PART I - ADMINISTRATIVE

Section 1. General administrative information

Title of project

Burlington Bottoms Wildlife Mitigation Project

BPA project number: 9107800
Contract renewal date (mm/yyyy): 1/1999 ☐ **Multiple actions?**

Business name of agency, institution or organization requesting funding
Oregon Department of Fish and Wildlife

Business acronym (if appropriate) ODF&W

Proposal contact person or principal investigator:

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NPPC Program Measure Number(s) which this project addresses
11.3F.1

FWS/NMFS Biological Opinion Number(s) which this project addresses
N/A

Other planning document references
Oregon Trust Agreement Planning Project; BPA Wildlife Mitigation Program Final EIS; BPA Watershed Management Program Final EIS; Assessing Oregon Trust Agreement Planning Project Using GAP Analays; ODFW District Wildlife Management Plans.

Short description
The project would mitigate for hydro-electric facilities through protecting, maintaining, and enhancing wildlife habitat and related Habitat Units, benefitting target and other wildlife including Threatened, Endangered, and At-Risk species.

Target species
Great blue heron, Yellow Warbler, Beaver, Valley Quail, Spotted Sandpiper, Red-tailed Hawk, Black-capped Chickadee, Wood Duck

Section 2. Sorting and evaluation

Subbasin
Willamette River Subbasin

Evaluation Process Sort

CBFWA caucus	Special evaluation process	ISRP project type
Mark one or more caucus	If your project fits either of these processes, mark one or both	Mark one or more categories
☐ Anadromous fish ☐ Resident fish ☒ Wildlife	☒ Multi-year (milestone-based evaluation) ☐ Watershed project evaluation	☐ Watershed councils/model watersheds ☐ Information dissemination ☒ Operation & maintenance ☐ New construction ☐ Research & monitoring ☐ Implementation & management ☐ Wildlife habitat acquisitions

Section 3. Relationships to other Bonneville projects

Umbrella / sub-proposal relationships. List umbrella project first.

Project #	Project title/description
20550	Willamette Basin Mitigation Program Umbrella
9206800	Implement Willamette Basin Mitigation Program

Other dependent or critically-related projects

Project #	Project title/description	Nature of relationship
9705900	Securing Wildlife Mitigation Projects-Oregon	Proposal calls for enhancement and management of similar wetland habitats statewide.
9705908	Securing Wildlife Mitigation Sites-Oregon, Multnomah Channel	Adjacent project involving enhancement of similar wildlife habitats, involving coordination of management activities, etc.. Contributes to mitigation requirements for Willamette Basin.

9705906	Securing Wildlife Mitigation Projects-McKenzie River Islands	Acquisition and enhancment of similar wildlife habitat. Contributes to mitigation requirements for Willamette Basin.
9205900	Amazon Basin/Eugene Wetlands, Phase III	Enhancement of similar wildlife habitat. Contributes to mitigation requirements for Willamette Basin.
9705907	Securing Wildlife Mitigation Projects, EE Wilson WMA Additions	Enhancement of similar wildlife habitat. Contributes to mitigation requirements for Willamette Basin.
9705916	Securing Wildlife Mitigation Projects, Tualatin River Nat. Wildlife Refuge	Enhancement of similar wildlife habitat. Contributes to mitigation requirements for Willamette Basin.

Section 4. Objectives, tasks and schedules

Past accomplishments

Year	Accomplishment	Met biological objectives?
1993	Completed habitat evaluation procedures (HEP). Completed hydrology and hydraulics assessment project.	Estimated baseline and future habitat values for target wildlife species. Defined current habitat conditions for target and other wildlife species.
1994	Completed EA/Management Plan, including NEPA work.	Identified long term goals, objectives and guidelines for site management and related activities.
1995	Initiated survey and monitoring efforts for target and other wildlife species, including Federal and State listed species. Studies are on-going and will continue indefinitely with the assistance of volunteers.	Collected data on species presence and abundance and associated habitat use for 8 target species, 3 State listed species, passerines, and other wildlife species. Studies are on-going so data on long-term trends not available at current time.
1996	Maintained wildlife habitat values for target wildlife species through removal of invasive non-native plant species.	Removal of non-native plant species on approximately 15 acres in the ash forest and wet meadow habitats; objective met in part. Work was delayed due to flood conditions.
1997	Maintained and/or enhanced wildlife habitat values for target species through removal of non-native plant species and planting of native plant species.	Removal of non-native plant species on approx. 20 acres in the ash forest, riparian shrub, and wet meadow habitats; planted native plant species

		on approx. 2 acres in the riparian shrub habitat. Work was delayed due to flood conditions.
1998	Maintained and/or enhanced wildlife habitat values for target species through non-native plant removal and planting of native plant species.	Removal of non-native plant species on approx. 25 acres in the wet meadow, ash forest, and disturbed upland habitats; planted native plant species on approx. 10 acres in the wet meadow and riparin shrub habitats.
1998	Continued survey and monitoring efforts for target and other wildlife including one Federal listed (Bald Eagle) and three State listed (red-legged frog, western painted and pond turtles) species.	Evaluated and monitored target and other wildlife species presence and habitat use in all habitat types. Finished 4th year of monitoring neotropical migratory songbirds.

Objectives and tasks

Obj 1,2,3	Objective	Task a,b,c	Task
1	Protect and maintain 1,319 Habitat Units for eight target wildlife species through maintenance and enhancement of wildlife habitats.	a	Install water control structure to control water levels in the riparian shrub, forested wetland, wet meadow, emergent wetland, and open water habitats. Total acres targeted: 200 ac.
		b	Using various methods including mowing, hand removal, etc., remove/control non-native plant species in the riparian forest, riparian shrub, wet meadow, and disturbed upland habitats. Total acres targeted: 280 ac.
		c	Monitor and prevent human trespass, livestock trespass, illegal dumping, and other illegal activities. Monitor activities off site (i.e. quarry operations) that may affect on-site conditions such as water quality.
2	Provide 105 additional Habitat Units of protection credit by the year 2004, for five target wildlife species through enhancement of	a	Same as Objective 1, Task a.

	wildlife habitats. In addition, habitat will be protected and enhanced for listed species, and overall biodiversity will		
		b	Plant native plant species in the riparian tree, riparian shrub, wet meadow, and disturbed upland habitats, in a total of 84 acres.
3	Monitor and evaluate the protection, maintenance, and enhancement activities.	a	Monitor and evaluate water levels, flow etc. in connection with water control structure.
		b	Conduct a modified HEP for eight target wildlife species to determine success of maintenance and enhancement activities.
		c	Biological monitoring; Conduct wildlife surveys during various seasons to determine habitat use, population estimates, etc.
		d	Monitor site weekly for human trespass, illegal dumping, etc. Monitor off site activities.

Objective schedules and costs

Obj #	Start date mm/yyyy	End date mm/yyyy	Measureable biological objective(s)	Milestone	FY2000 Cost %
1	2/2000	12/2004	Protect and maintain Habitat Units for target species. Control/removal of non-native plant species and enhancement of habitat on 417 acres.	X	57.00%
2	2/2000	10/2004	Protect, maintain, and increase Habitat Units for target species. Enhancement of habitat for target and other wildlife species.	X	35.00%
3	3/2000	10/2004	Conduct modified HEP. Collect data on wildlife	X	8.00%

			species including habitat use, diversity and abundance, seasonal movements, etc. Monitor and evaluate all tasks.		
				Total	100.00%

Schedule constraints
Possible schedule constraints include: delays in obtaining necessary permits; delays in scheduling maintenance/enhancement work due to unavailability of field crews; and no access to a particular area during high water events.

Completion date
It is assumed that O&M will be necessary to protect and maintain existing habitat values as long as the hydrosystem continues to operate.

Section 5. Budget

FY99 project budget (BPA obligated): $57,515

FY2000 budget by line item

Item	Note	% of total	FY2000
Personnel	Personnel costs for project manager and technician.	%30	35,110
Fringe benefits	Administrative costs for 2 temporary employees.	%8	9,478
Supplies, materials, non-expendable property	Mailing supplies, copying, materials, native plants and grass seed.	%3	4,000
Operations & maintenance	Costs of field crews and tractor/mower rental for maintenance activities.	%8	10,000
Capital acquisitions or improvements (e.g. land, buildings, major equip.)	Costs of water control structure and related surveying, engineering, site prep., maintenance, etc.	%34	40,000
NEPA costs			0
Construction-related support			0
PIT tags	# of tags:		0
Travel	Mileage reimbursement for personnel and volunteers.	%1	1,900

Indirect costs	Overhead	%13	16,334
Subcontractor			0
Other			0
TOTAL BPA FY2000 BUDGET REQUEST			$116,822

Cost sharing

Organization	Item or service provided	% total project cost (incl. BPA)	Amount ($)
Ducks Unlimited	Engineering		
Volunteers	Noxious weed control; assist with wildlife surveys.		10,000
Total project cost (including BPA portion)			$126,822

Outyear costs

	FY2001	FY02	FY03	FY04
Total budget	$69,000	$71,000	$74,000	$77,000

Section 6. References

Watershed?	Reference
☐	Andelman, S.J. and Stock, A. 1994. Management, Research and Monitoring Priorities for the Conservation of Neotropical Migratory Landbirds that Breed in Oregon. Partners in Flight, Oregon and Washington Chapters.
☒	Beilke, S.B. ODF&W. 1994. Burlington Bottoms Management Plan/Environmental Assessment. Bonneville Power Administration, Portland, Oregon.
☐	Beilke, S.B. ODF&W. 1993. Burlington Bottoms Habitat Evaluation. Bonneville Power Administration.
☐	Csuti, B., A.J. Kimerling, T.A. O'Neil, M.M. Shaughnessy, E. Gaines, M.M.P. Huso. 1997. Atlas of Oregon Wildlife: distribution, habitat, and natural history. Oregon State University Press, Corvallis, OR.
☐	NPPC. 1994. Columbia River Basin Fish and Wildlife Program. NPPC94-55. Northwest Power Planning Council. Portland, Oregon.
☐	ODFW 1997a. Assessing Oregon Trust Agreement Planning Project Using GAP Analysis. In fulfillment of Project Number 95-65, Contract Number DE-BI179-92BP90299. Prepared for: U.S. Bonneville Power Administration;
☐	Project Cooperators: U.S. Fish and Wildlife Service, Confederated Tribes of the Umatilla Indian Reservation, Confederated Tribes of the Warm Springs

	Reservation, Burn Paiute Tribe, Oregon Natural Heritage Program, Portland, OR.
☐	Oregon Natural Heritage Database. 1993. Rare, Threatened and Endangered Plants and Animals of Oregon. The Nature Conservancy, Portland, Oregon
☐	Oregon Statewide Planning Program. 1973. ORS 197.225-.245. Adopted as administrative rules (OAR 660 Div. 15).
☐	

PART II - NARRATIVE

Section 7. Abstract

The proposal requests continued Bonneville Power Administration funding for FY 2000 for protection, maintenance and enhancement of wildlife habitat at Burlington Bottoms. The site was purchased by BPA in 1991 as mitigation for wildlife habitat losses in the lower Willamette River basin. Located between the Tualatin Mountains and west side of Sauvie Island, the site provides a diverse array of wildlife species and habitat types, including ash forest bottomlands, wet meadows, and emergent wetlands, representative of what was once common but is now increasingly rare along the lower Willamette River.

Overall project goals include: 1) Protect and maintain a diversity of native fish and wildlife and their habitats typical of a riverine floodplain; and 2) Maintain consistency with the Pacific Northwest Power Planning Council's Columbia River Basin Fish and Wildlife Program and Amendments. Overall project objectives include: 1) Protect and maintain existing Habitat Units for eight target species and other wildlife, including State and Federal listed species; 2) Provide additional Habitat Units through enhancement activities; and 3). Monitor and evaluate the protection, maintenance, and enhancement activities.

Maintenance and enhancement activities would be implemented in a manner that would be cost effective and using methods and strategies that have proven to be successful on other wetland sites, including manipulation of water levels and mechanical removal. Results of the maintenance and enhancement activities would be monitored and evaluated in several ways, including conducting a modified Habitat Evaluation Procedures (HEP), and conducting wildlife and plant surveys. Results would also be shared with other mitigation projects in order to continue coordination and implementation of habitat enhancement activities on this and other BPA mitigation sites.

The expected outcome of the project would be the protection, maintenance and enhancement of wildlife habitat on the site, while also maintaining and increasing associated habitat values for the target and other wildlife species. The 1,319 Habitat Units (HU's) generated by the 1993 HEP would be protected and maintained, while an additional 105 HU's would also be provided through enhancement activities by the year 2004.

Section 8. Project description

a. Technical and/or scientific background

BACKGROUND, HISTORY, AND IDENTIFICATION OF PROBLEM

The development of dams for hydropower, navigation, flood control, and irrigation in the Willamette and Columbia River Basins has resulted in widespread inundation of riverine, riparian, and upland wildlife habitats (NPPC 1994; BPA et. al., 1993). The 1980 Power Act established and charged the Northwest Power Planning Council with the task of developing a comprehensive fish and wildlife mitigation program to protect, mitigate, and enhance fish and wildlife habitat in the Columbia Basin (Power Act 1980, Section 4 (H)(1)(A), page 12; NPPC 1994, Section 2, page 2-1). This program, initially adopted in 1982, was amended in 1984, 1987, 1991-1993, and 1994. Consistent with Section 1003(7) of the Power Council Fish and Wildlife Program, BPA is authorized and obligated to fund implementation of projects that will help reach the Power Council wildlife mitigation goals and objectives.

In 1991, Burlington Bottoms was the first site in Oregon to be purchased by the BPA under the Willamette and Columbia River Basins Fish and Wildlife Programs, to provide partial mitigation for the impacts associated with the construction of hydroelectric facilities on both rivers. In the Willamette basin it was estimated there were over 94,000 Habitat Units (HU's) destroyed or compromised as a result of the construction and inundation of the eight dams and reservoirs. To date, mitigation has occurred for approximately 2-3 percent of these losses.

In 1993, a Habitat Evaluation Procedures (HEP) was conducted on the 417 acre site which estimated baseline and future habitat conditions for the target wildlife species in six habitat types, including open water, emergent wetland, wet meadow, riparian forest, riparian shrub, and forested wetland. Estimated baseline habitat units for each target species were as follows; 338 for wood duck, 388 for great blue heron, 11 for yellow warbler, 189 for black-capped chickadee, 176 for beaver, 2 for spotted sandpiper, 159 for red-tailed hawk, and 56 for valley quail. The study also estimated that an additional 105 habitat units could be gained with future enhancement activities.

The project site is located 12 miles north of Portland in the lower Willamette River Basin. Situated between the Tualatin Mountains to the west and the Multnomah Channel to the east, the site is remnant of what was once a complex system of diverse wetland and associated upland and forested habitats that historically supported a diverse array of native fish, wildlife and plant species.

This landscape has been drastically altered in the past 150 years, primarily due to agricultural practices and the installation and operation of hydroelectric dams along the lower Willamette and Columbia Rivers to provide power, irrigation water, and for flood control. As a result, wildlife habitat on the site has been lost or degraded in such a way as to reduce native plant populations and increase the spread of invasive non-native plant species. Exotic non-native plant species such as reed canary grass and Scot's broom are currently present in all habitat types on the site and continue to spread. Plant surveys conducted since 1993 have shown that in years when water levels more closely resemble historic levels, such as in 1996 and 1997, there is a dramatic reduction in non-native plant species and an increase in native plant species diversity and abundance.

b. Rationale and significance to Regional Programs

The Burlington Bottoms mitigation site contributes to the 1994 Fish and Wildlife Program goals and objectives of achieving and sustaining levels of habitat and species productivity as a means of fully mitigating wildlife losses caused by construction and operation of the federal and non-federal hydroelectric system (11.1). In addition, the project site addresses the following goals and principles listed in FWP Section 11.2D.1, which states, "In developing wildlife mitigation plans and projects, demonstrate to the extent to which the plans/projects comply with the following principles:"

- Have measurable objectives, such as the restoration of a given number of habitat units.

The project site provides 1,319 Habitat Units of protection credit; with enhancement these Habitat Units will be maintained and an additional 105 Habitat Units will be provided with the installation of a water control structure. All management objectives for the eight target species are based on the Habitat Evaluation Procedures, previous maintenance and enhancement work conducted from 1995-1998, overall management goals and guidelines from the 1994 Management Plan, and the Habitat Management Plan (in process).

- Are the least costly ways to achieve the biological objective.

The overall goal of the NWPP's Fish and Wildlife Program is the perpetual protection of wildlife and wildlife habitat types as mitigation for those which were lost as a result of the construction, inundation, and operation of the hydropower system. Various mitigation methods have been analyzed, and in a study comparing several methods (Prose et. Al. (1986) the author concluded that "Fee title land acquisition and subsequent management is generally more cost-effective than easements." The perpetual protection and enhancement of the in-kind habitats provided by the Burlington Bottoms site were achieved through fee title acquisition.

- Protect high quality native or other habitat or species of special concern, whether at the project site or not, including endangered, threatened, or sensitive species.
The project will protect important wetland habitat types (emergent wetland, wet meadow, etc.) that support a high level of wildlife species diversity. Regionally, wetland habitats have been lost or severely impacted due to various human activities.

Besides the target wildlife species, several state and federally listed species are present on the site year round or use the area for one or more of their life requirements. Bald eagles (federally listed, threatened) are present year round and use the area for feeding. Western painted and pond turtles and red-legged frogs (State of Oregon Category 2 species) are found throughout the site and use a number of habitats for breeding, cover, etc. Surveys conducted from 1996-1998 for painted turtles documented the largest known breeding population to date in Oregon (213 individuals). In addition, the site is a resting and feeding area for large numbers of migratory waterfowl in fall and winter, including tundra swans. Also of note is the first documented sighting of 2 American white pelicans on the site, in mid-November, 1998.

- Where practical, mitigate losses in-place, in-kind.
The Burlington Bottoms site provides in-kind riparian tree, riparian shrub, forested wetland, emergent wetland, wet meadow, and open water habitat types impacted by the hydroelectric facilities on both the Columbia and Willamette Rivers.

- Help protect or enhance natural ecosystems and species diversity over the long term.
Protection and management of the site and wetland habitats will provide for and ensure species diversity and will enhance the natural ecosystem for the long term. Year round habitat will be protected and enhanced for the target species, as well as for a variety of other wildlife including waterfowl and shorebirds, deer, mink, otter, great blue and green herons, small mammals, coyote, several species of raptors, numerous passerines, red-legged frog and other amphibians, and western painted and pond turtles (the latter three State of Oregon Category 2 species). In addition, feeding habitat will be protected and enhanced for the federally listed Northern bald eagle, whose presence has been documented on the site since 1993.

- Provide riparian or other habitat that can benefit both fish and wildlife.
The loss of biodiversity at the local, regional, and state levels has been significant; in particular, riparian habitat has suffered some of the greatest losses. For example, riparian habitat, which supports the greatest number of neotropical migratory songbirds in Oregon, is considered to be one of four priority habitats where statewide conservation and management efforts are needed, since it appears to have more species with declining than increasing population trends (Andelman and Stock, 1994). The Burlington Bottoms project site provides important riparian and other types of habitat for many species of fish and wildlife.

- Complement the activities of the region's state and federal wildlife agencies and Indian tribes.
Through protection and enhancement, this project complements the Lower Columbia River Ecoregion Restoration Project, Phase II, which is currently involved in restoration of critical habitat in the region and is working with agencies and groups such as the Oregon Department of Fish and Wildlife, U.S. Fish and Wildlife, Ducks Unlimited and Metro Parks and Greenspaces.

This project also complements enhancement work being done under the Oregon Department of Fish and Wildlife's Willamette River Basin Umbrella proposal, which includes acquisition and restoration of important fish and wildlife habitats, similar to those found at Burlington Bottoms. As the first mitigation site in the Willamette River basin, the site has provided valuable information on wildlife and habitat to other project sites, allowing these projects to be more cost effective and efficient in their restoration work.

- Encourage the partnerships with other persons or entities, which would reduce project costs, increase benefits and/or eliminate duplicate activities.
Since 1994, habitat maintenance costs have been reduced with the help of local volunteers from both the Oregon Department of Fish and Wildlife and groups such as the Portland Audubon Society, the Nature Conservancy, and the Northwest Ecological Resource Institute. Various projects occur on a yearly basis where students and adults participate in non-native plant removal and planting of native species. In addition, volunteers have donated the use of equipment such as mowers and hand tools for several management activities.

Surveys and monitoring of wildlife and habitat on the project site has been conducted since 1995 with the assistance of college interns from several state universities, and volunteers from various non-profit groups. On a yearly basis since 1995, volunteers have donated an estimated $5-10,000 worth of assistance, which has greatly reduced project costs and contributed greatly to the knowledge of wildlife species and habitat use.

- Do not impose on Bonneville the funding responsibilities of others.
Under Section 4h of the Northwest Power Act, BPA is responsible for funding mitigation for the loss of wildlife habitat caused by development of the Columbia Basin hydrosystem. BPA accomplishes this mitigation by funding projects consistent with the Council's FWP. Certain enhancement, operation, and maintenance activities are reasonable for BPA to fund while other activities may be outside BPA's obligation. CBFWA's Guidelines for Enhancement, Operation, and Maintenance Activities for Wildlife Mitigation Projects (CBFWA 1998) explains what activities are within BPA's funding responsibility. The acquisition/easement, enhancement, operations and maintenance, and monitoring and evaluation components of the Burlington Bottoms mitigation project are consistent with CBFWA's guidelines and do not impose on BPA the funding responsibility of others.

c. Relationships to other projects

- Implement Willamette Basin Mitigation Program
This project develops and implements measures to mitigate for wildlife habitat losses in the Willamette Basin, working in a cooperative manner with various agencies and groups to improve habitat, improve water quality, develop management plans and in general to improve the overall ecosystem health. Results of maintenance and enhancement activities at Burlington Bottoms are shared with this (and other) project, in an effort to further the understanding of Willamette and lower Columbia wetland systems. In addition, general project management, staff time, and equipment are shared and collaborated between this project and the Willamette Basin program.

- Securing Wildlife Mitigation Projects in Oregon, Multnomah Channel
This site is adjacent to the Burlington Bottoms property, also contributes to mitigation requirements for the Willamette Basin, and would involve the protection and enhancement of similar wetland habitats. It involves the cooperation and collaboration of several agencies and groups, including Metro Parks and Greenspaces, Oregon Department of Fish and Wildlife, U.S. Fish and Wildlife, and Ducks Unlimited.

- Lower Columbia River Ecoregion Restoration Project-Phase II
This on-going project identifies and restores wetland habitats, such as emergent wetlands and hardwood bottoms, which were once part of a complex system that supported a diverse array of wildlife, including large numbers of waterfowl and anadromous fish. Several of the areas included in Phase II, such as the Multnomah Channel and Sauvie Island projects, are adjacent to Burlington Bottoms and have similar wetland habitats and support many of the same wildlife species, including overwintering waterfowl, passerines, raptors, and amphibians and reptiles. This project involves partnerships with many groups and agencies, including the Natural Resources Conservation Service, Ducks Unlimited, Oregon Department of Fish and Wildlife, Washington Department of Fish and Wildlife, U.S. Forest Service, U.S. Fish and Wildlife, and Metro Parks and Greenspaces.

- Securing Wildlife Mitigation Projects in Oregon
This is a new project proposal which would protect and enhance valuable habitats statewide, many of which are similar to wetland habitats at Burlington Bottoms. This large scale ecosystem type of approach allows for a broader look at the landscape, addressing such issues as fragmentation of habitat and corridors for wildlife movement.

- Securing Wildlife Mitigation Projects in Oregon, Amazon Basin/Eugene Wetlands
Located in the Willamette Valley, this on-going project also contributes to mitigation requirements for the Willamette Basin, and involves the protection and enhancement of wetland habitats similar to those found at Burlington Bottoms. It involves the cooperation and collaboration of several groups and agencies, including the Nature Conservancy, Oregon Department of Fish and Wildlife, and the City of Eugene.

- Securing Wildlife Mitigation Projects in Oregon, EE Wilson WMA Additions
This project also contributes to mitigation requirements for the Willamette River Basin, and involves the protection and enhancement of wetland habitats similar to those found at Burlington Bottoms. Cooperators in this project include the Oregon Department of Fish and Wildlife and private individuals.

- Securing Wildlife Mitigation Projects in Oregon, Tualatin River National Wildlife Refuge
Located in the lower Willamette River Basin, this project involves the protection and enhancement of wetland habitats similar to those found at Burlington Bottoms, and also contributes to mitigation requirements for the Willamette River Basin. Cooperators in this project include the U.S. Fish and Wildlife Service and the Oregon Department of Fish and Wildlife.

d. Project history (for ongoing projects)

1991
In 1991, the Burlington Bottoms site was purchased by the BPA under the Willamette and Columbia River Basins Fish and Wildlife Programs to provide partial mitigation for the impacts associated with the construction of hydroelectric facilities on both rivers.
Milestone: acquisition of property.

1993
In 1993, the Oregon Department of Fish and Wildlife contracted with the BPA and assumed interim management responsibilities for the site. Interim management responsibilities included conducting a habitat evaluation, conducting a hydrologic study, surveying and monitoring of fish and wildlife populations, protecting and enhancing wildlife habitat, and custodial management of the area.

In 1993 a HEP was conducted on the 417 acre site, which estimated baseline and future habitat conditions for the target wildlife species in six habitat types, including open water, emergent wetland, wet meadow, riparian forest, riparian shrub, and forested wetland. Estimated baseline habitat units for each target species were as follows; 338 for wood duck, 388 for great blue heron, 11 for yellow warbler, 189 for black-capped chickadee, 176 for beaver, 2 for spotted sandpiper, 159 for red-tailed hawk, and 56 for valley quail. The study also estimated that an additional 105 habitat units could be gained with future enhancement activities.
Milestone: contractual agreement for interim management of the site, completion of hydrologic study and habitat evaluation.

1994

A management plan and Environmental Analysis were completed (Finding of No Significant Impact) and approved by BPA. The proposed action and selected alternative included protecting and enhancing wildlife species and habitats, with limited public access and use.
Milestone: completion of EA and management plan.

1995

Initiated survey and monitoring efforts of wildlife species, including neotropical migratory songbirds and western painted and pond turtles. Began program to work with local universities and non-profit groups to recruit volunteers for assistance with various wildlife and plant surveys to reduce costs.

Initiated surveys for native and non-native plant species in all habitat types. Identified and began project to control/remove invasive non-native plant species, using local field crews. Continued interim management of the site.
Milestone: met all tasks in scope of work.

1996 - 1997

Continued control and removal of non-native plant species. Contracted with local groups, including Americorp's Envirocorp program, to assist with enhancement activities. Identified opportunities and locations for enhancement of native plant communities in various habitat types; this included identifying feasibility and costs of water control structure for site. Continued surveys for wildlife species, including conducting first nesting surveys for western painted turtles in the state of Oregon. Continued interim management of site.
Milestone: Identified and made recommendations for enhancement of wildlife habitat to increase efficiency and cost effectiveness of management enhancement activities.

1998

Completed surveys and design for replacement of bridge across wetlands. Bridge was installed in September and will provide access to portions of the site for management activities.

Continued wildfire surveys, including completing the 2nd year of survey and monitoring of western painted and pond turtles. A total of 215 turtles have been captured and marked as of October 30th; to date this is the largest known population of western painted turtles along the lower Willamette River. A bald eagle pair was observed feeding on the site throughout the year, this pair completed a nest and successfully fledged one chick in the adjacent Tualatin Mountains.

Continued removal of non-native plants in approximately 25 acres in the wet meadow, ash forest, and disturbed uplands habitats. Continued enhancement activities including planting native plants in the riparian shrub and wet meadow habitats, in a total of 10 acres.

Completed assessment of current habitat conditions and opportunities for future enhancement actions that would protect and create additional habitat units, and identified associated costs. Begun habitat protection and enhancement plan which will be completed in early 1999.
Milestone: installed bridge on site which will increase access to other areas on the site, increase efficiency and reduce costs of future management activities.

Project reports
- Burlington Bottoms Habitat Evaluation (HEP), 1993
- Burlington Bottoms Wildlife Mitigation Project, Final Environmental Assessment/Management Plan and Finding of No Significant Impact, 1994
- Results of Neotropical Migratory Landbird Surveys at Burlington Bottoms, 1995-1998.
- Results of Demographic, Breeding and Overwintering Surveys and Monitoring for Western Painted and Pond Turtles at Burlington Bottoms, 1996-1998.

e. Proposal objectives

This proposal requests continued funding for protecting, enhancing, and maintaining habitat at Burlington Bottoms for the target and other wildlife species. Habitat Units for the target species as identified in the 1993 HEP would be maintained and additional Units would be generated through enhancement activities. The specific objectives are:

Objective 1: Protect and maintain 1,319 Habitat Units for eight target wildlife species through maintenance and enhancement of wildlife habitats.

Objective 2: Provide 105 additional Habitat Units of protection credit by the year 2004, for five target wildlife species through enhancement of wildlife habitats. In addition, habitat will also be protected and enhanced for Federal T/E/S species and State of Oregon Category 2 species, and overall biodiversity on the site will be increased.

Objective 3: Monitor and evaluate the protection, maintenance, and enhancement activities.

Expected products include: 1) installation of water control structure; 2) report documenting modified HEP and results of maintenance and enhancement activities; and 3) report describing monitoring and evaluation activities.

f. Methods

Objective 1, Task a - Install water control structure.
Methods - A water control structure would be installed on the outlet slough connecting the largest body of water on the site to the Multnomah Channel. Water availability and control would be afforded in the following habitat types, riparian shrub, forested wetland, wet meadow, emergent wetland, and open water, for a total of approximately 200 acres. Moist soil management techniques would be utilized to maintain biodiversity and to control non-native plant species, such as reed canary grass. This would be accomplished by developing a water level management scheme (schedule). Staff gauge would be set at water levels for optimum benefit, typically 6-12 inches over largest area. This provides greatest diversity for both plant and wildlife species. All necessary permits from state and local agencies would be obtained.

Objective 1, Task b - Continue to implement control/removal of non-native plant species.
Methods - Surveys are done in the beginning of the growing season to determine where activities should occur. Non-native plant species such as Scot's broom, reed canary grass, and Himalaya blackberry are targeted using various methods such as mowing and hand removal. These two methods work well in small areas where larger equipment can not be used; both methods can be labor intensive, they are not cost effective in larger areas. Habitats where these methods work well include the riparian tree and riparian shrub habitats. Herbicides have not been used to date but are still considered a feasible option. Work is carried out with assistance of local field crews.

Objective 1, Task c - Monitor/prevent site for human trespass, livestock trespass, illegal dumping, and other illegal uses. Monitor off-site activities.
Methods - Project staff patrols boundaries and the interior of the site. Problems with human trespass are coordinated with the Oregon State Police. Problems with livestock are coordinated with the adjacent landowners. Illegal dumping is currently only a minor problem since a gate was installed across the access road into the site in 1992. Off-site activities are monitored periodically.

Objective 2, Task a - As in Objective 1, Task a, a water control structure would be installed on the outlet slough to enhance wildlife habitat.
Methods - Same as Objective 1, Task a.

Objective 2, Task b - Plant native plant species in the riparian tree, riparian shrub, wet meadow, and disturbed upland habitats.
Methods - Native plants are planted in various areas to increase native plant diversity and wildlife habitat, in a total of 84 acres. In addition, cuttings from willow and other native plants are taken from on site and planted to encourage the use of plants with local genotypes and to save costs. Local crews, such as Americorp's Envirocorp, are hired throughout the year to assist with these activities.

Objective 3, Task a - Monitor and evaluate water levels, flow, changes in vegetation, wildlife use, etc. in connection with water control structure.
Methods - Enhancement efforts would be documented and evaluated using a standardized wetland vegetation sampling protocol (including photo point, line transects, etc.) noting changes in vegetative structure, species, etc.; wildlife species presence, abundance, etc. would also be documented; statistical analysis would include the use of descriptive statistics and a multivariate analysis of variance.

Objective 3, Task b - Conduct a modified HEP for eight target wildlife species to determine success of maintenance and enhancement activities.
Methods - Use standardized models for target species, gather information on plant species response to enhancement activities using photo points, line transects, etc. Final HEP report will document and evaluate results of enhancement activities.

Objective 3, Task c - Biological monitoring: conduct wildlife surveys during various seasons to determine species habitat use, population estimates, etc.
Methods - 1) Conduct breeding bird surveys annually from mid-May through June, using point count survey protocol as established by Partners In Flight.
2) Surveys for amphibians are conducted from late fall through spring during the breeding season; ponds are surveyed and mapped documenting numbers of egg masses observed, site attachment, staging, etc. All animals caught are weighed, measured, and released.
3) Surveys for western painted and pond turtles are conducted from March through October. Visual surveys are conducted to determine numbers of animals basking, age, species, etc. Turtles are caught using baited funnel traps and/or using dipnet or by hand. All animals are weighed, measured, photographed, and notched using a unique numbering system. Surveys for nesting females are conducted in late May through July, in part to determine substrate use, distance of nests from water, predator activity, etc. Intact nests are monitored in fall and spring to determine time of emergence and hatchling success.

To date, the Burlington Bottoms site has the largest number of painted turtles known in the lower Willamette Basin (a total of 213 animals have been caught and marked as of October 15th, 1998.) It also has a small population of western pond turtles, for which nesting behavior has been recorded. In addition, this site has documented both fall and spring hatchling emergence for painted turtles in 1997 and 1998; previous to this finding, fall emergence had not been documented for painted turtles in Oregon.

4) Surveys are conducted periodically year-round for waterfowl, shorebirds, raptors, and other birds to determine species presence, use of habitat, etc. Point count surveys for neotropical migratory songbirds are conducted from mid-May through late June. Several waterfowls counts are done in fall and winter to document overwintering numbers, species, and habitat use. Data from all surveys is entered into an excel spreadsheet. Data analysis includes the use of descriptive statistics (i.e. for breeding bird survey results) since they provide the basic information for comparing attributes through time at one site or for comparison among different sites. All surveys and monitoring are conducted with the assistance of a biological technician and/or volunteers, including student interns from local colleges.

Objective 3, Task d - Monitor site weekly for human trespass, illegal dumping, etc.
Methods - Site is patrolled by project manager and/or assistant on a weekly basis.

g. Facilities and equipment

The Oregon Department of Fish and Wildlife possesses a range of support facilities and services, including technical and administrative staff. All field activities, clerical work, etc., are carried out through the Sauvie Island Wildlife Area office, located on Sauvie Island, 12 miles northwest of Portland, Oregon. This office contains sufficient office space for staff, a fully equipped secretarial center, a meeting room, and storage space for supplies. The office of the project manager is electronically interconnected, with a Gateway 2000 computer workstation and up to date software capabilities including spreadsheet, word processing, and data base development and management.
Field equipment necessary for all HEP work is available.

h. Budget

The budget for this proposal is higher than what was projected in the FY98 proposal. After careful review of maintenance and enhancement activities on the site in the past three years, it was determined that these past actions would not be sufficient over the long term to provide high quality, optimal habitat conditions for the target and other wildlife species on the site. Several options were evaluated for habitat enhancement, based in part on success of control/removal projects on other sites and associated costs. The installation of a water control structure was determined to be the best option available for habitat maintenance and enhancement, hence the higher costs for this budget proposal.

- Personnel: Funding for personnel includes a project manager who oversees all activities on the site, is responsible for designing, implementing, and managing all activities on a daily basis, and coordinates with various federal, state, and local agencies and private groups on actions pertaining to the site; and a part time biological technician who assists the project manager with habitat enhancement and wildlife surveys.

- Fringe benefits: Costs of administering temporary employees by The Personnel Department (private temporary service).

- Supplies, materials, non-expendable property: Included here are materials including film, photo development, office supplies, materials for protecting plantings, and communications (cellular service).

- Operations and maintenance: This includes costs of hiring field crews for tree planting, etc., and rental of tractor/ mower for maintenance and enhancement activities.

- Capital acquisitions or improvements (e.g. land, buildings, major equip.): Included here is the cost of installing a water control structure, including design, surveys, etc. Costs of maintenance for the long term have not been estimated or included here. The cost to BPA may decrease depending on other participants in this project, such as Ducks Unlimited and Oregon Department of Fish and Wildlife.

- Travel: Expenses for travel include mileage for temporary employees and several volunteers, and per diem.

- Indirect costs: This item covers costs of overhead at the current rate of 35.5% per the ODFW administrative department.

Section 9. Key personnel

Susan Beilke: Wildlife Biologist and Project Manager for Burlington Bottoms, ODFW; Temporary employee,40 hrs/week.

- Duties include designing, implementing and supervising all projects for the site, including maintenance and enhancement activities, surveys and monitoring of wildlife species, and research and educational projects. Also coordinates with various federal, state and local agencies and private groups regarding the aforementioned activities. Related experience includes conducting habitat evaluation procedures (HEP) and making recommendations for management alternatives for other mitigation sites in the Willamette River basin, including the Willow Creek and the Confluence of the Coast and Middle Forks of the Willamette River mitigation sites.

Greg Sieglitz: Willamette Basin Mitigation Program Manager, Assistant Staff Wildlife Biologist; Full time staff biologist, 40 hrs./week, (0 FTE hours charged to this project).

- Duties include acting as agency liaison and spokesperson representing ODF&W at regional Wildlife Working Group, Columbia Basin Fish and Wildlife Authority, Oregon Wildlife Coalition, and other meetings. Currently project leader for two Bonneville Power Administration Mitigation Projects including the Willamette Basin Mitigation Program, and the Assessing Oregon Trust Agreement Planning Project Using GAP Analysis.

Susan Barnes: Columbia Basin Wildlife Mitigation Coordinator, Full time ODFW Wildlife Biologist, 40hrs./week.

Duties include coordinating Oregon's BPA Wildlife Mitigation efforts; facilitates the Oregon Wildlife Coalition; ODFW representative in CBFWA Wildlife Caucus.
- B.S. Wildlife management/forestry, University of New Hampshire, 1991; HEP certified.
- Previous employment includes Mason, Bruce & Girard, Inc. (environmental consulting firm); self employed environmental consultant (contractor with NPPC); Beak Consultants, Inc. (environmental consulting firm); and U.S. Forest Service (wildlife biologist).
- Anticipated project duties include: indirectly coordinates project activities and implementation with other Columbia Basin mitigation projects.

- RESUMES:

Susan G. Beilke

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PROFESSIONAL EXPERIENCE:

Wildlife Biologist - **Oregon Department of Fish and Wildlife (4/93 - present)**
Sauvie Island Wildlife Area, Portland, Oregon

- Project Coordinator for Burlington Bottoms wetland mitigation site. My past and present responsibilities include conducting wildlife surveys and habitat maintenance and enhancement projects; Coordinated and conducted Habitat Evaluation Procedures (HEP) analysis and Alternatives Team processes and authored report on findings; co-authored the environmental analysis and management plan; Coordinate and meet with local, state, and federal and private groups regarding related planning and environmental issues; Conduct research and environmental education projects involving local high school and college students and individuals in the community.

- Assist Columbia Regional Wildlife Diversity Biologist. Participated in wildlife surveys in the region for listed species including bald eagle, peregrine falcon and snowy plover; presented wildlife related educational programs at local schools.

Assistant District Wildlife Biologist - **Mt. Hood National Forest (10/89 - 10/92)**
Columbia Gorge Ranger District, Corbett, Oregon

- Conducted wildlife and habitat surveys and prepared environmental analysis reports. Managed the planning, implementation, and monitoring of spotted owl inventory program; Trained and supervised spotted owl survey team; Participated in timber sale planning and developed related wildlife improvement projects; Reviewed trail construction and other projects regarding wildlife concerns; Developed and presented educational programs in wildlife conservation to local schools.

EDUCATION:

- Portland State University, Portland, Oregon, Bachelor of Science in Biology, 1987
- Evergreen State College, Olympia, Washington, 1982-1983

Gregory B. Sieglitz

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Education:
Oregon State Univ., Corvallis, Oregon. Bachelor of Science, Wildlife Science, 1990.

Oregon State Univ., Corvallis, Oregon. One year of Master of Science Program. Department of Geosciences, 1994-1995.

Professional Experience:

10/95 to present — **Oregon Department of Fish and Wildlife, Corvallis, Oregon**
Wildlife Diversity Program-Assistant Staff Wildlife Biologist
Project leader for two Bonneville Power Administration Mitigation Projects:
- Willamette Basin Mitigation Program.
-Assessing Oregon Trust Agreement Planning Project Using GAP Analysis.
Project leader for statewide Spotted Owl, Marbled Murrelet and Western Pond Turtle databases.
Performed duties of agency liason and spokesperson representing ODFW at regional Wildlife Working Group, Columbia Basin Fish and Wildlife Authority, Oregon Wildlife Coalition, and other meetings.
Facilitator of Oregon Wildlife Coalition, BPA GAP Analysis, and Willamette Valley Mitigation meetings.
Coordinated Habitat Evaluation Procedures and Alternatives Team processes. Authored reports, managed budgets, developed contracts, hired and supervised, and gave presentations.
GIS, GPS, and multiple computer programs for manipulating, analyzing, and portraying data.
(Only experience pertaining to this program is listed.)

Section 10. Information/technology transfer

Technical information obtained from this project will be disseminated in several ways, including the generating and distribution of reports on enhancement projects, wildlife surveys, etc., and will be available to other agencies and the public in general. Knowledge gained from enhancement activities on this project will be shared with other mitigation sites to make the best use of current findings for planning and implementing enhancement activities, which should also help to make projects more cost effective over time. Information will also be shared through presentations at conferences, publication in peer-reviewed and other journals, and electronically via the internet/world wide website (Ducks Unlimited).

Congratulations!