-Crowned Kinglet	*Regulus satrapa*			X	
Cedar Waxwing	*Bombycilla cedrorum*	X	X		
Solitary Vireo	*Vireo solitarius*	X	X		
Red-Eyed Vireo	*Vireo olivaceus*	X	X		
Yellow Warbler	*Dendroica petechia*	X	X		
Yellow-Rumped Warbler	*Dendroica coronata*	X	X		
Western Meadowlark	*Sturnella neglecta*	X	X	X	X
Brown-Headed Cowbird	*Molothrus ater*	X		X	
Western Tanager	*Piranga ludoviciana*	X	X		
Rofous-Sided Towhee	*Pipilo erthrophthalmus*	X	X		
Dark-Eyed Junco	*Junco hyemalis*	X	X		
Chipping Sparrow	*Spizella passerina*	X	X		

List of Animal Species Observed in and Around Little Bay (Continued)

Common Name	Scientific Name	STATUS C[1]	STATUS U[2]
MAMMALS			
Little Brown Bat	*Myotis lucifugus*	X	
American Black Bear	*Ursus americanus*	X	
Mink	*Mustela vison*	X	
Striped Skunk	*Mephitis mephitis*	X	
Coyote	*Canis latrans*	X	
Redtail Chipmunk	*Tamias ruficaudus*	X	
Idaho Pocket Gopher	*Thomomys idahoensis*	X	
Beaver	*Castor canadensis*	X	
Deer Mouse	*Peromyscus maniculatus*	X	
Boreal Red-Backed Vole	*Clethrionomys gapperi*	X	
Rocky Mountain Elk	*Cervus canadensis*	X	
White-Tailed Deer	*Odocoileus virginianus*	X	

Note: C[1] Common
U[2] Uncommon

Source: Idaho Department of Fish and Game, Terrestrial Resource Inventory, 2001.