GUIDELINES

for

ENHANCEMENT, OPERATION, AND MAINTENANCE ACTIVITIES

for

WILDLIFE MITIGATION PROJECTS

PREPARED BY

the

CBFWA Wildlife Managers

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Enhancement, Restoration, Operation, Maintenance Activity	Acceptable	Additional Justification Needed	Not Acceptable
HABITAT RESTORATION:GENERAL:			
FENCING	X		Decorative
GATES AND CATTLE GUARDS	X	X	
CORRALS	X	X	
BIG GAME CONTROL FENCE			X
EXCLOSURES	Limited use	X	
WATER SOURCE DEV./MAINT.	X	X	
NOXIOUS WEED CONTROL	X		
HERBACEOUS SEEDINGS	X	Non-native, plastic mulch, irrig.	
SHRUB AND TREE PLANTINGS	X		
BRUSH STACKS OR BRUSH REMOVAL	X		
SHRUB-STEPPE/GRASSLAND MGMT.:			
SEEDING, BURNING, FERTILIZATION	X		
MOWING AND RESIDUE PICKUP	X		
GRAZING	X		
WETLAND/RIPARIAN HABITAT MGMT.:			
DAMS, DIKES, LEVEES (CREATION)	X	X	
DAMS, DIKES, LEVEES (REMOVAL)	X		
WETLAND CONSTRUCTION	X	X	
CANALS AND CHANNELS	X	X	
FISHWAYS, SCREENS, BARRIERS, LADDERS, GATES	X	X	
STREAM OR LAKE IMPROVEMENTS	X	X	
FOREST MANAGEMENT	X		
OTHER ENHANCEMENT MEASURES:			
FARMING	X		Long-term annual farming
IRRIGATION	Short-term		
FOOD PLOTS	Interim measure		
ARTIFICIAL FEEDING			X
WINTER FEEDING			X

Enhancement, Restoration, Operation, Maintenance Activity	Acceptable	Additional Justification Needed	Not Acceptable
GUZZLERS AND CISTERNS	Limited use		
NEST OR ROOSTING STRUCTURES	Interim measure		
ANIMAL DAMAGE CONTROL	X	X	
REINTRODUCTION OR SUPPLEMENTATION	X	X	Supplementation for harvest
ANIMAL ENCLOSURES	Small scale	X	
PUBLIC USE MANAGEMENT:			
GENERAL:			
LAW ENFORCEMENT	Incidental only		
LITTER PICKUP	X		
ACCESS:			
PUBLIC RECREATIONAL USE	X		
ACCESSIBILITY (HANDICAP ACCESS)	X		
SIGNS (BOUNDARY, INFORM.,ACCESS)	X		
ROADS/ACCESS/BRIDGES	x	x	
PARKING LOTS	Minimize	X	
BOARDWALKS, TRAILS		Trails	Boardwalks
BOAT RAMP, DOCK, PIER			X
RESTROOMS (TOILET FACILITIES)	Minimize	X	
CAMPSITES			X
OFF ROAD VEHICLE MANAGEMENT	X		
EDUCATION:			
ENVIRONMENTAL EDUCATION	X		
EDUCATION PROGRAMS AND MATERIALS	X		
KIOSK	Limited use	X	
INTERPRETIVE CENTER			X
HUNTING AND FISHING:			
HUNTING/FISHING MANAGEMENT	Minimal effort		
BLINDS, VIEWING PLATFORMS			X
HUNTING LANES			X
PROJECT ADMINISTRATION:			
ADMINISTRATIVE FUNCTION	X		
STAFFING	X		
UNIFORMS			X

Enhancement, Restoration, Operation, Maintenance Activity	Acceptable	Additional Justification Needed	Not Acceptable
COMMUNICATION	X		
SHOP/OFFICE/STORAGE FACILITIES	X	X	
ON-SITE HOUSING		X	
UTILITIES	X		
EQUIPMENT MAINTENANCE	X		
IN-LIEU AND DIRECT PROPERTY TAXES	Use of Prog. Income Only		
ASSESSMENTS	Use of Prog. Income Only		
LEASE OF LANDS	X		
CULTURAL AND HISTORIC RESOURCES	X		
FIRE PROTECTION	X		
FIREBREAKS	X		
DUMP SITES - CLEAN-UP	X		
HAZARDOUS AND TOXIC WASTE	X		Property must be "clean" prior to purchase

GUIDELINES FOR THE REVIEW OF COLUMBIA BASIN WILDLIFE MITIGATION PROJECT PROPOSALS

I. INTRODUCTION

Streams draining the Columbia River Basin have been altered by dams built to generate power, control flooding and provide navigation, irrigation, and recreation. Twenty-nine Federal hydroelectric dams and numerous other dams now regulate the flow of many of these streams.

Development of the hydropower system has had far-reaching effects on wildlife and wildlife habitat. Many floodplain and riparian habitats important to wildlife were inundated by the reservoirs. Streams were channelized as roads and power distribution facilities were constructed. Under Section 4h of the Pacific Northwest Power Act, the Bonneville Power Administration (BPA) is responsible for funding mitigation for the loss of wildlife habitat caused by development of the Federal Columbia River Power System. BPA accomplishes this mitigation by funding projects consistent with the Northwest Power Planning Council's Columbia River Basin Fish and Wildlife Program.

Wildlife loss assessments have been completed for the construction impacts associated with the federal hydroelectric dams in the Columbia River Basin. Loss assessments identify the number of habitat units lost by indicator species by dam. These assessments, the Northwest Power Planning Council's Program, and agreements with BPA establish the framework for wildlife mitigation objectives and subsequent mitigation projects.

Wildlife mitigation projects are reviewed, approved, and funded to achieve and sustain agreed upon levels of habitat and species productivity. Projects may occur on existing state, federal, and tribal land or may involve the acquisition and/or easement of private land. Mitigation projects may involve a few hundred acres or tens of thousands of acres.

With the management of these mitigation lands must also come a long-term commitment to stewardship. Without this commitment, the important resource values which provided the catalyst for acquisition and management can quickly be lost. Only through ongoing, responsible management can wildlife habitat, sensitive ecosystems, and BPA's investment be sustained and protected.

Years of unprecedented population growth and resulting residential, commercial, and industrial development threaten wildlife habitat. Demands on natural resources have increased dramatically. More people depend on public lands to satisfy their recreational needs and more plant and animal species depend upon publicly owned lands for their survival. At the same time, limited funding will make it difficult to sustain levels of habitat and species productivity in the future.

Funding of operation and maintenance activities for wildlife mitigation projects will eventually

consume much of the wildlife budget and may soon preclude implementation of new projects before full mitigation can be achieved for all losses. This would result in the failure to achieve mitigation proportional to losses in all areas of the Basin. This may also result in gaps in mitigation while failing to address mitigation for whole assemblages of species in some sub-basins and may not allow all parties to participate in the recovery efforts. Because of these concerns, projects which have lower enhancement, restoration, and operation and maintenance costs and which provide self sustaining habitat will receive higher priority for mitigation funding.

As part of the responsibilities of the Wildlife Caucus of the Columbia Basin Fish and Wildlife Authority, and at the Northwest Power Planning Council's request, a review of enhancement, restoration, and operation and maintenance activities was undertaken. Over 60 activities were reviewed, defined, and evaluated for appropriateness. This report defines each activity and lists the conditions under which certain activities may be considered for funding. This report will be made available to project sponsors and will be used by the Wildlife Caucus/Working Group as general guidelines during their review of projects submitted for funding and during their review of site-specific management plans. The activities identified in this document, when proposed, must be tied to project objectives. The EIS references in this document are for the Wildlife Mitigation Program Final Environmental Impact Statement DOE/EIS - 0246, March 1997.

Management of mitigation lands for public uses received a great deal of discussion during the review of project activities. The wildlife managers decided that it is appropriate for the public to use mitigation lands for recreational purposes.

This document is intended to be a working document, and as such, may be updated periodically.

II. HABITAT RESTORATION

II. A. GENERAL

II. A. 1. STANDARD FENCING

Smooth or barbed wire fencing is designed to control access of domestic livestock and may be used to implement regulated grazing activities like a wildlife habitat treatment, to exclude livestock as a protective measure, or to protect adjacent private land. Fencing may also be used to define boundaries. Only wildlife-friendly fences will be considered for BPA funding.

Decorative fences can cost many times more than that of basic utility fences. Costs of construction vary by region, terrain, access, and demand for fence work in the area. Electric fencing may be appropriate if designed in a wildlife-friendly manner. If present, cultural resources may be disturbed by ground-breaking activities related to fence installation. A thorough cultural resource survey must be completed prior to ground disturbance.

Recommendations: The use of BPA funds for decorative fencing will not be approved. The proposed use of high tensile fencing must be accompanied by a rationale for the higher cost.

Potential impacts to cultural resources must be addressed (see Section V.A.12 for more detail).

EIS References: Pages 33, 34, 54, 55, 61, 65-67, 80, 81, 92, 98, 99, 104

II. A. 2. GATES AND CATTLE GUARDS

Gates and cattle guards may be needed to exclude livestock from project areas to permit effective removal of trespass livestock or allow public access. Costs of purchase and installation of cattle guards is significantly greater than that of a standard gate.

Recommendation: The use of a cattle guard over a less expensive gate must be justified.

EIS Reference: See fencing section above.

II. A. 3. CORRALS

Corrals are temporary or permanent structures for holding and handling livestock and big game. For example, corrals may be used to hold horses used for project purposes, temporary holding of trespass livestock, handling of wildlife, species reintroduction, or holding of cattle for habitat treatments.

Recommendation: Use of corrals is acceptable with proper justification.

EIS Reference: See fencing section.

II. A. 4. BIG GAME CONTROL FENCE

Big game control fences are used to restrict movements of big game animals such as elk, deer, antelope and big horn sheep. This type of fence is generally used in research projects (e.g., Starkey Experimental Forest) to address depredation on adjacent agriculture or to keep animals off highways.

The use of BPA funding for this type of fence could raise the in-lieu funding issue since control of migratory big game populations is typically the obligation of the state wildlife agencies. Restriction of the pathways of migratory wildlife can result in increased fatalities, displacement of depredation problems, impacts to hunters who traditionally harvest the populations effected, and general redistribution of population in ways not anticipated.

Recommendations: Big game control fencing is generally not appropriate for BPA funding.

EIS Reference: Page 98

II. A. 5. **EXCLOSURES**

Exclosures can be used for the following types of activities:

a. To exclude selected animal species from an area while it is undergoing vegetation restoration efforts, thus allowing higher plant survival rates or quicker recovery time.

b. To demonstrate vegetation and other changes over time for a given site or type of habitat in the absence of use by selected species of animals.

c. To exclude animal use, including human, of certain highly sensitive areas where disturbance would cause excessive damage to plant or animal species found there.

Recommendations: Proposed exclosures should be small and designed to be relatively maintenance free. Their costs should be commensurate with what they provide in terms of meeting overall project goals. Exclosures may have a limited role in monitoring and evaluation.

EIS References: See fencing.

II. A. 6. **WATER SOURCE DEVELOPMENT/MAINTENANCE**

Water source development and maintenance usually involves natural springs, potholes, or the use of wells or pumps for habitat maintenance except as outlined in the Residence/Shop sections (sections V.A.5-6). Springs and potholes are frequently developed to increase the flow of water and protect the water source from damage by livestock and big game animals by building spring boxes, constructing fences around water sources, and providing off-site watering troughs. Water source development can also include developing new ponds and maintaining existing ones to store runoff water. This may include excavation to maintain volume and prevent vegetation encroachment. These water sources may also provide water for fire protection. Water is sometimes pumped from streams or supplied by digging a well. The effect of concentrating large animals on areas around watering locations, protecting water sources, water quality, and the cost-effectiveness of drilling wells are all factors to consider.

Recommendations: Use of existing wells and pumps or new or existing spring developments are all encouraged to provide alternative watering locations to reduce harmful impacts by livestock.

EIS References: Appendix A, pages 5-9.

II. A. 7. **NOXIOUS WEED CONTROL**

Noxious weeds are any plant which is highly destructive, competitive, or difficult to control by mechanical, biological, or chemical practices. Noxious weeds can degrade site potential for species desirable for fish and wildlife, as well as for species beneficial for forage production. Wildlife mitigation projects manage for native plant species and/or desirable non-native plant species. Prevention of noxious weed invasion by management practices on mitigation areas should discourage their establishment. Control should concentrate on early detection and removal while the problem is still small. Noxious weed treatment should avoid damage to desirable vegetation, fish, and wildlife.

Recommendations: Project sponsors are expected to have specific protocols for the use of chemical, biological, and mechanical methods of weed control. Weed control is an acceptable use of BPA funds.

EIS References: Chapter 4, pages 53-4, 63, 67, 73, 80, 82, 91, 98, and 109. Appendix A, pages 14-17.

II. A. 8. HERBACEOUS SEEDINGS

Herbaceous seedings are used to ensure growth of native species and desirable non-native species of the appropriate type for a site.

Recommendations: Plantings may be of single or mixed species. Managers should be encouraged to use native, site-appropriate, self-sustaining species whenever and wherever feasible. However, planting of exotic species may be used when necessary to meet specific objectives. Seedings or plantings must be compatible with existing plant communities and site conditions. Use of non-native plants, plastic mulch, and irrigation must be identified in project proposals.

EIS References: Chapter 2 page 33.

II. A. 9. SHRUB AND TREE PLANTINGS

Shrubs and trees are planted primarily to provide habitat for wildlife. Shrub and tree plantings can be used for forage, cover (hiding, nesting, breeding, roosting), and travel corridors. The size of plots may vary by project size and purpose. Plots may be less than an acre when impementing clumped plantings to provide structural diversity in an otherwise homogenous stand. Plots may be linear plantings of shrubs and/or trees to reestablish riparian vegetation. Plots may be a few to hundreds of acres to restore shrubs to shrub-steppe habitat. The same applies to tree plantings. Planting should not be undertaken if natural reproduction will meet project objectives.

Recommendations: Plantings may be single or mixed species. Managers should be encouraged

to use native, site-appropriate, self-sustaining species whenever and wherever feasible. However, planting of exotic species may be used when necessary to meet specific objective.

EIS References: Chapter 2, page 33.

II. A. 10. **BRUSH STACKS AND BRUSH REMOVAL**

Stacks of brush are often created for wildlife cover either by piling existing downed brush or by clearing live vegetation to build a pile. Brush removal is the clearing of live vegetation.

Recommendations: Care should be taken to avoid unacceptable negative impacts to target species of wildlife (e.g., providing cover for skunks that may raid waterfowl nests). Creation of brush stacks and brush removal are acceptable practices for BPA funding.

EIS References: Chapter 2, page 34.

II. B. **SHRUB STEPPE/GRASSLAND MANAGEMENT**

Grasslands represent an integral and important part of the overall habitat base and are a dynamic resource warranting continuous stewardship to promote wildlife productivity. Grassland areas will be managed to:

1) provide high quality habitat for wildlife species

2) foster recovery of deteriorated native/natural grasslands

3) restore native grasslands, where practical

4) maintain in good condition those natural grasslands that have not been seriously degraded

5) protect water quality and by reducing soil erosion

Management of grasslands involves striking a balance between human manipulation and letting natural processes take thier course. Grasslands evolved under natural processes such as fires and grazing by wildlife. Grassland managers must know what as area can produce (potential) both in terms of vegetation and wildlife. Management must balance short-term losses caused by manipulation against long-term gains for wildlife and their habitats.

Desired management of grasslands involves the replacment or mimicing of historic natural influences. Periodically regulated and ecologically sound manipulation can promote vigorous

grassland communities that maintain desirable wildlife habitat. Frequency of manipulation is critical, however, and is dependent largely on site condition, precipitation, and site productivity. Common management techniques include prescribed burning, grazing, seeding, haying, and noxious weed control.

Recommendations: Range management activities are appropriate for BPA funding .

ESA Reference: None

II. B. 1. SEEDING, BURNING, FERTILIZATION

Seeding, burning, and fertilizing are used to establish self-sustaining native vegetation communities. Seeding is the distribution and scattering of seed of native grasses, forbs, and shrubs after burning or noxious weed treatment. Burning is the use of prescribed fire to rehabilitate range lands. Fertilization should be used sparingly and not over an extended period of time.

Water quality of nearby streams can be impacted by use of excess fertilizer while increased growth of grasses can reduce tree growth regeneration. Excess use of fertilizer (and the heavy growth of grasses that result) can stimulate an increase in the rodent population which can be harmful to tree regeneration.

Recommendations: Seeding, burning, and fertilizing are acceptable activities for BPA funding.

EIS References: Appendix A, pages 4-5, 16-17.

II. B. 2. MOWING AND RESIDUE PICKUP

Mechanical treatments to manage grasslands are common, acceptable, and proven tools that can create and/or maintain healthy ecosystems and meet vegetation and wildlife objectives. Late/early season removal will depend upon management objectives. Timely mowing and/or clipping of pastures can be effective in controlling weeds by not allowing them to set/disperse seed. Mowing and removal of annual vegetation can be accomplished through baling hay, or removing it as a green chop (silage or hay). Both are very effective. Unless annual goose grazing or other annual responses are the objectives, it may not be appropriate to remove the vegetation annually. Frequency of removal, as with grazing, should be timed to meet written objectives.

Controlled grazing can be an effective and economical tool, if used properly. When used, it should serve as a model of sound resource management, but only to accomplish desired vegetation and wildlife objectives. Frequency of grazing should be held to the minimum necessary to accomplish the stated objectives. (See Grazing.)

Recommendations: Mowing and residue pickup must be tied to specific wildlife habitat objectives. Revenue generation should not be a primary objective.

EIS References: Chapter 4. Appendix A, page 15

II. B. 3. GRAZING

Grazing, in this context, is the use of livestock to manipulate grassland vegetation to produce desirable, identifiable results. Controlled grazing can be an effective and economical tool, if used appropriately. It should be used only to accomplish desired vegetation and wildlife objectives. Frequency of grazing should be held to the minimum necessary to accomplish the stated objectives.

Recommendations: Revenue generation should not be a primary objective. Site-specific management objectives will dictate the appropriate level of grazing needed to achieve desired wildlife habitat results.

EIS References: Chapter 4, pp. 73, 80, 86, 91 ,92 ,95, 98, 110. Appendix A, p. 22

II. C. WETLAND/RIPARIAN HABITAT MANAGEMENT

II. C. 1. DAMS, DIKES AND LEVEES (CREATION)

Dams, dikes, and levees include all artificial structures used to control water for wetland, riparian, or riverine restoration. Depending on how they are constructed, they can either hold back water from an area, allow water to flood an area, or protect an area from erosion.

Hydropower development, irrigation delivery and drainage, urban development, flood control, and recreational enhancements have all contributed to the alteration of natural hydrologic systems in the watersheds of the northwest. Because of this, artificial structures are often needed to mimic natural hydrologic processes on restoration sites. All artificial water control structures must be designed to meet the management objectives. Artificial structures can often cause unanticipated problems to areas near the restoration sites if they are not planned with a landscape perspective. For instance, dams in a riparian area may hold water, but may also burst when flood waters, rise thereby causing damage to downstream areas. Dikes used near flowing water may cause inadvertent channelization. Improper wetland management can also result in damage by causing alkaline soils. All of these potential detrimental consequences require that artificial water control structures be used in moderation, and be carefully designed to avoid possible problems. Interdisciplinary review of the management plan will help to avoid these problems.

Recommendations: Use of water control structures to create out of context artificial habitat is

discouraged. Funding requests or site-specific management plans must identify the management objective being addressed by the usage of artificial water control structures.

EIS References: Pages 20, 33, 42, 53, 65, 76, 85

II. C. 2. **DAMS, DIKES AND LEVEES (REMOVAL)**

Hydropower development, irrigation delivery, wetland drainage, urban development, flood control, and recreational enhancements have utilized artificial water control structures in the alteration of natural hydrologic systems in the watersheds of the northwest. Removal of these structures can often be the most cost-effective means of habitat restoration. The great variety of structures used, combined with the great variety of restoration scenarios, requires that removal of artificial water control structures be designed to meet very clear management objectives. Removal of structures can often cause unanticipated problems to areas near the restoration sites.

Recommendations: Funding request and site-specific management plan must identify the management objective associated with the removal of artificial water control structures.

EIS References: Pages 20, 33, 42, 53, 65, 76, 85

II. C. 3. **WETLAND (CREATION)**

Wetland creation is the development of wetland habitats in areas that have not historically contained wetlands. Wetlands provide valuable habitat for many wildlife species. Wildlife mitigation projects are more likely to maintain or improve existing wetlands than to create new wetlands. Wetland creation may involve the construction of a water impoundment, dredging, or blasting.

Wetland creation can be an extremely expensive activity which often does not result in a wetland system functioning as desired. Creating wetlands can have both beneficial and adverse effects on soils. Wetlands can reduce storm water runoff and associated erosion problems. Manipulations of wetlands can either stabilize stream banks or elevate existing erosion problems. Adverse effects include potential temporary erosion during construction or during diversion of flows to increase wetland depth or area. Created wetlands can also create anaerobic and saturated soil conditions with potential permanent changes in soil structure.

Creating wetlands can have both beneficial and adverse effects on fish and water quality. Created wetlands can support resident and anadromous fish and can improve downstream fish habitat and water quality by providing storm water storage, sediment catchment, and biofiltration. Wetland water levels can be manipulated to reduce excessive concentrations of aquatic plants detrimental to resident fish populations. Creation of habitat islands within wetlands or lakes can cause temporary turbidity and sedimentation. Water near the bottom of deeper impoundments can be low in oxygen, and release of this water can decrease downstream

oxygen levels thereby harming fish.

Creating wetlands can also affect archeological resources by disturbing or inundating sites.

Recommendations: Wetland creation should be used only as a last resort to meet management objectives. Funding request and site-specific management plan must justify proposed wetland construction. Funding request should also identify fish impacts and be reviewed by appropriate fishery personnel.

EIS References: Pages 33, 52, 62, 72, 86, 91, 97, and 116

II. C. 4. CANALS

Canals are used to either deliver water to or remove water from an area. Like dikes, dams, and levees, these artificial water control structures should be carefully designed to meet specific restoration objectives. These structures can also direct flood flows to undesirable areas if they are not planned correctly. When possible, every effort should be made to construct them in a manner consistent with historic landscape conditions. Canals can often be used to restore riparian complexity.

Recommendations: Interdisciplinary review is extremely important when planning for the use of canals and channels. Funding request and site-specific management plan must identify the management objective addressed by usage of canals and channels.

EIS References: Pages 20, 33, 42, 53, 65, 76, 85

II. C. 5. FISHWAYS AND SCREENS, BARRIERS, LADDERS, WATER GATES

The construction of fishways and screens, barriers, ladders, and water gates are generally fisheries related activities. However, if a wildlife project were to require these activities to reduce impacts to fish, such as when using pumps and siphons to obtain water in wetland management, then wildlife funds can be used. Each project should be considered on a case-by-case basis to determine wildlife benefits. Possible cooperative projects should be considered.

Recommendations: The construction of these devices are very closely related to fisheries activities directly affecting fisheries management. These projects may be cooperative projects; identify cost sharing, if appropriate, in the work plan. Coordination with the fish caucuses must occur regardless of cost sharing. Funding request must identify fish impacts and must have letter of support from the appropriate fish management agency/tribe.

EIS References: Appendix A, page 18.

II. C. 6. STREAM OR LAKE IMPROVEMENTS, WATER CONTROL STRUCTURES, DEFLECTORS, SILT BASINS, BANK STABILIZATION

Stream Improvements are activities directed toward repairing damaged stream corridors and riparian zones by placing structures in streams or removing log jams causing flooding or vegetation plantings (native shrubs & trees) to increase riparian vegetation. Lake Improvements are activities directed toward improving wildlife habitat cover or food sources (e.g.,dredging to improve availability of open water, shoreline vegetation plantings/reeds/rushes). Water Control Structures are man-made gateways and dikes for controlling water levels in a pond or lake for vegetation control. Deflectors are structures used to deflect high water in streams reducing the amount of erosion energy (e.g., rock gabians, rock jetties, log jetties). Silt Basins are sediment ponds or traps that reduce stream sedimentation. Bank Stabilization is using structure or vegetation to reduce bank erosion (e.g., include fencing to reduce livestock trampling).

Recommendations: These activities and devices are very closely related to fisheries activities and could directly affect fisheries management. These projects may be cooperative projects; cost share opportunities should be identified in the work plan. Coordination with appropriate fish specialists should occur regardless of any cost sharing. Funding request must identify fish impacts and must have letter of support from the appropriate fish management agency/tribe.

EIS References: Appendix A, pages 7-9, 11-12.

II. D. FOREST MANAGEMENT

II. D. 1. FOREST MANAGEMENT

Forest management involves activities centered on the manipulation of forest cover types including harvesting, roads, fire, etc. Timber harvest may be part of the overall management goal for the project. Any structure built to aid harvest should be removed.

Recommendations: Timber harvest should be considered only after close scrutijy of how it may affect the meeting of specific habitat management objectives. Revenue generation should not be the primary purpose of timber harvest.

EIS References: Chapter 4, pages 55, 65, 75, 81, 99.

III. OTHER ENHANCEMENT MEASURES

III. A. GENERAL

III. A. 1. **FARMING**

Farming is the mechanical disturbance of soil followed by the introduction of seed or other plant parts and generally includes the following crops:

a) annual crops (corn, wheat, soybeans, oats, etc.)

b) semi-domesticated crops managed by tillage and seeding (millet, certain smartweeds)

c) perennial forage crops and introduced pastures that must be periodically cultivated and reseeded to maintain high productivity (ryegrass/clover pastures, alfalfa, etc.)

Croplands do not include lands on which native grasses, trees, or shrubs are being grown.

Biological farming and conventional farming are the two recognized methods of farming. Biological farming reduces energy consumption, soil erosion, use of pesticides and synthetic nitrogen fertilizers, reduced water pollution. Biological farming also reduces the requirement for capital (thereby reducing economic risk), improves soil tilth and fertility, and increases biological diversity and the production of wildlife.

Subsequent to initial restoration and enhancement management activities, food and cover for wildlife should be provided using the most natural means available to meet objectives. If approved objectives can not be totally met through the maintenance of more natural ecosystems, some cropland management may be needed. The acreage devoted to farming should be the minimum required to meet objectives. Long-term soil productivity should not be jeopardized to meet wildlife objectives.

Any portion of mitigation lands used for the growing of crops should leave some portion of the crop for wildlife use if feasible.

Food plots are good cooperative and volunteer projects.

Many wildlife mitigation lands are not as productive as originally estimated. Initial habitat restoration, enhancements, or developments should include the initiation of a cropland management plan. The objectives of the plan may vary from area to area, but should include the following:

a) control/reduction/elimination of undesirable noxious weeds

b) preparation of land for seeding of semi-permanent or native/natural permanent cover

c) soil improvement through the addition of nitrogen and organic matter (legumes)

d) reduction of soil erosion

e) production of native vegetation that can be used in re-establishment of native grassland habitat

f) prevention of the invasion of undesirable brush or trees

g) production of "hot" foods to reduce depredation wildlife on private lands (Canada geese along lower Columbia/Willamette valley)

Recommendations: Cropland acreage should be the minimum required to meet wildlife objectives. Share-cropping may be used to meet project objectives. However, farming should not be used primarily to generate income. Long-term annual farming is not an appropriate wildlife mitigation measure.

EIS References: Chapter 4, pp. 74, 77, 78, 79, 81, 82, 84, 86, 88, 91, 92, 95, 98, 107, 109, 111, 113, Appendix A, p. 20

III. A. 2. **IRRIGATION**

Irrigation includes the use of water to assist in the growing of crops or native vegetation to benefit wildlife. Care must be taken to include watershed-level planning and insure irrigation will not reduce other fish and wildlife values.

Irrigation can be an effective tool for establishing desired vegetation. Water availability can be a limiting factor, especially east of the Cascades. The cost of water is often prohibitive. In most cases irrigation is not feasible and probably not justified on most BPA wildlife mitigation projects. (This does not include "irrigation" of wetlands.)

Recommendations: Large scale or long-term irrigation projects are not appropriate for program funding. Project funding request must consider the availability of and cost of obtaining water within the basin.

EIS References: Appendix A, p. 4, 7-12 (Water development methods)

III. A. 3. **FOOD PLOTS**

Food plots are developed to provide desirable vegetation types and to improve foraging conditions for a target species or group of species to levels that are consistent with the long-term management objectives for a habitat improvement project. Food patches (small plantings of crops like dwarf sunflowers, corn, sorghum, etc.) may also be used as winter feeding stations for birds, small mammals, and other wildlife species. Food plots include areas of agricultural crops and rangeland that are retained and renewed to provide winter forage.

Food plots must be less than 5 acres. Food plots should be given low priority when the potential for the natural vegetation to recover is sufficient to provide a dependable natural food source to target species. However, non-native or native cultivars may be needed to better achieve the long-term goals of a project. Such would be the case in areas where weedy and undesirable species have suppressed the native flora.

The decision of whether or not to develop a food plot should be determined by the project land managers. The managers have the most intimate level of knowledge of the existing condition and potential condition of the land, and the nutritional needs of the wildlife that occupy it.

Recommendations: Food plot development and maintenance can be expensive. In general, the establishment or reestablishment of natural vegetation is preferable to annual crop production. Project sponsors should consider the use of volunteers and the development of a cooperative project. Use of project staff for volunteer or cooperative projects is acceptable. Food plots should be an interim measure. Project sponsors should identify the steps necessary to produce more permanent habitat.

EIS References: Page 13-14, Appendix A, Section 2, Page 3-5

III. A. 4. **ARTIFICIAL FEEDING**

Artificial feeding of wildlife is sometimes used to compensate for loss of habitat; however, it is not considered a legitimate mitigation function. Concentrating wildlife on small feeding areas can cause disease outbreaks and increase predation.

Recommendations: Artificial feeding is not appropriate for mitigation funding. (See Winter Feeding)

EIS References: Appendix A, page 20.

III. A. 5. **WINTER FEEDING**

Winter feeding is the provision of an emergency food source to animals in order to reduce the potential for mortality.

The wildlife managers recognize the importance of maintaining wildlife populations under natural conditions by providing naturally available forage whenever possible. The managers also recognize that the depletion of winter forage, if severe enough, has the potential to cause excessive levels of mortality to an extent that it may affect the ability of a population to recover. The potential for property damage, threats to public safety (traffic accidents), and the spread of disease is also a risk when animals are forced to congregate in areas close to human

development. Therefore, emergency feeding is appropriate under certain limited circumstances.

It could be argued that because of the impact hydroelectric facilities on carrying capacity, BPA has the responsibility of providing a supplemental food source during severe winters until all mitigation for winter range has been completed. It could also be argued that human development and land management practices have had a major impact on traditional wintering ranges for many wildlife species and that by encroaching on these lands, humans should assume the responsibility of providing a supplemental forage base. And finally, it could be argued that we should just allow natural processes to determine the carrying capacity of the range and not provide supplemental feeding.

Recommendations: The decision of whether or not to implement an emergency feeding action should be left up to the local managers. Coordinating outside sources to fund winter feeding on project lands is acceptable, but mitigation funds are not to be used for emergency feeding.

EIS References: Pages 8, 9, 10, 11, 13, 14, 15, 16

III. A. 6. **GUZZLERS AND CISTERNS**

Guzzlers and cisterns are man-made catch basins for collecting, storing, and distributing water.

These structures are usually found in areas where water is scarce. Cost is usually minimal unless logistics are very difficult. The construction of these structures make good cooperative and volunteer projects.

Recommendations: Guzzlers and cisterns may be constructed with BPA funds, but should be used sparingly.

EIS References: Appendix A, page 10.

III. A. 7. **NESTING AND ROOSTING STRUCTURES**

These structures are generally made to provide nesting and roosting opportunities in areas where natural nesting and roosting habitat components are inadequate. Because of the following considerations the construction of these artificial structures should be kept to a minimum:

a) Columbia River wildlife mitigation activities are designed to promote the protection, restoration, and enhancement of native habitats lost to construction and operation of the hydropower system. Artificial structures are not considered adequate mitigation in anything but extremely disturbed situations.

b) Nest structures are expensive to install and maintain compared to natural nesting habitats.

c) Most studies have shown that intensive nesting structure development, even when successful in attracting the target species, is much less productive than natural habitats.

d) Nesting structures are designed to be used when natural habitats cannot be restored. The point of Columbia River wildlife mitigation program is to mitigate for lost habitat types, not to replace them with artificial structures.

e) This activity misleads the public into believing that highly visible artificial structures are appropriate wildlife mitigation options.

Recommendations: Artificial nesting and roosting structures may be appropriate for threatened and endangered species. The use of such structures should be discontinued after the natural nesting and roosting habitat is established. They are acceptable only as an interim measure linked to objectives that will be achieved eventually through the use of natural habitats.

EIS References: Appendix A - Page 7

III. A. 8. **ANIMAL DAMAGE CONTROL: fish, predators, rodents**

Animal damage control involves controlling the number or behavior of a target population to reduce damage to private and public property. Control should be discontinued when costs exceed the benefits, benefits cannot be documented after one year of control, population control causes a threat to non-target species, the control is implemented for reasons other than wildlife benefits, or the control is considered as anything but a last resort to a problem.

Recommendations: Describe alternatives to damage control and the potential negative impacts to non-target species or other native species or communities, as well as the ability to monitor and measure benefits. Also, include the cost compared to alternative actions. Predator control is acceptable when non-native species directly affect habitat and is also reasonable in the short-term when associated with species introductions.

EIS references: Pages 19, 34; Record of Decision: Pages 7, 9, 13

III. A. 9. **WILDLIFE REINTRODUCTION OR SUPPLEMENTATION**

Wildlife reintroduction is the release of a species back into an area from which that species has been extirpated.

Wildlife supplementation is the releasing of animals from one area into an area where members of the species still occur, but at levels far below carrying capacity. The resident population may or may not be at risk of extinction, but the addition of supplemental animals will likely insure

maintenance of population levels consistent with project objectives.

Using BPA wildlife mitigation funds for supplementation for harvest is not acceptable and no reintroduction or population supplementation should be undertaken until it is determined that there is adequate habitat to meet all the life requirements of the species. Any reintroduction or supplementation must be compatible with and help fulfill the overall project objectives.

Recommendations: If the extirpation is related to construction and/or operation of the federal hydropower system, the use of BPA funds for species reintroduction is appropriate. BPA wildlife mitigation funds may be used only for endemic species reintroduction or supplementation. Other species reintroduction or supplementation activities may be appropriate if an approved species substitution plan has been developed.

EIS References: Page 34

III. A. 10. **ANIMAL ENCLOSURES**

Animal enclosures include pens or cages for containment of animals. Holding pens, cages and other facilities for the containment of animals for research, game farming, or public viewing are not appropriate for mitigation funding.

Recommendations: Temporary holding facilities for acclimatization or quarantine, for injured wildlife, or species reintroduction are acceptable for BPA funding on a small scale, and will be considered on a case-by-case basis.

EIS References: See Fencing.

IV. **PUBLIC USE MANAGEMENT**

IV. A. **GENERAL**

IV. A. 1. **LAW ENFORCEMENT**

Law enforcement includes activities related to enforcement of hunting and fishing regulations, road closures, and other rules and regulations on the wildlife mitigation area and includes time spent training, patrolling, talking to the public, issuing citations, writing follow-up reports, and appearing in court.

Recommendations: This activity will be considered acceptable for BPA funding when included as an integral part of resource protection and visitor/user management, however, routine law enforcement and training activities are considered in-lieu funding and are not appropriate for BPA funding.

EIS References: Record of Decision pages 9, 12, 13

IV. A. 2. **LITTER PICKUP**

Litter pickup is the collection, storage and disposal of garbage, debris and litter in a safe, sanitary, and legal way to assure protection of wildlife on and adjacent to the property and to eliminate nuisances and liabilities to project users and adjacent land owners.

Placing dumpsters in public use areas is not encouraged because they attract illegal dumping in the project area; encourage increased public uses that generate garbage and are inconsistent with "pack it out" habits. The presence of dumpsters could also impact adjacent land uses.

Recommendation: All large tracts of land will probably have some dumping problems. The minimum public disposal facilities should be provided to meet the unique needs of each project.

EIS References: None

IV. A. 3. **ACCESS**

IV. A. 3. a. **PUBLIC RECREATIONAL USE**

Under BPA's preferred alternative, "recreational uses ... (can) be allowed, providing they do not interfere with achieving wildlife mitigation." Facilities needed to support recreational uses may include parking areas, interpretive centers, and observation areas/kiosks. (See Parking Areas, Interpretive Centers, Kiosks for further information.)

The key to any approved recreation program is for the visitor to enjoy the resource and to gain an understanding and appreciation for the ecology of the area. An increased public knowledge and understanding of the importance of habitat will yield long-term dividends for the program through greater acceptance of management programs.

Recommendations: Compatibility is the key word in designing public use facilities for all BPA funded projects. Public facilities should ensure high quality experiences. Project sponsors are encouraged to use cost-sharing with other funding sources for public recreation.

IV. A. 3. b. **ACCESSIBILITY (HANDICAP ACCESS)**

Federal accessibility requirements are in the Americans with Disabilities Act (ADA). In general terms, reasonable accommodations must be made for accessibility where the public is invited to participate. This means that parking areas, kiosks, buildings, restrooms, and other facilities must

be designed so that individuals covered under the ADA can utilize the facilities. This requirement encompasses many other activities and should be considered when planning site developments. Requirements for natural activities such as bird watching are not as clearly defined. Generally, concrete paths, for example, are not required everywhere there is public access provided. Further investigation into BPA's and the implementing entities' legal obligations is necessary to fully understand the issue.

Recommendations: The provision of accessibility consistent with current law is required and appropriate for BPA funding.

EIS References: None

IV. A. 3. c. **SIGNS: BOUNDARY, INFORMATIONAL, ENTRY**

Signs are often used to mark the boundaries of wildlife mitigation areas. Entry signs along roads are used to explain to the public the name and history of the mitigation area and explain special regulations, such as road or area closures, special bag limits, etc.

Recommendations: Signs should not be too large or more numerous than necessary to provide essential information. They should be attractive and compatible with the setting. The provision of signs is an acceptable use of BPA funds.

EIS References: None

IV. A. 3. d. **ROADS/ACCESS/BRIDGES**

Roadways and associated structures such as culverts and bridges may be necessary for administrative and public access. Roads may impact wildlife habitat through uncontrolled access, loss of land base for enhancements, impacts to stream hydrology, and increased mortality to wildlife from vehicular traffic. Eradication of roads as an enhancement measure is encouraged if shown to meet mitigation plan objectives.

Cultural Resource impacts from new construction should be considered (see Cultural and Historical Resources Section), as well as long-term maintenance implications and access, both legal and illegal.

Recommendations: Funding for road construction will be considered on a case-by-case basis.

EIS References: Pages 3, 26,34, 43, 56, 57, 58, 62, 68, 69, 71, 78, 80, 87, 96, 98, 102, 105, 107, 108, 110, 119

IV. A. 3. e. **PARKING LOTS**

The creation of a parking lot will almost always reduce the amount of habitat available to wildlife and reduce the quality of surrounding habitat through oil run-off, off-road vehicle activities, and dumping. Parking lots often attract exotic vegetation, exotic wildlife species, and the greater public use. These undesirable side-effects should be weighed against the habitat values provided without the parking lot. In more urban areas, parking lots can be used to relieve the impact of visitors. For example, one gravel parking area can take the place of multiple muddy pullouts. Once completed, rehabilitation of the pullouts may mitigate for the loss of habitat associated with the gravel area. There may be a public safety issue, (i.e., preventing hazardous parking along right-of-way). Parking areas must comply with the accessibility provisions found in the Americans with Disabilities Act.

Recommendations: In cases where habitat units are lower without the use of a developed parking lot, parking lots should be considered. However, mitigation dollars should be used for parking lot development only after other funding sources are pursued, such as state, county, or city highway funds, and managing entity and user groups fees.

EIS References: See Roads.

IV. A. 3. f. **BOARDWALKS, TRAILS**

A boardwalk is a walkway constructed of planking and is often elevated above the ground. A trail is an established path with a hardened surface (e.g., concrete, asphalt, planking), intermediate surface (e.g., bark), or merely a walkway cleared of vegetation to bare soil. Boardwalks and trails often have ancillary construction such as blinds or viewing platforms (see below), interpretive signs, litter cans, toilets, etc. to provide for the large numbers of people attracted.

The use of boardwalks and trails should be limited since they often encourage high density public use. There is concern over the level of use and whether BPA funds should support public use of the projects. This includes both structures for those who visit with wildlife as a primary objective (e.g., hunters, bird watchers), and for those who will visit simply because the facilities have been constructed (e.g., ORV users, fishers, picnickers, and others.). Many potential users would not visit without the facilities. Most hunters and bird-watchers (i.e., primary users) may not want these conveniences as they may detract from their experience. In addition, larger numbers of secondary users will have some level of impact to wildlife, both in terms of lost habitat from the construction and from direct disturbance resulting from greater public use.

Some types of structures, such as dirt perimeter trails with interpretive signs result in a much lower impact to wildlife and may be considered for funding. This type of trail has the advantage of not requiring heavy equipment for construction, with its associated impacts, and would be further from the core habitat and cause less disturbance to wildlife. Dirt perimeter trails usually encourage lower impact uses. In addition, they can be used by project personnel to patrol the

perimeter property lines to check fences, trespass grazing, etc.

Recommendations: The construction of boardwalks is not appropriate for BPA funding, however, low impact perimeter trails may be appropriate.

EIS References: Page 101

IV. A. 3. g. **BOAT RAMP, DOCK, PIER**

A boat ramp is a sloping platform used to launch boats too large to be carried by hand to the water. A dock is a place for the loading/unloading of people/materials, often composed of wood and supported over water by posts, while a pier is usually a structure built by placing fill material in the water. These above artificial structures are usually constructed to support public recreation or, to a lesser degree, the use of boats in enforcement patrolling.

Recommendations: Construction of the above structures may be appropriate when built with habitat protection as the primary objective. For example, the Snake River Compensation Project has several habitat mitigation sites that were developed and maintained by boat due to a lack of road access.

Project funding requests must disclose plans for boat ramps, docks, or piers. Ramps, docks, and piers proposed exclusively for recreation are not appropriate for BPA funding.

EIS References: None

IV. A. 3. h. **RESTROOMS**

Restrooms can mitigate for site degradation which can occur in high use areas without them. Cost to the project should be minimized through the use of other funds. Facilities must comply with Americans with Disabilities Act accessibility provisions.

Recommendations: In cases where habitat units are lower without the use of a developed restroom then they should be considered. In general, the level of investment should be minimized.

EIS References: None

IV. A. 3. i. **CAMPSITES**

Camping, if allowed, should be done in a dispersed manner on wildlife mitigation lands.

Construction of permanent camp sites is discouraged. Camping may be inappropriate for some sites such as those with threatened and endangered species.

Recommendations: Funding campsites as part of the Wildlife Program is not appropriate. Hardened campsites are the responsibility of park districts/agencies, not wildlife mitigation funds.

EIS References: None

IV. A. 3. j. OFF ROAD VEHICLE (ORV) MANAGEMENT

Access to mitigation lands by ORVs (4-wheelers, snowmobiles, motorcycles, etc.) on and off existing roads should be minimized. Mitigation funds should not be used to increase or encourage ORV activity on mitigation lands. Recreational use of ORVs on wildlife mitigation lands is strongly discouraged. An access management plan is required for all mitigation lands.

Recommendations: Funds can be used to control access through the development of an access management plan, by building gates and signs, and by decommissioning roads.

EIS Reference: Appendix A, pages 23-25.

IV. A. 4. EDUCATION

IV. A. 4. a. ENVIRONMENTAL EDUCATION

Normally, environmental education is associated with the process of integrating environmental concepts into a school curriculum. Educational activities should focus on the natural environment and people's role in it. The inclusion of hands-on field activities is encouraged. The use of wildlife mitigation areas as outdoor classrooms, like all other public activities, must be compatible with project management objectives.

On mitigation areas large enough to support staff, it is appropriate to integrate some form of environmental education program into the areas' management plan. Local environmental education needs should be assessed. Every effort should be made to find partners to assist in establishing a program. Once up and running, many of these programs are self -sustaining and little more than providing outdoor classrooms is necessary.

Recommendations: On small unstaffed management areas, environmental education programs could be accommodated by providing outdoor classrooms only. It would be up to individual teachers to provide meaningful programs. The use of wildlife areas as outdoor classrooms would be subject to the compatibility test, as with all other public uses. Seasonal restrictions might be necessary.

EIS References: Chapter 4. pp. 100-104. Appendix A, pp. 21-22

IV. A. 4. b. **EDUCATION PROGRAMS AND MATERIALS**

Educational programs and materials are used to inform the user of a mitigation site or activity. These activities may not be necessary in all cases but they are one of the most tangible elements of a mitigation program for most citizens. Public involvement through these means can provide public support for a project.

Recommendations: Educational programs and materials are deemed appropriate for BPA funding provided the audience and purpose are identified.

EIS References: None

IV. A. 4. c. **KIOSKS**

A kiosk is a small, covered, open structure to provide visitors with information designed to welcome, orient, and educate them. Kiosks are a very effective public relations tool with a proven track record.

Recommendations: The cost of kiosk construction is appropriate for BPA funding.

EIS References: None

IV. A. 4. d. **INTERPRETIVE CENTER**

An interpretive center is a facility, usually staffed and of sufficient size to accommodate at least a small group of people to provide visitors of all ages and abilities with educational opportunities. The facility should be user-friendly and inform the public about the area and its resources. In addition to the initial cost of construction, annual operation and maintenance costs of these facilities generally range from 15-20% of the assessed valuation. To be effective interpretive centers must also be staffed.

Recommendations: The funding of an interpretive centers is not an appropriate use of BPA funds.

EIS Reference: None

IV. A. 5. **HUNTING/FISHING**

IV. A. 5. a. **HUNTING/FISHING MANAGEMENT**

The managing of hunting and fishing activities involves management time on the project site and/or the developing of site-specific hunting and fishing regulations related to the mitigation area. Time spent by project personnel on these activities should be covered with other funds.
Recommendations: The use of mitigation funds for incidental staff time to manage hunting/fishing activities is acceptable.

EIS References: See Public Recreational Use

b. **BLINDS, VIEWING PLATFORMS**

A viewing platform is an elevated platform constructed for viewing landscapes and associated wildlife. Blinds are structures designed to allow the viewer to observe wildlife without being seen. They are used by both photographers and hunters..

Recommendations: BPA funds may not be used for the construction of blinds or platforms.

EIS References: None

IV. A. 5. c.**HUNTING LANES**

Hunting lanes are pathways through impenetrable woody vegetation to allow access for hunters and/or dogs. Hunting lanes that cut through habitat for sensitive species encourage use of motorized vehicles, create edges where edges are undesirable (e.g., brown-headed cowbird nest parasitism of woodland passerines), and provide easy access for humans which may result in undesirable population changes (e.g., too many bull elk taken). Mowing may also encourage invasion by noxious weeds.

Recommendations: The construction of hunting lanes is not an acceptable use of mitigation funds.

EIS References: Record of Decision pages 6, 16

V. **PROJECT ADMINISTRATION**

V. A. **GENERAL**

V. A. 1. **ADMINISTRATIVE COSTS**

Administrative costs include time spent in budget preparation and management, planning, training, supervision, and report writing.

Administrative activities are fundamental to project implementation. In instances where staff performs other duties not directly related to project management, BPA should be charged only for those activities for which it ultimately receives mitigation credit.

Recommendations: It is acceptable to use BPA funds to cover the costs of those administrative activities directly associated with mitigation-related project administration.

EIS References: None

V. A. 2. **STAFF**

Mitigation staff activities include policy development, planning, implementation, and operation and maintenance. Implementing agencies should be responsible for clearly separating staff time spent on nonproject related activities. Staff salaries and related expenses are usually the second largest budget item over the life of a project (acquisition is first). The following factors should be considered when developing a proposal:

- Staff are imperative to achieving successful mitigation
- Staff levels will vary based on site, geographic factors, and implementing entity
- Salary ranges are variable based on state, expertise, and implementing entity
- Volunteers, interest groups, and other partners should be used when possible and practical.

Recommendations: Staff costs are an acceptable use of mitigation funds. Staff costs can only be charged to a mitigation project for time actually spent on the project activities.

EIS References: None

V. A. 3. **UNIFORMS**

Uniforms are articles of clothing worn by members of an organization that are identical in appearance.
Recommendations: Mitigation funds should not be spent on uniforms.

EIS References: None

V. A. 4. **COMMUNICATIONS - radio/cell phones**

Two-way radios and cellular phones are necessary for field staff to communicate across long distances on a wildlife mitigation area.

Recommendations: BPA funding for communications equipment is acceptable.

EIS References: Record of Decision pages 13, 15

V. A. 5. **SHOP/OFFICE/STORAGE FACILITIES**

Shop, office, or storage facilities may be developed for administrative or management purposes in conjunction with the overall goals of providing wildlife habitat. Administrative facilities may include office space and parking. Management facilities may include garages, storage sheds, and fenced or open yards to store equipment and materials. Facilities must be planned to comply with the Americans with Disabilities Act. Some considerations are:

a. Fire, theft, and vandalism tend to occur when isolated equipment storage facilities are left unattended.

b. Some office space should be provided for project managers for their computers, fax machines and other sensitive equipment. Office space can be provide at a nearby project sponsor's office, rented, or provided on-site.

c. Many project lands have existing shop and storage facilities.

Recommendations: The cost of shop, office, or storage facilities may be funded with BPA funds.

EIS References: Appendix A, page 21-22.

V. A. 6. **ON-SITE HOUSING**

Most wildlife mitigation lands are located in remote areas. On-site housing on wildlife mitigation project lands is analogous to housing provided for hatchery personnel. On-site housing for wildlife mitigation project managers provides greater operational security, immediate response time in case of emergency, security, protection of investments and property, protection of natural resources from damage or misuse, better public service to visitors, and greater flexibility in work scheduling.

Wildlife mitigation lands are purchased and managed for protection and restoration of critical habitat. Many of these areas have threatened wildlife populations. Protection and enhancement of current populations and their habitats on mitigation lands is a high priority. Knowing there is an enforcement presence on the area helps protect these habitats and the species that depend on them.

Projected human population growth and increasing use pressures on public lands will continue to escalate. These factors require security for mitigation areas to protect BPA's investment. Over the course of the life of a mitigation project, equipment, materials, and supplies are purchased and stored. Unattended isolated equipment storage facilities are subjected to fire, theft, and vandalism.

Not all wildlife mitigation project lands warrant on-site managers. The size of the project area and proximity to a metropolitan area should be considered. For example, a project area with adequate readily available housing and equipment storage facilities may make on-site housing for the manager unnecessary.

Recommendations: Proposals to fund new housing should: 1) justify the need for on-site personnel, 2) exhaust all alternatives, and 3) show that fair market value rent will be charged. For existing housing funding will be considered on a case-by-case basis.

EIS References: Appendix A, pages 21-22.

V. A. 7. **UTILITIES**

Utilities (e.g., electricity, fuel, phone, and water) are fundamental to implementing mitigation activities. Utilities used for non-mitigation work should be separated and charged to the appropriate funding source.

Recommendations: Utilities are inextricably linked to various mitigation activities. If the activity is an acceptable mitigation activity, then the cost of utilities necessary to carry-out that work may be charged to the mitigation project.

EIS References: None

V. A. 8. **EQUIPMENT MAINTENANCE**

Maintenance is required to keep all project equipment serviceable. Equipment maintenance may prevent the need for replacement of equipment, and in turn, ensure a cost-effective program. Equipment includes all the tools and devices used by project staff.

Recommendations: If the method used to carry out mitigative work requires certain tools and equipment, then their maintenance is an acceptable use of mitigation funds. Costs should be reduced through the use of existing staff and facilities when possible. Mitigation funding is appropriate for maintenance in proportion to use (i.e., BPA pays for 15% of the maintenance of a vehicle used for mitigation 15% of the time for project purposes).

EIS Reference: None

V. A. 9. **PROPERTY TAXES**

When private property is acquired with program funds and is converted from taxable private ownership to nontaxable government ownership, property and other taxes are lost to the county and state in which the property is located, and are possibly lost to established special districts that receive funds from tax assessments. However, federal, state and tribal land management agencies commonly do make payments to counties. When governmental agencies make such payments, they are made as in-lieu payments or other payments that generally compensate the county for any potential revenue loss. BPA is prohibited from making such payments on lands they own or on lands purchased with BPA mitigation funds.

Recommendations: BPA allows project sponsors to use revenue generated from properties acquired with BPA funds and managed for wildlife mitigation to be used to offset in-lieu payments to counties.

EIS References: Chapter 4, page 96.

V. A. 10. **ASSESSMENTS**

County government has the authority to establish special districts which may levy assessments against property within the district. There are several types of special districts and they are defined below.

Local Improvement Districts: A county has the power to establish local utility improvement districts. Local improvement districts within the area covered by a sewerage and/or water/irrigation general plan can levy special assessments with annual installments extending over a period of years on all property benefited by any local improvement district. Wildlife mitigation projects in urban areas may be subject to sewer assessments.

Diking and Drainage Districts: Any diking, drainage, irrigation improvement, or intercounty diking and drainage district may levy assessments on all property benefited by the district. Such assessments are collected and the proceeds are normally used as payment for the bonds issued for the improvement.

Weed Districts: A county board of commissioners may create a weed district or districts within their county for the purpose of destroying, preventing and exterminating noxious weeds, or to prevent the introduction, propagation, cultivation or increase of, any particular weed, weeds or plants detrimental or destructive to crops, fruit, trees, shrubs, valuable plants, forage or other agricultural plants or produce. Landowners within a weed district are assessed a fee to fund the operations of the weed district. Program income generated as a result of a wildlife mitigation project may be used to offset county weed assessments.

Mosquito Districts: Some counties may wish to establish a mosquito control district. Establishment requires a ballot proposition including authorization to form a district and authorization to levy assessments for the control of mosquitoes for those properties lying within the district.

Fire Assessments: Counties may levy assessments to landowners for fire protection. State, federal, and Tribal mitigation lands may be subject to these assessments if fire protection contracts have not been secured with local fire control districts or the state's fire fighting agency.

Recommendations: BPA is prohibited from paying these assessments, but generally allows project sponsors to use revenue generated from properties acquired with BPA funds and managed for wildlife mitigation to be used to offset assessment payments to counties.

EIS References: None

V. A. 11. **LEASE OF LANDS**

State, federal, tribal, and private lands may be leased and used as part of a wildlife mitigation project area. Lease time periods should be for the longest period possible given project objectives.

Recommendations: Leasing land for mitigation purposes using BPA funding is an acceptable practice. Lease conditions must ensure that habitat protection and restoration efforts will be secure. If lease is lost, BPA must be reimbursed pursuant to the contract.

EIS References: Chapter 4, pages 82, 100, 102, and 105. Appendix A, page 3.

V. A. 12. **CULTURAL AND HISTORIC RESOURCES**

Section 106 of the National Historic Preservation Act requires federal agencies having direct or indirect jurisdiction over a proposed federal or federally assisted undertaking to take into account the effect of the undertaking on any district, site, building structure, or object that is included in or eligible for inclusion in the National Register of Historic Places. The Native American Graves Repatriation Act requires that federal agencies consult with Native American tribes when activities and operations encounter cultural items or when cultural items are inadvertently discovered. The Archeological Resources Protection Act prohibits the purposeful excavation and removal of archeological resources on federal land without a permit from the federal land manager. The American Indian Religious Freedom Act requires federal agencies to protect the integrity of Native American religious places and opportunities for the exercise of Native American religions on lands under federal jurisdiction. A cultural resource survey should occur before the land is acquired, especially if plans conflict with cultural protection. Under Section 106 of the National Historic Preservation Act, BPA is responsible for funding all necessary activities associated with protection

of cultural resources.

Recommendations: For all wildlife mitigation projects, cultural resource management planning will be integrated with wildlife management plans as a means of avoiding impacts to cultural and historic resources. Cultural/historic resource surveys shall be done before ground-disturbing activities are undertaken. Sites identified during the survey which are on or eligible for the National Register will be protected.

1. Cultural/historic resource overviews must be done prior to acquiring land.

2. Cultural/historic resource surveys must be preformed prior to ground disturbing activities for all wildlife mitigation projects.

3. Cultural/historic resource management planning must be integrated with wildlife management plans as a means of avoiding impacts to cultural and historic resources.

4. Any district, site, building structure, or object that is included in, or eligible for, inclusion in the National Register of Historic Places must be protected.

5. Managers will ensure the lowest possible level of disturbance necessary to protect the resource.

6. BPA has made a distinction between lands owned or acquired with BPA funds and those which have been acquired with other fund sources by project sponsors. BPA is responsible for cultural/historic resource protection on lands BPA owns or lands which have been acquired with BPA mitigation funds.

EIS References: Chapter 4, pages 89-90, 92-93, and 114-116.

V. A. 13. **FIRE PROTECTION**

Fire management is generally used to preserve and protect habitat. Specific critical roads may be maintained to facilitate rapid fire crew response and access to interior areas. Green belts and fire break systems may also be installed to control fire. Prescribed burning may be used on a site-specific basis to improve habitat as an alternative to herbicides or grazing to manipulate shrubs and grasses. Fire protection for wildlife mitigation lands can take many forms. Fire protection contracts can be obtained with local fire protection districts or with the state's and/or tribal/Bureau of Indian Affairs fire fighting agency.

Recommendations: Contractual fire protection is a common element of management plans and is normally considered to be reasonable cost of mitigation projects. On-site adjuncts for fire protection need to be justified in the management plan.

EIS References: Chapter 4, pages 53, 63, 76, 73, 80, 82, 87, 88, 91, 98, 100, 103-5, 108, and 111. Appendix A, pages 13-14.

V. A. 14. **FIREBREAKS**

Firebreaks are strips of land managed to prevent the spread of fire. These can be used for controlled and uncontrolled fire situations. Firebreaks can vary in width from a 12-inch man-made swath used to start a back burn, to a 50-ft. plus wide natural barrier formed by naturally fire resistant vegetation. Firebreaks should take advantage of natural breaks such as trails, roads, rock cliffs, etc. A fire management plan should be developed stating fire policy (let burn versus protection, wild-natural versus man-made, control burning, etc). The use of natural fire breaks are preferred to man-made ones. The size and type of firebreak should be decided on a case-by-case basis

Recommendations:
The funding of firebreaks by BPA is an acceptable wildlife management practice.

EIS References: See Fire Protection above.

V. A. 15. **DUMP SITES - CLEAN-UP**

Land managers are faced with garbage, debris, and litter dumped on project sites. The collection, storage, and disposal of garbage, debris, and litter in a safe, sanitary, and legal manner will assure protection of wildlife on and adjacent to the property, as well as eliminate nuisances and liabilities to project users and adjacent land owners. This includes collection and disposal of materials that were found on the property at the time of project initiation, illegally dumped or along public access ways after BPA purchase, created as a result of project implementation, generated by users of the project, or inadvertently introduced from adjacent lands.

Recommendations: Developing project dump sites is not appropriate. All large tracts of land will probably have some dumping. Project sponsors are expected to clean up garbage, litter, and debris which has been dumped on the project site and it is acceptable for BPA to fund these efforts.

EIS References: None

V. A. 16. **HAZARDOUS WASTE**

For projects involving property acquisition, project sponsors must make preliminary identification of the presence of hazardous wastes using standards found in the American Society for Testing and Material Standards on Environmental Site Assessments for Commercial Real Estate.

Recommendations: For projects involving property acquisition, a Level 1 Hazardous Waste Survey

must be done and the property certified prior to accepting title. Hazardous waste which has been dumped on the mitigation project site must be disposed of according to state and federal regulations. It is appropriate for BPA to fund hazardous waste surveys, but the use of BPA funding to purchase sites containing hazardous waste should be avoided.

EIS References: Record of Decision page 3.