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Burlington Bottoms Wildlife Mitigation Project

Final Environmental Assessment/ Management Plan and Finding of No Significant Impact

December 1994

U.S. Department of Energy
Bonneville Power Administration

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Wildlife Mitigation Project

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CHAPTER 1: PURPOSE OF AND NEED FOR ACTION

1.1 PROPOSED ACTION

Bonneville Power Administration (BPA) proposes to fund wildlife management and enhancement activities for the Burlington Bottoms wetlands mitigation site. Acquired by BPA in 1991, wildlife habitat at Burlington Bottoms would contribute toward the goal of mitigation for wildlife losses and inundation of wildlife habitat due to the construction of Federal dams in the lower Columbia and Willamette River Basins. Target wildlife species identified for mitigation purposes are yellow warbler, great blue heron, black-capped chickadee, red-tailed hawk, valley quail, spotted sandpiper, wood duck, and beaver.

The Draft Management Plan/Environmental Assessment (EA) describes alternatives for managing the Burlington Bottoms area, and evaluates the potential environmental impacts of the alternatives. Included in the Draft Management Plan/EA is an implementation schedule, and a monitoring and evaluation program, both of which are subject to further review pending determination of final ownership of the Burlington Bottoms property.

1.2 PURPOSE AND NEED FOR ACTION

BPA proposes action to meet the need for mitigation for wildlife and wildlife habitat adversely affected by the development and operation of Federal dams and reservoirs on the Willamette and Columbia Rivers. The purposes of the Proposed Action are to:

1) Maintain consistency with the Pacific Northwest Power Planning Council's Columbia River Basin Fish and Wildlife Program and Amendments.

2) Increase the quality and quantity of wildlife and wildlife habitat on the Burlington Bottoms property.

3) Maintain the area primarily as wetland habitat typical of that found in the lower Columbia and Willamette River Basin systems.

4) Maintain a diversity of wildlife and wildlife habitat typical of a riverine floodplain.

5) Provide selected forms of passive wildlife oriented public recreation.

6) Favor native plants and animals over non-native.

7) Protect cultural sites.

8) Maintain or improve water quality.

9) Meet BPA's obligation under provisions of the Pacific Northwest Electric Power Planning and Conservation Act of 1980.

1.3 BACKGROUND

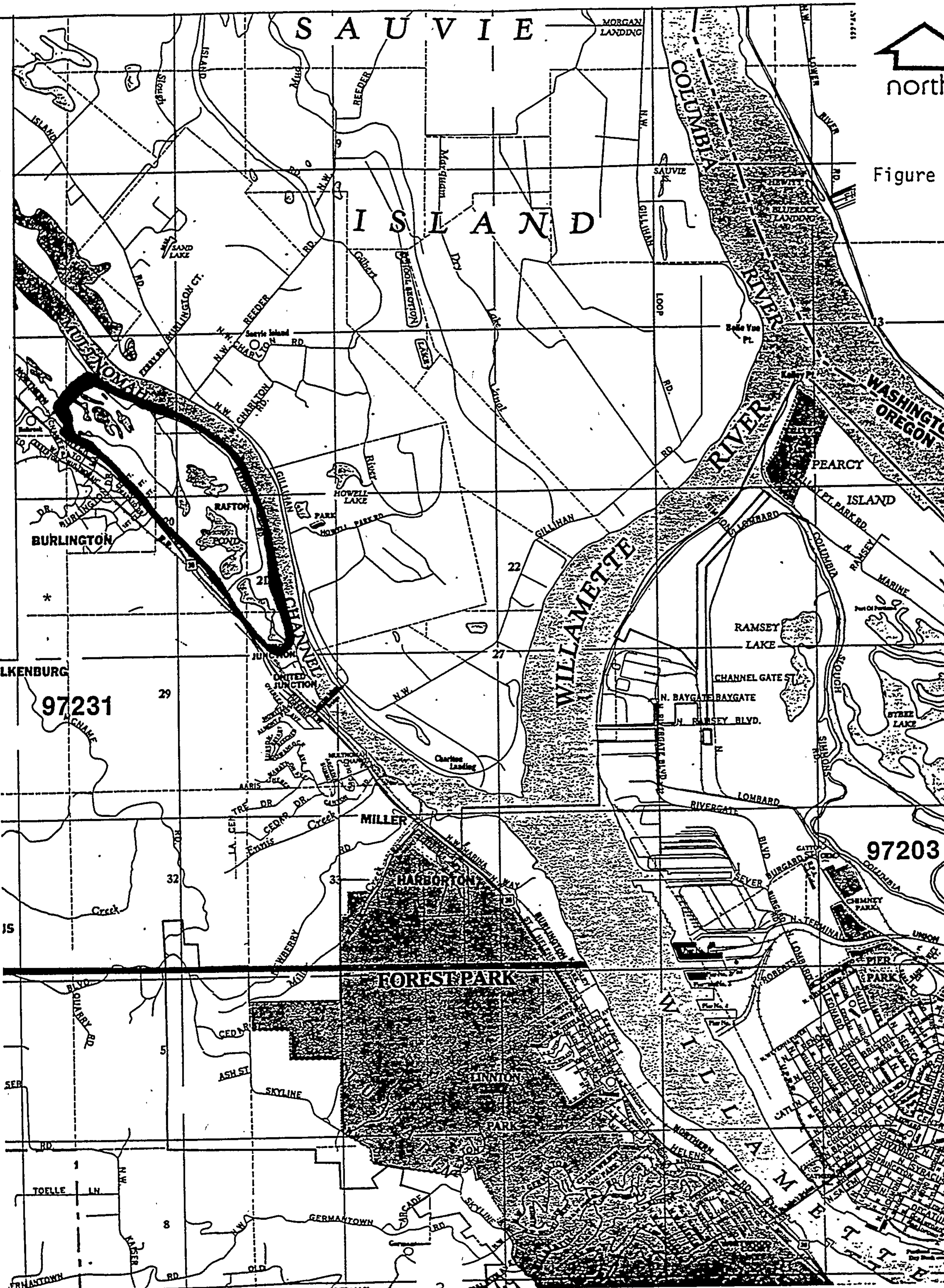
In 1991 BPA purchased the Burlington Bottoms property consisting of approximately 169 hectares (ha) (417 acres) of wetlands, riparian, and pasture (formerly wet prairie) habitat along the floodplain of the lower Columbia and Willamette Rivers. The area is located adjacent to the Multnomah Channel between Sauvie Island and the Tualatin Mountains, (see map on page 3). The area provides important seasonal and year-round habitat for many species of fish and wildlife, including the bald eagle and western painted turtle.

To provide a framework for the management of the area's natural resources, development of a Draft Management Plan and EA began in the fall of 1993 to address such issues as habitat management, recreation, and cultural resources. Input for the development of the Draft management Plan came from various Federal and State agencies, local environmental groups, and private citizens. A public meeting was held in June 1993, to foster discussion and formulate a list of issues and concerns for the management of Burlington Bottoms, which were then incorporated into the Plan/EA.

1.3.1 Mitigation Process under Power Act

Under provisions of the Pacific Northwest Electric Power Planning and Conservation Act of 1980 (Northwest Power Act), BPA has the authority and obligation to fund wildlife mitigation activities approved by the Northwest Power Planning Council and included in the Council's Fish and Wildlife Program. The initial phase of mitigation planning for wildlife habitat losses was submitted to the Council for amendment into the Program in 1989. The Program includes a process for review of habitat losses and design of mitigation plans for each Federal hydro project in the Willamette and Columbia River Basins (Section 1002).

In 1989, the Council amended the Program to include wildlife habitat losses resulting from construction and operation of Bonneville, The Dalles, John Day, and McNary Dams. In


SAUVIE
ISLAND
MORGAN LANDING
COLUMBIA RIVER
WASHINGTON
OREGON
PEARCY
ISLAND
MULTNOMAH
CHANNEL
RAFTON
POND
BURLINGTON
SAND LAKE
HOWELL LAKE
WILLAMETTE
RIVER
RAMSEY LAKE
CHANNEL GATE ST
N. BAYGATE
N. RAMSEY BLVD.
LOMBARD
RIVERGATE
97231
97203
MILLER
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FOREST PARK
LINNTON
PARK
SKYLINE
GERMANTOWN
ASH ST
TOELLE LN.
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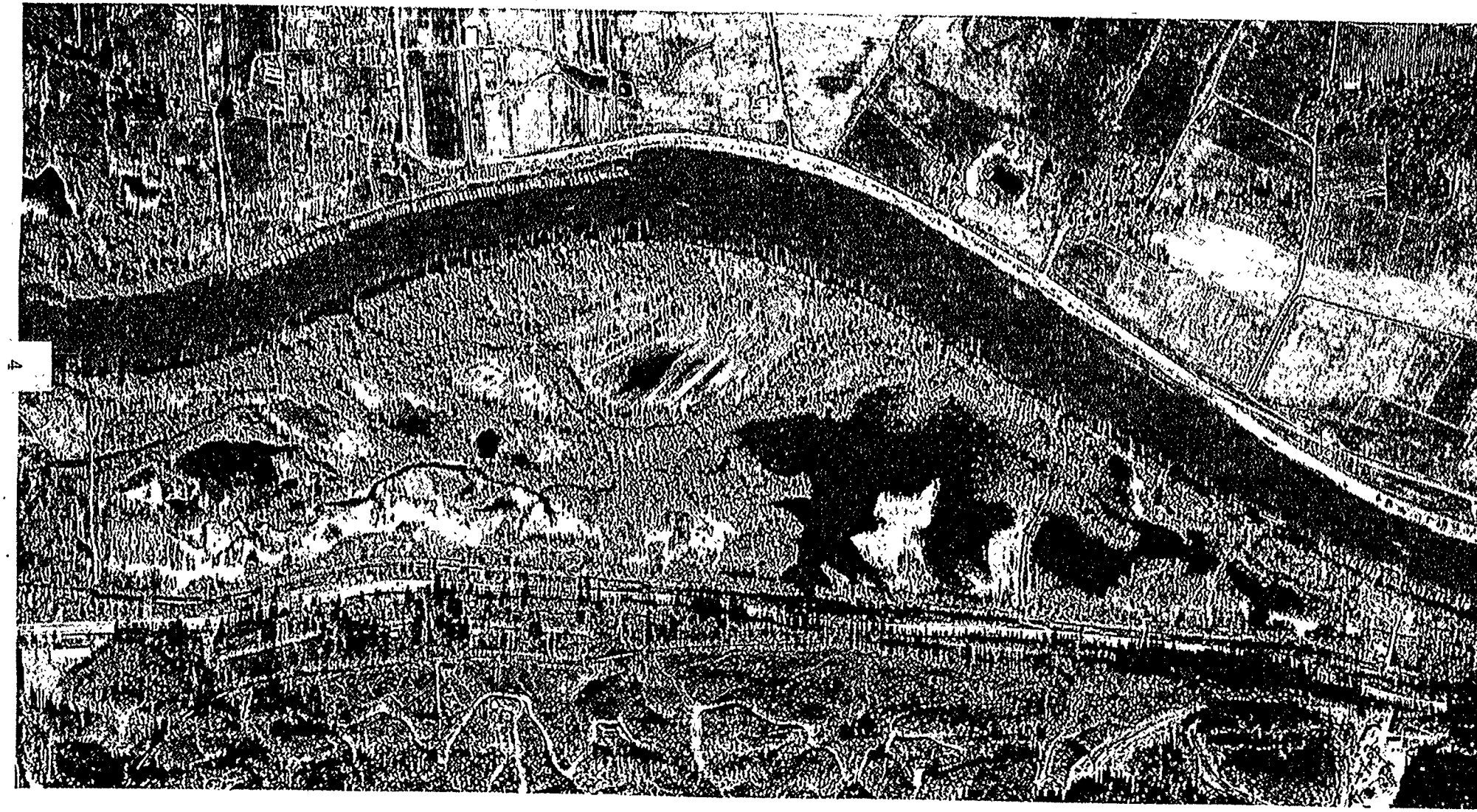
Figure 1



BURLINGTON BOTTOMS 3/93

Figure 2

addition, this project would be consistent with Section 1003(7) of the Program's Wildlife Mitigation Rule.

1.3.2 Relationship to Other Actions

- Oregon Land Use Planning Act of 1973

The Oregon Land Use Planning Act of 1973 (Oregon Revised Statutes (ORS) Chapter 197.225-.245), created a state-level program to set policy for and coordinate the administration of land use planning by all levels of government in Oregon. Statewide planning goals were developed under this program which require the protection and management of land, water, coastal and ocean resources.

Goal 5 of the Oregon Land Use Planning Act requires cities and counties to adopt programs as elements of their comprehensive plans that will 1) ensure open space; 2) protect scenic and historical areas and natural resources for future generations; and 3) promote healthy and visually attractive environments in harmony with the natural landscape character. In 1988, Multnomah County identified Burlington Bottoms as being "significant wetlands" under the Goal 5 inventory.

In addition, in 1990, streams located in the contributing watershed in the northwest hills above Burlington Bottoms were identified as "significant streams and riparian resources."

Consistent with Goal 5, proposed actions under the Draft Management Plan for Burlington Bottoms would protect the historic and cultural areas and natural resources, maintain open spaces, and maintain and/or enhance the existing natural landscape.

- Goal 15: Willamette River Greenway

Under Goal 15 of the Oregon Land Use Planning Act, all of the Burlington Bottoms area is located in the Willamette River Greenway Zone. The purposes of the Willamette River Greenway subdistrict are to protect, conserve, enhance, and maintain the natural, scenic, historical, agricultural, economic, and recreational qualities of lands along the Willamette River; to implement the County's responsibilities under ORS 390.310 to 390.368; to establish Greenway Compatibility Review Areas; and to establish criteria, standards and procedures for the intensification of uses, changes of uses, or the development of lands within the Greenway.

- Sauvie Island Wildlife Area Management Plan

The Sauvie Island Wildlife Area Management Plan, prepared by the Oregon Department of Fish and Wildlife (ODFW), (January 1993), provides management direction for wildlife habitat and wildlife oriented recreation. Goals developed for this plan include maintaining natural areas for habitat diversity. Because of Sauvie Island's close proximity to Burlington Bottoms, many species of wildlife, including waterfowl, raptors, mammals, and songbirds, may use both areas for their habitat needs. Proposed management activities that would protect, maintain, and enhance fish and wildlife habitat at Burlington Bottoms coincide with management direction for Sauvie Island. Both plans provide a framework for the management of a diversity of wildlife and wildlife habitat in the area.

1.3.3 Review Schedule

The Final Management Plan would be periodically reviewed on the following schedule: once every year for the first three years, then once every five years, unless unforeseen circumstances dictate the need for a schedule change. Representatives from the following agencies and groups may be participants: Bonneville Power Administration, U.S. Fish and Wildlife Service, Oregon Department of Fish and Wildlife, Metro Regional Parks & Greenspaces Department, Oregon State Parks, The Nature Conservancy, The Wetlands Conservancy, and Burlington Northern Railroad. Other agencies may be involved if the management of the site involves their jurisdictions. These include the Oregon Division of State Lands, Oregon Dept. of Water Resources, Oregon Dept. of Environmental Quality, Oregon Dept. of Transportation, and the U.S. Army Corps of Engineers.

CHAPTER 2: ALTERNATIVES INCLUDING THE PROPOSED ACTION

The following alternative management scenarios were developed for Burlington Bottoms, based on input from various Federal, State, and local agencies, public and private interest groups, environmental groups, recreational plans, and on mitigation goals developed by the Northwest Power Planning Council. Alternatives were designed to provide varying levels of management in regard to habitat maintenance and enhancement, wildlife and fisheries management, recreation, hydrology, cultural resources, and public access to the area. Alternatives were developed that would meet the purposes and need for action as identified in Chapter 1.

2.1 ALTERNATIVE 1: PROPOSED ACTION (Maintenance and Enhancement/Limited Public Access)

Proposed management activities under Alternative 1 would maintain a diversity of plant and animal communities that interact with each other and their environment, representative of a riverine floodplain system. The emphasis would be to manage for plant and animal communities native to the area that, and in order to thrive, require minimal interference from humans.

A low level of public access would be allowed under this alternative, with designated areas for trails and viewing blinds to provide for passive wildlife oriented recreation. Opportunities for research and environmental education would also be available under this alternative.

2.1.1 Fish and Wildlife Habitat Management

Maintenance and enhancement of native plant communities (including reestablishment), removal of non-native plant species where appropriate, and use of artificial structures could improve habitat conditions for many species of wildlife at Burlington Bottoms over time.

Prior to implementation of any management activities, a comprehensive survey would be conducted to determine the distribution of native and non-native plant communities. Long-term monitoring would occur to evaluate the success of management activities, and to ensure that, at a minimum, baseline habitat units determined by the habitat evaluation for Burlington Bottoms were being maintained.

2.1.1.1 Native Vegetation

Many areas of Burlington Bottoms contain small remnant populations of native plant species such as Creeping spikerush (Electrics palustris), and Wapato (Sagittaria latifolia). These appear to be diminishing due to the encroachment of non-native plant species (e.g. Reed canary grass (Phalaris arundinacea) and Himalaya blackberry (Rubus discolor)). In most cases, natural plant succession would be allowed to proceed, except in areas where control of non-natives would be necessary and in pasture areas where the establishment of wet prairies would be desired. Control methods would follow State and Federal regulations. Below are listed proposed general guidelines for maintaining and enhancing native plant populations at Burlington Bottoms.

1. Use of native seed and plant sources, preferably of local genotypes, for establishing native plant communities.

2. Maintenance of a variety of native plant community types, representing as best as possible historically occurring conditions.

3. Management of a diversity of plant communities could mean alteration of natural succession because of past human impacts; e.g. wetland prairie or open areas should be maintained and not be allowed to succeed to forest.

4. Planting of native vegetation would occur along areas used by humans (e.g. trails and viewing blinds) to create a buffer between sensitive wildlife habitat and human activities.

2.1.1.2 Non-native Vegetation

Control of non-native plant species at Burlington Bottoms is needed to protect native plant populations and maintain and enhance wildlife habitat. Without control of non-natives, native plant diversity could continue to decrease in many areas, and non-native populations such as Himalaya blackberry and Reed canary grass could increase.

Possible methods for controlling non-native species include manipulating water levels, scraping, disking, mowing, burning, biological control agents, herbicides, and managed grazing of cattle. Only biological and/or herbicide control methods that are approved under State and Federal guidelines would be considered for use at Burlington Bottoms.

The installation of a water control structure could be one method used to control Reed canary grass. Targeted areas could be flooded during the entire growing season, thus preventing the plant from carrying on normal plant functions, and eventually causing the plants to die.

1. Pasture habitat - All pasture habitat surveyed was predominately a combination of Reed canary grass, Canada thistle (Cirsium arvense), Tansy ragwort (Senecio jacobea), Scot's broom (Cytisus scoparius), and Himalaya blackberry. Until November 1991, pasture areas had been grazed by cattle. This exerted some control over the spread of non-native plant populations (such as Himalaya blackberry), but also caused an increase in other non-native species such as Bull thistle (Cirsium vulgare) and Canada thistle. Surveys of 1853 and 1854 indicate that historically the pasture areas at Burlington Bottoms were once wet prairie habitat.

2. Wetlands - Past human activities at Burlington Bottoms have altered some of the quality and quantity of wetlands at Burlington Bottoms. Under this alternative, existing wetlands would be maintained and where possible, enhanced to improve wildlife habitat.

Enhancement activities could include control or removal of non-native plant species such as Reed canary grass, which is present in all of the lakes and ponds. In several lakes, it covers more than 50 percent of the surface area, and appears to be spreading rapidly. Native species in these areas, such as Wapato and Burreed (Sparganium emersum), are unable to compete with the non-native populations.

Where populations of non-native vegetation are small, hand-pulling may be used. In other areas, treatment methods could include manipulation of water levels to either drown or dry up the non-native vegetation.

All activities in the wetlands, whether for maintenance or enhancement, would follow State and Federal regulations, including the following:

- Clean Water Act, Section 404, (Federal)
- Protection of Wetlands, Executive Order 11990, (Federal)
- Floodplain Management, Executive Order 11988, (Federal)
- General Authorization for Wetland Restoration and Enhancement, 141-89-020(1), (State)
- Oregon Dept. of Water Resources, permit issued for water regulation in regards to wetland restoration (State)

3. Disturbed areas - Large portions of the disturbed areas contain predominantly non-native vegetation, such as Himalaya blackberry, Scot's broom, and Reed canary grass. Some of the native plant populations in the disturbed areas are Red elderberry (Sambucus racemosa), Nootka rose (Rosa nutkana), and Scouler willow (Salix scouleriana). In many areas, especially under the powerline and along the road crossing Burlington Bottoms, non-native plants such as the Himalaya blackberry are out-competing native species. Treatment methods could include biological control agents, tilling, grazing, and herbicides.

It is recommended that reducing and controlling the amount of Reed canary grass at Burlington Bottoms be a high priority. If there are areas where vegetative barriers are desired (e.g. between a trail and sensitive wildlife habitat), use of native plant species, such as Nootka rose, Creek dogwood, and elderberry, should be emphasized. Non-native species such as Himalaya blackberry provide effective barriers, but also serve as a seed source and, therefore, are not desirable.

2.1.1.3 Artificial Structures for Wildlife

Enhancement activities could include the use of artificial structures for the improvement of wildlife habitat. Structures such as wood duck boxes, logs to provide basking areas for turtles, purple martin boxes, and bat boxes would be placed in some areas for selected wildlife species.

2.1.2 Fish and Wildlife Management

Under Alternative 1, fish and wildlife populations would be managed for a diversity of native species that occur within the area. Fish and wildlife management would focus primarily on the protection, maintenance, and enhancement of wildlife habitats. A comprehensive inventory of fish and wildlife species would be conducted prior to any management activities, this information would be used to help determine what action(s) would be taken. Long-term monitoring would occur to evaluate the success of management activities.

2.1.2.1 Native Fish Management

Under Alternative 1, angling for native fish within Burlington Bottoms would not be permitted.

As the status of anadromous fish in the Columbia River changes (particularly species listed as threatened or endangered under the Endangered Species Act (ESA) of 1973), the proposed action may have to change as well. Surveys of fish species present at Burlington Bottoms indicate juvenile salmonids (currently non-listed) are present within the inner stream/canal system and likely within the lakes and ponds as well. As a result, human caused entrapment of migratory fish would be prevented.

Natural entrapment, however, should be considered to be part of naturally occurring conditions. Therefore, unless directed by Federal or State laws regarding protection and recovery of listed species, natural entrapment at this time does not need to be prevented.

If continued loss of regional foraging habitat for anadromous fish results in Burlington Bottoms becoming a more important location for juvenile salmonid foraging, then water levels and fluctuations may have to be artificially managed. The beaver dams present in 1993 are a major factor influencing current hydrological conditions. Failure of a dam may cause loss of foraging habitat for anadromous fish.

Consumption of fish by native wildlife is considered part of a functioning ecosystem. Control of native, predatory wildlife, in order to manage native fish species would not occur unless directed to do so by Federal and State recovery plans.

Further evaluation of water quality, temperature, and hydrologic conditions for fish habitat and populations is recommended in order to adequately plan for fish needs within Burlington Bottoms. Effects of non-native fish (see next section) on native fish and aquatic habitat should be evaluated to better manage native fish populations. Surveys

and long-term monitoring of invertebrate aquatic species is also recommended.

2.1.2.2 Non-native Fish Management

Under Alternative 1, populations of predatory non-native fish, would be controlled if biologically and economically feasible. Since the Burlington Bottoms system is open to the Multnomah Channel, a source for continual re-invasion by non-native fish, control of non-native fish populations rather than eradication appears to be a more feasible management approach.

Angling for non-native fish would be considered a management tool for population control. Angling would not be permitted in areas determined to be sensitive wildlife areas, such as near heron nesting colonies. Angling would be permitted only in areas designated by biologists and would be used for control of non-native fish only.

There is evidence of a large population of carp in the lakes and ponds on Burlington Bottoms. The carp population in Horseshoe Lake may be adversely affecting water quality by increasing turbidity, alkalinity and aquatic plant communities. It is recommended that the level of impact on water quality by carp be determined and a plan developed to control their numbers, which should include a long-term monitoring program.

2.1.2.3 Native Wildlife Management

Under Alternative 1, wildlife at Burlington Bottoms would be managed for a diversity of species associated with the native plant communities. If any emphasis were placed on certain wildlife species, it would be for species listed under ESA and only under the guidelines of a recovery plan. Appendix A identifies native listed species that may occur at Burlington Bottoms. A complete inventory of wildlife species would be conducted prior to any management activities, to help determine what action(s) should be taken. Long-term monitoring would occur to evaluate the success of management activities.

The potential exists for several species, such as black-tailed deer, raccoons, and coyotes to become so numerous that they cause habitat alteration or adverse effects on other wildlife species. Causes for this potential increase include habitat alteration by man adjacent to Burlington Bottoms, the lack of higher predators such as bears and cougars, and the result of altered hydrologic conditions.

Recreational hunting of wildlife would not be permitted at Burlington Bottoms. Hunting regulations are prepared and enforced by the Oregon Department of Fish and Wildlife and

any changes must be approved by the Oregon Fish and Wildlife Commission. Non-recreational hunting could be allowed to control populations of certain species to maintain a population balance or to prevent habitat degradation by overabundant wildlife. Hunting would then be permitted only in a manner compatible with other management plan objectives and carried out so as to not cause adverse impacts on other species.

Recreational trapping for wildlife at Burlington Bottoms would not be permitted. Non-recreational snare trapping or species specific trapping that would not affect non-target species could be permitted for population control of some wildlife species, especially non-natives, if native wildlife species populations or habitat are threatened. Trapping of predators would not be permitted unless needed to protect native wildlife populations or listed species. Predation is to be considered the preferred means of population control.

Wildlife at Burlington Bottoms could be captured, marked and released onsite as part of an approved and permitted (by ODFW and/or Federal agencies depending on the species) scientific research project. Projects would be permitted only upon demonstration of a need to manage the species or habitats. Recreational or educational capture and banding of wildlife would be discouraged. Scientific collection of wildlife species from Burlington Bottoms would not be permitted unless it could be demonstrated to improve management of the species.

Injured or sick wildlife would not be captured, treated or killed unless they pose a threat to humans, other wildlife populations, or listed species. Sick or injured wildlife would not be rehabilitated. These wildlife form an important part of the ecosystem as food for other wildlife and as a source of nutrients for the system.

Injured, sick, or rehabilitated wildlife would not be released into Burlington Bottoms. Any such introductions should be considered an unnecessary outside influence on the dynamics of fish and wildlife populations in Burlington Bottoms. Illegally introduced, rehabilitated (or incompletely rehabilitated by a good Samaritan) wildlife should be trapped and relocated or humanely killed.

Natural disasters or catastrophic events such as floods and fire should not be prevented or suppressed if they were part of the historic environment. Naturally occurring fires should not be suppressed unless certain structures or

areas are determined to be critical or invaluable. Fire suppression would be permitted to prevent spread of fire to adjacent lands.

2.1.2.4 Non-native Wildlife Management

Under Alternative 1, non-native wildlife should be controlled or eliminated from the area if possible. No non-native wildlife should be released on Burlington Bottoms. Non-native wildlife should be removed in a manner that will not harm native wildlife populations and is legal and humane. Methods to remove non-native species could include trapping and netting.

Due to their competition with native wildlife and adverse effects on plant communities, some non-native species of concern are the Virginia opossum, nutria, European Starling, bullfrog, rock doves, house sparrow and Norway rats. A complete inventory of non-native populations would be conducted prior to any management activities. Long-term monitoring would occur to evaluate the success of management activities for non-native wildlife populations.

2.1.3 Hydrologic Resources Management

Proposed management of the hydrological resources on Burlington Bottoms under Alternative 1 includes the following:

1. Beaver dams - Both of the beaver dams would be monitored periodically. The beaver dam located on the outlet channel, northeast of Horseshoe Lake, is the principal flow control for the lower lake system. Failure of the dam, whether human caused or natural, could cause the lower lake system to drain in a few days. The second dam, located just north of the timber bridge, is the principal water surface control for the southern lake system (referred to in the Hydrology Report as Deep Lake and Upper Lake). This dam may raise the permanent pool elevation of these lakes by an estimated 0.62 meters (2 feet) or more.

Should the failure of the dam(s) occur, one management option is the placement of a water control structure in the outlet channel and/or near the timber bridge to control water flow and level.

2. Regulation of water levels - Regulation of water levels at Burlington Bottoms could be used to control non-native plant and fish species, such as Reed canary grass and carp. It could also be used to enhance fish and wildlife habitat, including wetlands.

Reed canary grass is present on the edges of the wetlands and is encroaching into the ponds and lakes in some areas.

As time progresses, this grass forms large mats; which as it decays, results in a high loading of organic matter and accelerated anaerobic conditions. Over the long-term, this may cause the lake system at Burlington Bottoms to transition to a wet marsh and eventually to a bog.

Historically, some of the ponds and lakes have dried up in the summer. If control of water levels is used as a management tool, it may be desirable to allow some ponds to dry up periodically. This could be beneficial to waterfowl, shorebirds (e.g. spotted sandpiper), and other species that use the exposed mud banks for foraging.

Should the failure of the beaver dam(s) occur, one management tool is the placement of a water control structure in the outlet channel and/or near the timber bridge (depending on whether one or both dams failed), to control water flow and level. A water control structure could also be installed in the backwater slough on the northeast portion of Upper Lake. Prior to construction of the rail line along the east side of Burlington Bottoms, this slough may have connected to Multnomah Channel and served as the outlet for all of the upper lakes area.

There would be long-term monitoring of water quality (including turbidity, total suspended solids, pH levels, and heavy metals) at Burlington Bottoms. Monitoring would provide a basis for identifying trends in water quality and quantity at Burlington Bottoms, and would also provide important information for guiding future wildlife habitat maintenance and enhancement activities.

There would be monitoring of off-site activities, such as logging and mining in the adjacent watershed. Though sediment transported to Burlington Bottoms from the contributing off-site watershed does not appear to be a problem at the present time, it may be in the future. Vegetative buffer strips exist between the watershed and the lower lakes, and should be maintained and/or enhanced for sediment control to help prevent potential problems.

3. River banks - An estimated 30 to 50 percent of the bank adjacent to the Multnomah Channel shows some degree of erosion. Riprap in the form of old timber piles and crib walls is present due to past human activities along the Multnomah Channel. In some areas this riprap is helping to protect the bank from erosion.

Long-term monitoring of the river bank would indicate whether action(s) should be taken to prevent further erosion and bank slouging.

2.1.4 Public Access/Recreation Management

Under Alternative 1, a recreation plan (Appendix C) would be implemented that would allow for passive wildlife oriented recreation, while providing protection for and minimizing disturbance to wildlife, with special emphasis on protection of sensitive wildlife areas. Sensitive wildlife areas (such as the heron colony) were identified and mapped on the Site Analysis Plan (Appendix C), prior to the development of alternatives.

This recreation plan can be altered for future needs (e.g. close a trail), in order to protect wildlife and wildlife habitat. Planned facilities, trails, etc., would meet full American Disabilities Act accessibility requirements.

The proposed recreation plan for Burlington Bottoms includes the following:

1) Trails would be located in the northeast, east, and central portions of Burlington Bottoms on what was the old road system for the site. Trails would be located away from sensitive wildlife areas, such as the heron colony and waterfowl breeding areas.

2) The trails could have designated wildlife viewing areas; these areas would be designed as blinds, using the surrounding vegetation and/or adding native vegetation, to minimize disturbance to wildlife while still providing public viewing opportunities.

3) Interpretive signs would be located adjacent to the viewing areas to provide visitors information on wildlife and plant species, habitat, cultural resources, etc.

4) An off-site visitor/interpretive center would be designed to introduce visitors to Burlington Bottoms and its resources. Parking and restroom facilities could be available. An off-site center would be preferred in order to minimize conflicts with habitat restoration/enhancement efforts at Burlington Bottoms and because of problems accessing the area on foot or by vehicle. However, no site has yet been identified.

At the present time the only way to access the area is across Burlington Northern railroad tracks. Due to potential liability and the high costs of installing a crossing gate, access at this point has not been resolved.

Because of its diverse array of wildlife and habitats, Burlington Bottoms offers many opportunities to the public for environmental education and research opportunities. Under Alternative 1, opportunities that would be available include research, education, and wildlife related tours.

All research and educational opportunities would be evaluated for their appropriateness in relation to the purposes of the proposed action.

Several dump sites exist (left over from a logging operation on the east side) at Burlington Bottoms. The sites have abandoned cars, cables, tires, and other trash that is a potential safety hazard, and also visually unattractive. These sites would be cleaned up as soon as practical.

Future garbage removal and methods to control trash dumping would be addressed in the Final Management Plan. Security would also need to be addressed, including whether to have someone on-site at all times. Seasonal restrictions and visitor days would also be addressed upon resolution of ownership. Seasonal public access restrictions may be used to protect wildlife and wildlife habitat and this would coincide with regulation of visitor days.

2.1.5 Cultural Resources Management

An overview survey for cultural/archaeological resources would be conducted at Burlington Bottoms under Alternative 1. Any sites found would be protected and managed according to State Historic Preservation Office (SHPO) regulations. Visitor access would be directed away from cultural sites in order to prevent compaction, collection, or erosion.

2.1.6 Operation and Maintenance

Under Alternative 1, Burlington Bottoms would be maintained at a level to prevent the loss of native wildlife populations and native wildlife habitat. Maintenance activities could include cutting back blackberries along the road and trail to keep them open for maintaining the property, removing the garbage, and the periodic monitoring of the area by authorized personnel.

2.2 ALTERNATIVE 2 (Maintenance and Enhancement/Closed to the Public)

All management activities proposed under Alternative 2 would be the same as those as proposed under Alternative 1, with the exception of public access/recreation management.

Under this alternative, the area would be closed to the public. Access to the site would be for authorized personnel only for custodial purposes such as the repair of gates. An on-site custodian may be necessary.

2.3 ALTERNATIVE 3 (No-Action)

Under the No-Action Alternative, BPA would not implement and fund habitat enhancement projects at Burlington Bottoms.

However, as long as BPA owned the property, baseline habitat conditions established by the HEP would be maintained. If the No-Action Alternative is selected, the following environmental effects would be anticipated:

2.3.1 Fish and Wildlife Habitat Management (Status Quo Maintained)

Under the No-Action Alternative, habitat succession would occur without human interference. Manipulation of native and non-native plants or plant communities (e.g. control of noxious weeds) would occur only to maintain the baseline habitat units determined by the Habitat Evaluation Procedure (HEP) in 1993. Long-term monitoring and evaluation of the habitat would occur.

2.3.2 Fish and Wildlife Management

No active management of fish and wildlife would take place.

2.3.3 Hydrologic Resources Management

There would be no management of the hydrology at Burlington Bottoms under the No-Action Alternative. Monitoring of hydrological conditions, such as water quality, would not occur.

2.3.4 Public Access/Recreation Management

Under Alternative 3, Burlington Bottoms would be closed to the public, and there would be no recreational or educational use of the area. The only human access would be for maintenance of the infrastructure, such as repairing gates, removal of noxious weeds, etc.

2.3.5 Cultural Resources Management

Under the No-Action Alternative, cultural resources identified, if any, would not be affected because no ground disturbing activities would occur.

2.3.6 Operation and Maintenance

Under the No Action Alternative, Burlington Bottoms would be maintained at a level to prevent the loss of native wildlife populations and native wildlife habitat. Maintenance activities could include cutting back blackberries along the road running through the site in order to keep this open for maintenance of the infrastructure, and the periodic monitoring of the area by authorized personnel.

CHAPTER 3: THE AFFECTED ENVIRONMENT

3.1 BACKGROUND

- Geography

Located approximately 1/2 mile north of the Sauvie Island Bridge (T2N R1W Sections 20,21), Burlington Bottoms is bordered on the east side by Multnomah Channel and on the west side by the Burlington Northern Railroad right-of-way and U.S. Highway 30 (see Figure 1). The area was first described in surveys conducted by the General Land Office in November 1853, and again in August 1854 (see Appendix D, Historical Survey Notes of 1853 and 1854). In these surveys, Burlington Bottoms was characterized as being "level and wet, sparsely timbered with ash, willow, balmgilead (cottonwood), oak, etc.," and containing areas of "open prairie." The 1853 description also describes the area as being "alternately wet prairie and low narrow ridges of timber and brush very much cut up with sloughs, lakes, ponds, marshes etc."

Burlington Bottoms today appears as a mosaic of wetland and riparian communities. A series of lakes, ponds and channels covers a large portion of the site, interspersed with groves of Oregon ash and cottonwood and open areas (historically wet prairie) previously grazed by cattle. Human activities have altered some of the natural features of the area; these include the operation of a logdump and maintenance facility up until the early 1960s, grazing of cattle until 1991, and the construction of a fill embankment along the eastern side of the site and across the wetlands in the south.

- Topography and Soils

Historically, Burlington Bottoms was described as being "level" and "land low." The area is currently relatively level and low, except for the elevated railroad right-of-way and the road that runs through the middle of the site and along the east side adjacent to the Multnomah Channel.

Reference was made in the 1853 survey to a 6.1 m (20 feet) high bank on the shore of Multnomah Channel, indicating that some of the banks were tall, and had built up as natural levees during floods. Most of the bank along Multnomah Channel today is approximately 7.6 m (25 feet) in height, due to the construction of a fill embankment along the east side adjacent to Multnomah Channel. Elevation ranges from approximately 3.0 to 10.8 m (10.0 to 35.5 feet).

The soils in Burlington Bottoms are predominantly Rafton and Sauvie silt loams. Both types of soils are considered poorly drained. These soils are typical of areas that have been repeatedly flooded.

3.2 AFFECTED ENVIRONMENT

3.2.1 Fish and Wildlife Habitat Resources

Burlington Bottoms is a mosaic of wetland, riparian, and pasture (formerly wet prairie) communities, and is a remnant of a more prevalent system that once existed along the Willamette and Columbia Rivers. The HEP characterized the area as having six major habitat types: riparian tree, riparian shrub, forested wetland, seasonally flooded pasture, emergent wetland, and open water.

Oregon ash (Fraxinus latifolia) and Black cottonwood (Populus trichocarpa) dominate the riparian tree habitat, and appear to be filling in open pasture habitat or what were historically "wet prairie" areas. This is evident when a comparison is made between photos taken in 1993 to those of the late 1930s and 1940s (see Appendix E).

Two areas in the central and northern portions of the site contain large ash trees, perhaps remnants of the "groves of ash trees" described in the 1854 survey. Two of the trees measured in 1993 had a diameter-breast-height (d.b.h.) of 125.7 cm (49.5 inches).

Native herbaceous plant species found at Burlington Bottoms include populations of Wapato (Sagittaria latifolia) in the ponds and marshes. The wetlands in the southern portion of the site have been referred to historically as "Wapato Marsh."

Approximately 5.7 ha (14 acres) of habitat at Burlington Bottoms have been characterized as "disturbed," due to human-related activities. These areas are found under the powerline, along the embankment next to Multnomah Channel, along the road running through the middle of the site, and along the Burlington Northern Railroad right-of-way.

Vegetation in the "disturbed" areas consists of predominantly non-native species such as Himalaya blackberry (Rubus discolor), Scot's broom (Cytisus scoparius), Reed canary grass (Phalaris arundinacea), Tansy ragwort (Senecio jacobea), Canada thistle (Cirsium arvense), and Bull thistle (Cirsium vulgare). Native plants found in these areas include Oregon white oak (Quercus garryana), Scouler willow (Salix scouleriana), Douglas spiraea (Spiraea douglasii), and Giant horsetail (Equisetum telmateia).

Non-native species have also invaded the wet pasture areas and portions of the wetlands. Until 1991, grazing of cattle and swine occurred in the pasture areas. Reed canary grass, Canada thistle, and Bull thistle are the predominant plants in the seasonally wet pasture habitat. Portions of the

wetlands, particularly the edges of the ponds and lakes, contain large populations of Reed canary grass.

3.2.2 Fish and Wildlife Resources

Wildlife diversity at Burlington Bottoms is high and includes many species of fish, waterfowl, songbirds, raptors, mammals, reptiles, and amphibians. The extensive wetland system provides year-round habitat for such species as wood duck, beaver, great blue heron, and western painted turtle. Species listed by the U.S. Fish and Wildlife Service as threatened or endangered that may occur at Burlington Bottoms include the peregrine falcon and bald eagle; sightings of the red-legged frog, listed as a sensitive species by the State of Oregon have been documented (Appendix A).

Surveys for fish were conducted in May 1993 in several of the channels and lakes at Burlington Bottoms and included the following species: brown bullhead, redside shiner, white crappie, chinook salmon, peamouth, mosquitofish, and common carp. Native fish species, such as the chinook salmon, appear to be using the channels at Burlington Bottoms for feeding and cover areas.

Non-native species at Burlington Bottoms include the bullfrog, nutria, and carp. Bullfrogs are found throughout the site and are believed to be a major factor in the decline of native amphibian populations in the Northwest. Carp are present in most of the ponds, lakes and channels in the project site.

3.2.3 Hydrologic Resources

The hydrology of Burlington Bottoms is both complex and dynamic, and is influenced by both natural and human-related factors. A series of interconnected lakes, marshes and backwater channels makes up the wetlands system. A beaver dam on the outlet channel, which connects the large central lake to Multnomah Channel, is the most significant control feature of the lake system.

Prior to completion of flood-control dams in the 1960s, the annual spring freshet of the Columbia and Willamette Rivers inundated portions of Burlington Bottoms. Historical photos from the Vanport flood of 1948 show the entire Burlington Bottoms area being under water (see Appendix E for historical photos of the site). The survey of 1853 noted that a large portion of the site was "subject to annual inundation varying from one to fifteen feet deep."

Runoff from the surrounding hillsides and from U.S. Highway 30, on the western edge of the site, also contributes flows to Burlington Bottoms through a series of culverts. The

survey of 1853 referred to three major streams that fed the site with runoff from the Tualatin Mountains. Human-related activities such as the construction of the railroad and U.S. Hwy. 30, logging and quarry mining have decreased the amount of flow and diverted the direction of flow into the Bottoms in some instances.

Other human activities that have influenced the hydrology of the site include the operation of a logdump along the eastern side adjacent to Multnomah Channel, from approximately the late 1930s to the early 1960s. To access the logdump and adjacent maintenance facility by railroad, a fill embankment was constructed along Multnomah Channel and across the southern portion of the site, from what may have been locally excavated material or dredge fill. An access road to the logdump was constructed across the middle of the site (dividing the lower lake system) from U.S. Hwy. 30 east to the Multnomah Channel.

3.2.4 Air Quality

The existing air quality in the Burlington Bottoms area is considered good to excellent, and air quality measurements fall within National Ambient Air Quality standards. The Department of Environmental Quality is responsible for air quality management in the State of Oregon OAR 340-23-035 (3)).

3.2.5 Cultural Resources

Occupation by Native American cultures along the Columbia River dates back as far as 11,000 years ago (Aikens 1986). Some of the excavated sites in the lower Columbia (on Sauvie Island) have been dated to 500 B.C. (Minor et al. 1980). In their journey along the Columbia River, Lewis and Clark noted that they were seldom out of site of Chinook villages.

Because of Burlington Bottom's location and close proximity to Sauvie Island, there is a high potential for the occurrence of cultural resources at Burlington Bottoms. Sauvie Island was intensively occupied by indigenous people, with one of the highest population densities in the Pacific Northwest. Wapato, a native plant used by Native Americans for food, can be found in many of the lakes and ponds on the site. According to the Oregon State Historic Preservation Office (SHPO), no record of archaeological or historical surveys exist for Burlington Bottoms (Gilsen 1993).

CHAPTER 4: ENVIRONMENTAL CONSEQUENCES

4.1 POTENTIAL ENVIRONMENTAL IMPACTS OF ALTERNATIVE 1

4.1.1 Impacts Upon Fish and Wildlife Habitat

Control or eradication of non-native invasive plant species, such as Reed canary grass and Himalaya blackberry, would benefit fish and wildlife habitat by allowing native plant species to become reestablished, and by reducing the competition for resources (air, light, and water) with non-native plant species. Resulting benefits could include an increase in the quality and quantity of fish and wildlife habitat, and an increase in the biological diversity of native species.

Reestablishing or enhancing native plant communities would improve the quality of the habitat for many wildlife species. In the pasture habitat it would provide higher quality foraging for such species as the red-tailed hawk, and could improve the quality and quantity of available nesting habitat for the western painted turtle. Protection and enhancement of native plant species would also improve the food source for many species of waterfowl and other wildlife.

The placement of bat boxes and nest boxes for waterfowl and songbirds, would increase the available habitat for native wildlife species and could improve the chances for successful reproduction. Turtle basking habitat would be improved with the addition of logs and other refugia where such structures are missing.

Fish and wildlife habitat may be adversely affected by recreational activities if visitors to the area do not stay on designated trails and away from sensitive wildlife habitat. To avoid adverse impacts, management of recreation and public access may include the use of interpretive signs to educate visitors on the need to stay in designated areas, using vegetation as a natural barrier to prevent off-trail use, and/or having seasonal restrictions on visitor access.

4.1.2 Impacts Upon Fish and Wildlife Resources

Control of non-native fish and wildlife populations (carp and bullfrog) through trapping and netting would be beneficial by reducing competition with native species for resources. Native species such as the western painted turtle could benefit by control or eradication of non-native species such as the bullfrog.

Control of non-native plant populations such as Reed canary grass, and the enhancement of existing native communities,

could benefit native fish and wildlife by improving existing habitat conditions. These benefits would include the enhancement of wetland plant communities, which provide cover and food for a variety of waterfowl, wading birds, shorebirds, fish, and other species.

Timing and location of management activities (burning of Reed canary grass, mechanical removal of blackberries, and trapping of bullfrogs) would occur in such a manner as to minimize disturbance to native fish and wildlife, especially during such critical periods as the breeding season for waterfowl. Buffers would be placed around sensitive wildlife areas (heron colony), in order to minimize disturbance.

To minimize potential adverse effects on native fish and wildlife resources, public access and recreation would only be allowed in locations away from sensitive wildlife and habitat areas (e.g. heron colony). The use of viewing blinds would afford visitors the opportunity to observe wildlife while at the same time minimizing disturbance to wildlife. Seasonal restrictions for recreation and public access would be implemented if it was determined that these restrictions would be necessary for native fish and wildlife protection.

4.1.3 Impacts Upon Hydrologic Resources

Under Alternative 1, the regulation of water levels to control non-native plant, fish, and wildlife populations should improve water quality and quantity over the long term. Non-native species such as carp and Reed canary grass can negatively affect water quality and quantity; removal of carp should decrease turbidity, removal of Reed canary grass should prevent wetlands from transitioning to a marsh and should reduce competition for resources with native plants.

By restricting public access to the road and trail which presently exist, negative impacts to water quality and quantity should be minimal. The use of interpretive signs and an on-site custodian could help to minimize any negative impacts.

4.1.4 Impacts Upon Air Quality

Control of non-native invasive plant species at Burlington Bottoms may include the burning of vegetation (Reed canary grass) in certain areas (pasture habitat) and at certain times of the year. This may cause, for the short term, an increase in carbon monoxide and smoke particulates. Burning would be coordinated with the Oregon DEQ to ensure that impacts to air quality would be minimal.

4.1.5 Impacts Upon Cultural Resources

Adverse impacts to cultural resources could occur due to public access to Burlington Bottoms, possibly resulting in compaction, collection, or erosion of sites (deliberate or unintended). Adverse impacts could be prevented or reduced by 1) keeping public access away from identified cultural resource sites; 2) educating visitors about the significance and need for protection of any known sites; and/or 3) having a guide or custodian on site during visitor hours.

4.1.6 Impacts Upon Wetlands and Floodplains

In accordance with the Department of Energy regulations on Compliance with Floodplain/Wetlands Environmental Review Requirements (10 CFR 1022.12), BPA has prepared the following assessment of the impacts of the Burlington Bottoms Wildlife Management Plan on floodplains and wetlands. A notice of floodplain/wetlands involvement for this project was published in the FEDERAL REGISTER on July 29, 1994.

Impacts to wetlands and floodplains could occur as a result of maintenance and enhancement activities to control non-native vegetation and non-native fish (Reed canary grass and carp). Control of Reed canary grass in the wetlands would be beneficial to native plant species by reducing competition with non-native populations for resources. Other beneficial impacts could include an increase in both plant diversity and structure in the wetlands and floodplains.

4.2 POTENTIAL ENVIRONMENTAL IMPACTS OF ALTERNATIVE 2

4.2.1 Impacts Upon Fish and Wildlife Habitat

Impacts to fish and wildlife habitat under Alternative 2 would be the same as those listed under Alternative 1 (see Alternative 1, 4.1.1), with the following changes:

Since the area would have no public access under this alternative, impacts to fish and wildlife from human disturbance would be minimal. Adverse impacts may occur due to unauthorized human presence, but this could be minimized by having authorized personnel monitor the area, or by having an on-site custodian.

4.2.2 Impacts Upon Fish and Wildlife Resources

Impacts to fish and wildlife resources under Alternative 2 would be the same as those listed under Alternative 1 (see 4.1.2 under Alternative 1) with the following changes:

Because the area would be closed the public, adverse impacts to fish and wildlife should be minimal. Adverse impacts may occur due to unauthorized human presence, but this could be minimized by having authorized personnel monitor the area, or by having an on-site custodian.

4.2.3 Impacts Upon Hydrologic Resources

Impacts to water quality and quantity would be the same as under Alternative 1, see 4.1.3.

4.2.4 Impacts Upon Air Quality

Under Alternative 2, impacts to air quality would be the same as under Alternative 1, see 4.1.4.

4.2.5 Impacts Upon Cultural Resources

Cultural resource surveys conducted under Alternative 2 would allow for the protection of any potential sites, and would add to the knowledge of local Native American cultures. Adverse impacts to cultural resources would be reduced since there would be no public access to the area. A potential for disturbance due to illegal human access could occur. This could be minimized by having periodic monitoring of the area by authorized personnel, or by having an on-site custodian.

4.2.6 Impacts Upon Wetlands and Floodplains

Impacts to wetlands and floodplains would be the same as under Alternative 1, see 4.1.6.

4.3 POTENTIAL ENVIRONMENTAL IMPACTS OF ALTERNATIVE 3

4.3.1 Impacts Upon Fish and Wildlife Habitat

Under the No-Action Alternative, the existing fish and wildlife habitat would be maintained. Since no enhancement activities would occur, opportunities for improving fish and wildlife habitat would be lost.

Adverse impacts on plant communities that could occur due to the lack of enhancement activities include the altered course of plant succession due to an increasing dominance by non-native invasive plant species, such as Reed canary grass. Prior disturbances to Burlington Bottoms by humans that resulted in the disruption of soils and topography

created optimal conditions for invasion by non-native plants. Lack of management would not improve this situation.

4.3.2 Impacts Upon Fish and Wildlife Resources

Because of the lack of enhancement activities, potential adverse impacts of the No-Action Alternative on fish and wildlife could include the potential loss of various native wildlife species due to competition with non-native species. For example, European Starlings competing with native cavity nesting songbirds for limited cavities; Bullfrogs and predatory non-native fish such as Largemouth bass consuming native amphibians. Other adverse impacts include the potential for unlimited or uncontrolled population growth of a native species such as raccoon, with potential deleterious effects on other wildlife species such as ground nesting western pond turtles.

Without public access, adverse impacts to fish and wildlife from human disturbance would be minimal. Adverse impacts that could occur due to illegal human presence, include harassment or disturbance to wildlife, such as nesting birds, with a resulting decline in reproduction. These adverse impacts could be reduced by periodic monitoring of the area by authorized personnel, or by having an on-site custodian.

4.3.3 Impacts Upon Hydrologic Resources

Maintenance of the present baseline habitat conditions would occur under Alternative 3. Since no enhancement activities would occur, opportunities to improve water quality (such as regulation of water levels to reduce Reed canary grass) would be lost.

No adverse impacts from human presence would be expected, since the area would be closed to public access.

4.3.4 Impacts Upon Air Quality

Since no enhancement activities would occur under this alternative, there should be no impacts upon air quality.

4.3.5 Impacts Upon Cultural Resources

Beneficial impacts to cultural resources under Alternative 3 include the protection of any sites that may be found upon completion of surveys. Information from cultural resource surveys would add to the existing knowledge of local Native American cultures.

Adverse impacts could include the potential for disturbance (collection, compaction, etc.) due to illegal human

presence. Methods to reduce potential disturbance may include periodic monitoring by authorized personnel, or by having an on-site custodian.

4.3.6 Impacts Upon Wetlands and Floodplains

Baseline habitat conditions established by the HEP in 1993 would be maintained in the wetlands and floodplains under Alternative 3. Beneficial impacts from maintenance of the wetlands include the protection of existing wetland habitat for wildlife.

Since no enhancement activities would occur under this Alternative, opportunities would be lost to improve habitat conditions in the wetlands and floodplains. This would include lost opportunities to reestablish native plant species and remove non-native invasive species.

CHAPTER 5: MONITORING AND EVALUATION

5.1 OBJECTIVES

Long-term monitoring and evaluation of management activities would occur 1) to determine if the objectives of the Proposed Action are met, and 2) to evaluate the success of the Management Plan. Included in the monitoring and evaluation program would be:

1) Monitoring and evaluation of habitat through the use of a quantifiable method to analyze change in Habitat Units (as determined by the HEP conducted in 1993) in response to habitat maintenance and enhancement activities.

2) Monitoring of species presence and occurrence both before, during, and after project implementation in response to habitat maintenance and enhancement activities.

3) Cost effectiveness of comparative methodologies during the development of project proposals and implementation.

5.2 ADAPTIVE MANAGEMENT

An adaptive management approach for Burlington Bottoms would give BPA the opportunity to alter management activities over time, in response to the success or failure of management actions. The information obtained from monitoring and

evaluation (as stated under 5.1) would be used to develop and analyze management activities including:

1) Effectiveness of habitat maintenance and restoration activities.

2) Species occurrence and response to management actions.

CHAPTER 6: STATUTORY AND REGULATORY REQUIREMENTS

Nothing in this document is intended to be or should be perceived to be a permit to perform fish and wildlife habitat management activities in lieu of necessary State and Federal permits. Any action involving regulation of game and fish laws, or capture or control of fish and wildlife is under the jurisdiction of the Oregon Department of Fish and Wildlife. Some species of fish and wildlife are under the jurisdiction of the United States Fish and Wildlife Service and the National Marine Fisheries Service. Habitat manipulations for uplands or wetlands will likely require permits from the county and several State and Federal agencies.

CHAPTER 7: CONSULTATION AND COORDINATION

The following agencies participated in the planning and writing of the Draft Management Plan for Burlington Bottoms: BPA, The Nature Conservancy, Metro Parks and Greenspaces Dept., U.S. Fish & Wildlife Service, and Oregon Dept. of Fish and Wildlife.

The following groups, public agencies, and individual participants provided input on management issues at the June 1993 public meeting for Burlington Bottoms:

Gordon Howard - Multnomah County Planning
Chris Wrench - Friends of Forest Park
Chris Foster - local resident
Susan Foster - ODFW Commissioner
Jack Broome - The Wetlands Conservancy
Ellen Lanier-Phelps - Metro Greenspaces
Emily Roth - OR Division of State Lands
Allison Stenger and Chuck Hibbs - Inst. for Archeological Studies
Michael Jones - Cascade Geographic Society
Skip Anderson - Angell Brothers, Inc.
Dale Archibald - OR Historical Society
Ester Lev - Urban Streams Council
Donna Matrazzo - Sauvie Island Conservancy

CHAPTER 8: REFERENCES and BIBLIOGRAPHY

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CHAPTER 9: SCHEDULING OF IMPLEMENTATION

The implementation of the Management Plan for Burlington Bottoms would begin upon conclusion of the environmental review pursuant to the National environmental Policy Act of 1969 and subject to budget availability.

APPENDIX A

FISH AND WILDLIFE SPECIES AT BURLINGTON BOTTOMS

10/93

BIRDS OF BURLINGTON BOTTOMS

KNOWN OR BELIEVED TO BE PRESENT

LOONS, GREBES	Sp	Su	F	W	N
Red-throated Loon	u		u	u	
Pacific Loon			r	r	
Common Loon				r	
Pied-billed Grebe	u	u	u	u	*
Horned Grebe	r			u	
Red-necked Grebe	r			r	
Eared Grebe	r			r	
Western Grebe				u	
Clark's Grebe			u		

CORMORANTS	Sp	Su	F	W	N
Double-crested Cormorant	u	u	c	c	

SWANS, DUCKS, GEESE	Sp	Su	F	W	N
Tundra Swan	r	r	r	r	
Trumpeter Swan	r			r	
Greater White-fronted Goose	u	r	u	u	
Snow Goose		r	u		
Ross' Goose			r	r	
Emperor Goose				r	
Brant	r		r	r	
Canada Goose	a	c	a	a	*
Wood Duck	c	c	c	c	*
Green-winged Teal	c	u	c	c	
American Black Duck				r	
Mallard	a	c	a	a	*
Northern Pintail	a	u	a	a	
Blue-winged Teal	u	u	c	r	
Cinnamon Teal	c	c	c	r	*
Northern Shoveler	c	u	c	c	*
Gadwall	r	r	u	u	
Eurasian Wigeon	u		u	u	
American Wigeon	a	r	a	a	
Canvasback			u	u	
Redhead				r	
Ring-necked Duck	u	r	u	u	
Greater Scaup			r	r	
Lesser Scaup	r	r	r	u	
Black Scoter				r	
Surf Scoter			r	r	
White-winged Scoter			r	r	
Common Goldeneye	r		r	r	
Barrow's Goldeneye				r	
Bufflehead	r	r	c	c	
Hooded Merganser	u	u	u	u	*
Common Merganser	u	u	c	c	
Red-breasted Merganser				r	
Ruddy Duck	u		u	u	*
Oldsquaw			r		

GULLS, TERNS, PELICANS	Sp	Su	F	W	N
Parasitic Jaeger			r		
Franklin's Gull	r	r	r	r	
Bonaparte's Gull	u	r	u	u	
Mew Gull	u		c	a	
Ring-billed Gull	c	c	a	a	
California Gull	u	c	c	c	
Herring Gull	u		u	u	
Thayer's Gull	u		u	u	
Western Gull			r	r	
Glaucous-winged Gull	u	u	c	a	
Glaucous Gull	r		r	r	
Caspian Tern	r	u	u		
Common Tern		r	r		
Forster's Tern			r		
Black Tern	r				
American White Pelican		r	r		
Brown Pelican	r	r	r		

HERONS, BITTERNS IBIS	Sp	Su	F	W	N
Great Blue Heron	c	c	c	c	*
Green-backed Heron	u	u	r	r	*
Black-crowned Night Heron	r	r	r	r	
American Bittern	u	u	r	r	
Great Egret	r	r	u	r	
Snowy Egret			r		
Cattle Egret			r	r	
White-faced Ibis				r	

Sp = Mar-May
Su = Jun-Aug
F = Sept-Nov
W = Dec-Feb
N = Nests Locally*

a = Abundant
c = Common
u = Uncommon
r = Rare
ac = Accidental

BIRDS OF BURLINGTON BOTTOMS

KNOWN OR BELIEVED TO BE PRESENT

STORKS, CRANES	Sp	Su	F	W	N
Wood Stork				ac	
Sandhill Crane	c	r	c	u	

RAILS, COOT	Sp	Su	F	W	N
Virginia Rail	c	c	c	u	*
Sora	c	c	c		*
American Coot	u	u	c	c	*

SHOREBIRDS	Sp	Su	F	W	N
Black-bellied Plover			u	r	
Lesser Golden Plover			u		
Semipalmated Plover		u	u		
Spotted Sandpiper	u	u	u	u	*
Killdeer	c	c	c	c	*
American Avocet	u	c	c	r	
Greater Yellowlegs	u	c	c	r	
Lesser Yellowlegs	r	u	u	r	
Solitary Sandpiper	u	u	u	r	
Whimbrel	r	r	r		
Long-billed Curlew		r			
Marbled Godwit		r	r		
Sanderling		r	r	r	
Semipalmated Sandpiper	r	r	r		
Western Sandpiper	c	c	a	r	
Least Sandpiper	c	c	c	u	
Bairds Sandpiper	r	r	u		
Pectoral Sandpiper		r	u		
Sharp-tailed Sandpiper			ac		
Buff-breasted Sandpiper		r	r		
Short-billed Dowitcher		r	r		
Long-billed Dowitcher	u	c	c	r	
Common Snipe	u	r	u	u	
Wilson's Phalarope	r	r	r		
Red-necked Phalarope		r	u		
Red Phalarope			r	r	

GROUSE, PHEASANT,	Sp	Su	F	W	N
Ruffed Grouse	u	u	u	u	*
Ring-necked Pheasant	c	c	c	c	*
Northern Bobwhite	u	u	u	u	*
California Quail	c	c	c	c	*

HAWKS, EAGLES, VULTURE	Sp	Su	F	W	N
Northern Harrier	c	u	c	c	*
Sharp-shinned Hawk	u	u	u	u	*
Cooper's Hawk	u	u	u	u	*
Northern Goshawk			r		
Red-shouldered Hawk	r		r		
Swainson's Hawk	r		r		
Red-tailed Hawk	c	c	c	c	*
Ferruginous Hawk	r			r	
Rough-legged Hawk	u		u	u	
Bald Eagle	u	r	u	c	*
Golden Eagle				r	
Turkey Vulture	c	c	c		
Osprey	u	u	u	r	
Black-shouldered Kite	r		r	r	
American Kestrel	c	c	c	c	*
Merlin	r		r	r	
Peregrine Falcon	r		r	r	
Gyrfalcon				r	
Prairie Falcon			r		

OWLS	Sp	Su	F	W	N
Barn Owl	c	c	c	c	*
Northern Pygmy Owl	u	u	u	u	*
Western Screech Owl	u	u	u	u	*
Great Horned Owl	c	c	c	c	*
Snowy Owl				ac	
Long-eared Owl	r	r	r	r	
Short-eared Owl	r	r	u	u	
Northern Saw-whet Owl	u	u	u	u	*

Sp = Mar-May
Su = Jun-Aug
F = Sept-Nov
W = Dec-Feb
N = Nests Locally*

a = Abundant
c = Common
u = Uncommon
r = Rare
ac = Accidental

BIRDS OF BURLINGTON BOTTOMS

KNOWN OR BELIEVED TO BE PRESENT

KINGFISHER	Sp	Su	F	W	N
Belted Kingfisher	c	c	c	c	*

PIGEONS, DOVES	Sp	Su	F	W	N
Band-tailed Pigeon	u	u	u	r	
Rock Dove	c	c	c	c	*
Mourning Dove	c	c	c	c	*

NIGHTHAWK, HUMMINGBIRD	Sp	Su	F	W	N
Common Nighthawk		r	r		
Anna's Hummingbird	r	r	r	r	
Rufous Hummingbird	u	c	c		*

SWIFTS	Sp	Su	F	W	N
Vaux's Swift		u	u		*

WOODPECKERS	Sp	Su	F	W	N
Lewis Woodpecker	r		r		
Acorn Woodpecker	r		r		
Red-breasted Sapsucker	r	r	r	r	*
Downy Woodpecker	c	c	c	c	*
Hairy Woodpecker	u	u	u	u	*
Northern Flicker	c	c	c	c	*
Pileated Woodpecker	u	u	u	u	*

FLYCATCHERS, SWALLOWS	Sp	Su	F	W	N
Olive-sided Flycatcher	u	u			
Western Wood Pewee	u	c			*
Willow Flycatcher	u	u	u		*
Hammond's Flycatcher			r		
Dusky Flycatcher	r				
Pacific Slope Flycatcher	u	u	u		*
Say's Phoebe	r				
Western Kingbird	r	r	r		*
Purple Martin	u	u	u		*
Tree Swallow	a	a	c	u	*
Violet-green Swallow	a	a	c	u	*
Northern Rough-winged Swallow	u	r	u		*
Bank Swallow	r	r	r		
Cliff Swallow	a	a	u		*
Barn Swallow	a	a	a		*

LARKS	Sp	Su	F	W	N
Horned Lark	r		r	r	

JAYS, CROWS	Sp	Su	F	W	N
Steller's Jay	u	u	u	u	*
Scrub Jay	c	c	c	c	*
Black-billed Magpie			r	r	
American Crow	a	c	c	a	*
Common Raven				r	

CHICKADEES, BUSHTIT	Sp	Su	F	W	N
Black-capped Chickadee	c	c	c	c	*
Mountain Chickadee				r	
Chestnut-backed Chickadee	u	u	u	u	
Bushtit	c	c	c	c	*

NUTHATCHES	Sp	Su	F	W	N
Red-breasted Nuthatch	u	u	u	u	*
White-breasted Nuthatch	c	c	c	c	*
Brown Creeper	u	u	u	u	

WRENS	Sp	Su	F	W	N
Bewick's Wren	c	c	c	c	*
House Wren	c	c	c		*
Winter Wren	u		u	u	
Marsh Wren	c	c	u	u	*

Sp = Mar-May
Su = Jun-Aug
F = Sept-Nov
W = Dec-Feb
N = Nests Locally*

a = Abundant
c = Common
u = Uncommon
r = Rare
ac = Accidental

BIRDS OF BURLINGTON BOTTOMS

KNOWN OR BELIEVED TO BE PRESENT

KINGLETS	Sp	Su	F	W	N
Golden-crowned Kinglet.	r	r	c	c	*
Ruby-crowned Kinglet...	c	r	c	c	

THRUSHES	Sp	Su	F	W	N
Western Bluebird.....	r	r	r		
Swainson's Thrush.....	u	c	c		*
Hermit Thrush.....	u		u	u	
American Robin.....	a	a	c	c	*
Varied Thrush.....	u		u	u	

PIPIT, WAXWING	Sp	Su	F	W	N
American Pipit.....	u		a	r	
Cedar Waxwing.....	u	u	u	u	

SHRIKES, STARLING	Sp	Su	F	W	N
Northern Shrike.....			r	r	
Loggerhead Shrike.....	r		r		
European Starling.....	a	a	a	a	*

VIREOS	Sp	Su	F	W	N
Solitary Vireo.....	u		u		
Hutton's Vireo.....	r	r	r	r	*
Warbling Vireo.....	c	c	c		
Red-eyed Vireo.....	u	u	u		*

WOOD WARBLERS	Sp	Su	F	W	N
Orange-crowned Warbler.	c	c	u	u	*
Nashville Warbler.....	u	r	u		
Yellow Warbler.....	u	u	u		*
Yellow-rumped Warbler..	a	u	c	u	*
Black-throated Gray Warbler.....	c	u	c		
Townsend's Warbler.....	u	u	u	r	
MacGillivray's Warbler.	u	u	u		*
Common Yellowthroat....	c	c	u		*
Wilson's Warbler.....	c	c	u		*
Yellow-breasted Chat...	r	r			*

TANAGER, GROSBEAKS	Sp	Su	F	W	N
Western Tanager.....	u	u			
Black-headed Grosbeak..	c	c	u		*

BLACKBIRDS, ORIOLES	Sp	Su	F	W	N
Red-winged Blackbird...	c	c	a	a	*
Tricolored Blackbird...	r	r	r	r	
Western Meadowlark.....	u	u	u	u	
Yellow-headed Blackbird.....	u	u	r	r	*
Rusty Blackbird.....				r	
Brewer's Blackbird.....	c	c	c	c	*
Brown-headed Cowbird...	c	c	c	u	*
Northern Oriole.....	c	c	r		*

TOWHEE, SPARROWS	Sp	Su	F	W	N
Rufous-sided Towhee....	c	c	c	c	*
Chipping Sparrow.....	r	u	r	r	*
Clay-colored Sparrow...				r	
Vesper Sparrow.....	r	r	r	r	
Lark Sparrow.....	r		r		
Tree Sparrow.....	c	c	c	r	*
Savannah Sparrow.....	c	c	c	r	*
Fox Sparrow.....	r		u	r	
Song Sparrow.....	c	c	c	c	*
Lincoln Sparrow.....	u		u	u	
Swamp Sparrow.....	r		r	r	
White-throated Sparrow.	r		r	r	
Golden-crowned Sparrow.....	c		c	a	
White-crowned Sparrow.....	u	u	u	c	*
Harris Sparrow.....	r			r	
Dark-eyed Junco.....	u	r	c	c	*
Lapland Longspur.....	r		r		

Sp = Mar-May
Su = Jun-Aug
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W = Dec-Feb
N = Nests Locally*

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ac = Accidental

BIRDS OF BURLINGTON BOTTOMS

KNOWN OR BELIEVED TO BE PRESENT

FINCHES, WEAVER FINCH	Sp	Su	F	W	N
Purple Finch	u	u	u	u	*
House Finch	c	c	c	c	*
Pine Siskin	u	u	u	u	
Lesser Goldfinch	r	r			

	Sp	Su	F	W	N
American Goldfinch	c	c	a	c	*
Evening Grosbeak	r		r		
Red Crossbill			r	r	
House Sparrow	c	c	c	c	*

Sp = Mar-May
Su = Jun-Aug
F = Sept-Nov
W = Dec-Feb
N = Nests Locally*

a = Abundant
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r = Rare
ac = Accidental

FISH OF BURLINGTON BOTTOMS

KNOWN OR BELIEVED TO BE PRESENT

WARMWATER FISH

White crappie
Black crappie
Brown bullhead
Yellow bullhead
Black bullhead
Channel catfish
Yellow perch
Large mouth bass
Smallmouth bass
Bluegill
Pumpkinseed
sunfish
Common Carp
Goldfish
Warmouth
Gambusia
Chiselmouth
Peamouth
Northern squawfish
Longnose dace
Redside shiner

COLDWATER FISH

Cottid
American shad
Peamouth
Largescale sucker
Mountain sucker
Walleye
Chiselmouth
Stickleback
Sturgeon
Western brook lamprey
Pacific lamprey
Coho salmon
Chinook salmon
Sockeye salmon
Rainbow trout
Cutthroat trout
Steelhead trout
Kokanee
Prickley sculpin
Reticulate sculpin
Mountain whitefish
Sand roller

MARINE FISH

Starry flounder

REPTILES AND AMPHIBIANS OF BURLINGTON BOTTOMS

KNOWN OR BELIEVED TO BE PRESENT

REPTILES	C	U	R	T&E	SS
Western pond turtle...			x		x
Western painted turtle.....	x				x
Western fence lizard..		x			
Northern alligator lizard.....		x			
Western skink.....		x			
Rubber boa.....		x			
Ringneck snake.....		x			
Racer.....		x			
Gopher snake.....		x			
Common garter snake...	x				
Northwestern garter snake.....	x				
Western terrestrial garter snake.....	x				

AMPHIBIANS	C	U	R	T&E	SS
Pacific tree frog.....	x				
Red-legged frog.....		x			x
Western toad.....			x		
Bullfrog.....	x				
Northwestern salamander.....		x			
Western red-backed salamander.....		x			
Long-toed salamander..	x				
Ensatina.....	x				
Dunn salamander.....		x			
Clouded salamander....			x		x
Rough-skinned newt....	x				

C = Common U = Uncommon R = Rare T&E = Threatened & Endangered SS = State sensitive

MAMMALS OF BURLINGTON BOTTOMS

KNOWN OR BELIEVED TO BE PRESENT

OPOSSUM	C	U	R	T&E	SS
Opossum	x				

SHREWS	C	U	R	T&E	SS
Dusky shrew	x				
Trowbridge shrew		x			
Vagrant shrew	x				
Pacific water shrew		x			

MOLES	C	U	R	T&E	SS
Shrew-mole			x		
Townsend mole	x				
Pacific mole	x				

BATS	C	U	R	T&E	SS
Little brown myotis	x				
Fringed myotis			x		x
California myotis		x			
Yuma myotis		x			
Long-eared myotis		x			
Silver-haired bat		x			
Red bat		x			
Big brown bat	x				
Hoary bat		x			
Western big-eared bat			x		x

CARNIVORES	C	U	R	T&E	SS
Black bear			x		
Raccoon	x				
Shorttail weasel		x			
Longtail weasel	x				
Mink	x				
River otter	x				
Spotted skunk	x				
Striped skunk	x				

CARNIVORES	C	U	R	T&E	SS
Red fox	x				
Grey fox		x			
Mountain lion			x		
Bobcat		x			
California sea lion		x			
Harbor seal		x			
Coyote	x				

RODENTS	C	U	R	T&E	SS
California ground squirrel	x				
Townsend's chipmunk		x			
Chickaree		x			
Fox squirrel		x			
Northern flying squirrel		x			
Bushytail woodrat	x				
Dusky footed woodrat		x			
Deer mouse	x				
Townsend vole	x				
Longtail vole	x				
Oregon vole	x				
Pacific jumping mouse		x			
House mouse	x				
Norway rat	x				
Black rat	x				
Brush rabbit		x			
Blacktail jackrabbit			x		
Eastern cottontail	x				
Beaver	x				
Muskrat	x				
Nutria	x				
Porcupine			x		

CERVIDS	C	U	R	T&E	SS
Black-tailed deer	x				
Elk			x		

C = Common U = Uncommon R = Rare T&E = Threatened & Endangered SS = State sensitive

APPENDIX B

PLANT SPECIES AT BURLINGTON BOTTOMS

Plants of Burlington Bottoms Natural Area, Multnomah County, Oregon

Oregon Natural Heritage Program

LAKES, POOLS AND PONDS - emergent marsh and aquatic beds

Herbs

Callitriche heterophylla	Different-leaved water-starwort
Callitriche stagnalis	Pond water-starwort
Ceratophyllum demersum	Coontail
Elodea canadensis	Canadian waterweed
Gratiola neglecta	American hedge-hyssop
Lemna minor	Duckweed
Ludwigia palustris	Water purslane
Myriophyllum hippuroides	Western water-milfoil
Myriophyllum spicatum	Spiked water-milfoil
Navarretia sp.	Navarretia
Polygonum amphibium	Water smartweed
Polygonum hydropiperoides	Waterpepper
Potamogeton epihydrus	Ribbon-leaf pondweed
Potamogeton crispus	Curled pondweed
Potamogeton pectinatus	Fennel-leaved pondweed
Sagittaria latifolia	Wapato
Sparganium emersum	Simplestem bur-reed
Spirodela polyrhiza	Great duckweed
Typha latifolia	Broad-leaved cattail

Grasses and sedges

Cyperus erythrorhizos	Red-rooted flatsedge
Eleocharis ovata	Ovoid spikerush
Eleocharis palustris	Creeping spikerush
Glyceria borealis	Northern mannagrass
Juncus bufonius	Toad rush
Juncus effusus	Soft rush
Juncus oxymeris	Pointed rush
Juncus tenuis	Slender rush
Phalaris arundinacea	Reed canary grass

SEASONALLY WET PASTURE

Shrubs

Rubus discolor	Himalaya blackberry

Herbs

Chrysanthemum leucanthemum	Oxe-eye daisy
Cirsium arvense	Canada thistle
Cirsium vulgare	Bull thistle
Geum macrophyllum	Broad-leaved avens

Grasses and sedges

Alopecurus aequalis	Shortawn foxtail
Alopecurus pratensis	Meadow foxtail
Anthoxanthum odoratum	Sweet vernal grass
Carex sp.	Sedge
Carex aperta	Columbia sedge
Festuca arundinacea	Tall fescue
Holcus lanatus	Velvet grass
Hordeum brachyantherum	Meadow barley
Phalaris arundinacea	Reed canary grass

BOTTOMLAND/RIPARIAN FOREST AND SHRUB-SWAMP

Trees

Alnus rubra	Red alder
Fraxinus latifolia	Oregon ash
Populus trichocarpa	Black cottonwood

Shrubs

Cornus stolonifera	Creek dogwood
Crataegus douglasii	Douglas hawthorn
Pyrus fusca	Crabapple
Rhamnus purshiana	Cascara
Ribes sp.	Gooseberry
Rosa nutkana	Nootka rose
Rubus discolor	Himalayan blackberry
Rubus parviflorus	Thimbleberry
Rubus ursinus	Trailing blackberry
Salix lasiandra	Pacific willow
Salix sitchensis	Sitka willow
Sambucus racemosa	Red elderberry
Spiraea douglasii	Douglas spiraea
Symphoricarpos albus	Snowberry

Herbs and ferns

Aruncus sylvester	Goatsbeard
Athyrium filix-femina	Lady fern
Bidens frondosa	Beggars tick
Equisetum arvense	Common horsetail
Galium aparine	Bedstraw
Glecoma hederacea	Ground ivy
Impatiens capensis	Jewelweed
Lysimachia nummularia	Moneywort
Polypodium glycyrrhiza	Licorice fern
Polystichum munitum	Sword fern
Ranunculus repens	Creeping buttercup
Rumex occidentalis	Western dock
Solanum dulcamara	Bittersweet nightshade
Tellima grandiflora	Fringe-cup
Urtica dioica	Stinging nettle

Grasses and sedges

Carex deweyana	Dewey's sedge
Phalaris arundinacea	Reed canary grass

UPLANDS - wooded margins and disturbed areas

Trees

Acer macrophyllum	Bigleaf maple
Fraxinus latifolia	Oregon ash
Prunus sp.	Cherry (cultivar)
Prunus sp.	Plum (cultivar)
Prunus emarginata	Bitter cherry
Quercus garryana	Oregon white oak

Shrubs

Corylus sp.	Filbert (cultivar)
Crataegus douglasii	Douglas hawthorn
Cytisus scoparius	Scots broom
Holodiscus discolor	Ocean spray
Rosa multiflora	Multiflora rose
Rubus discolor	Himalayan blackberry
Salix scouleriana	Scouler willow

Herbs and ferns

Artemisia douglasiana	Douglas sagewort
Barbarea orthoceras	American wintercress
Borago officinalis	Borage
Cerastium arvense	Chickweed
Chrysanthemum leucanthemum	Oxe-eye daisy

Cirsium arvense	Canada thistle
Cirsium vulgare	Bull thistle
Conium maculatum	Poison hemlock
Convolvulus sepium	Bindweed
Crepis sp.	Hawksbeard
Daucus carota	Wild carrot
Digitalis purpurea	Foxglove
Epilobium watsonii	Watson's willow-herb
Equisetum telmateia	Giant horsetail
Galium aparine	Bedstraw
Geranium molle	Dovefoot geranium
Hypericum perforatum	St. Johnswort
Hypochaeris radicata	False dandelion
Lactuca serriola	Prickly lettuce
Lapsana communis	Nipplewort
Lotus cornicultatus	Bird-foot trefoil
Medicago lupulina	Black medic
Plantago major	Common plantain
Pteridium aquilinum	Bracken fern
Rumex acetosella	Sheep sorrel
Rumex crispus	Curly dock
Senecio jacobea	Tansy ragwort
Sherardia arvensis	Blue field-madder
Solidago canadensis	Goldenrod
Tanacetum vulgare	Tansy
Trifolium arvense	Hare's-foot
Vicia villosa	Hairy vetch

Grasses and sedges

Agropyron repens	Quack grass
Aira caryophyllea	Silver hairgrass
Agrostis sp.	Bentgrass
Alopecurus pratensis	Meadow foxtail
Anthoxanthum odoratum	Sweet vernal grass
Bromus mollis	Soft brome
Bromus rigidus	Ripgut
Festuca arundinacea	Tall fescue
Holcus lanatus	Velvet grass
Phalaris arundinacea	Reed canary grass

APPENDIX C

RECREATIONAL REPORT

BURLINGTON BOTTOMS RECREATION STUDY

A recreational master plan for the Burlington Bottoms site was developed in 1993 to provide a framework for the management of on-site recreational activities that are compatible with the Bonneville Power Administration's mitigation goals and objectives identified for the area. These goals and objectives include maintaining and enhancing the existing wildlife habitat.

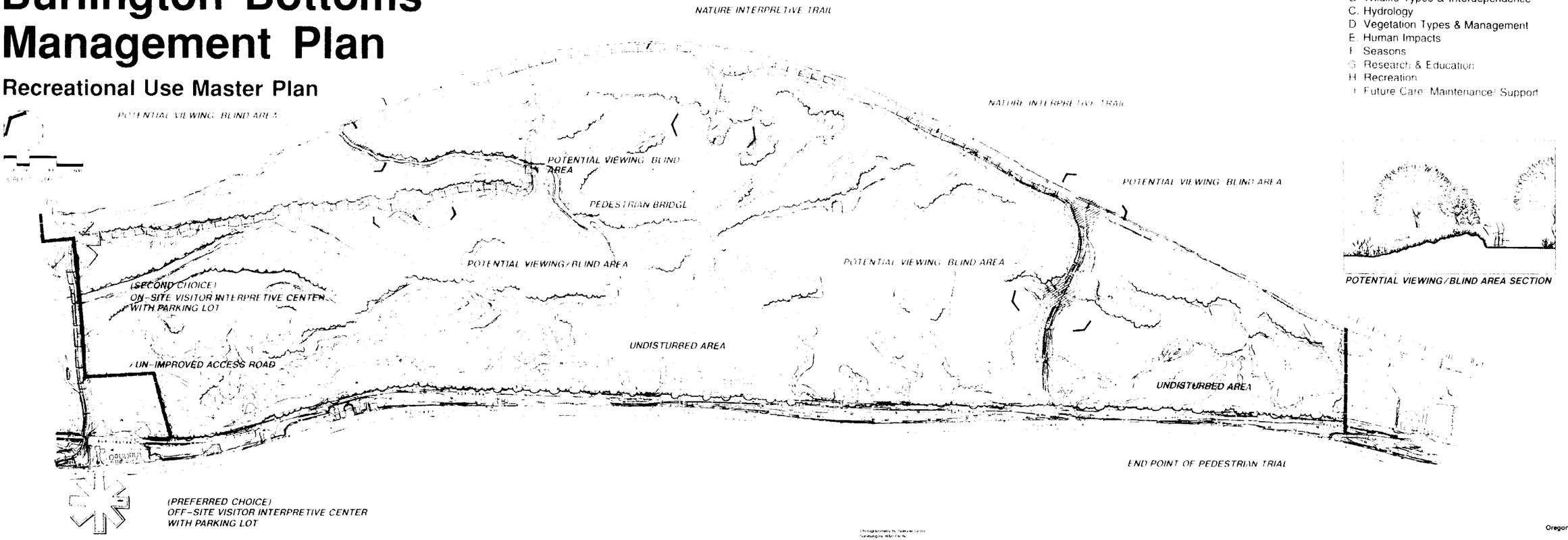
Recreational types included in the master plan were derived from meetings between the Oregon Department of Fish and Wildlife, The Nature Conservancy, Bonneville Power Administration, Multnomah County Parks Department, and numerous private interest groups and private citizens. Ideas for recreation ranged from low impact activities such as walking and wildlife viewing, to higher impact activities such as canoeing and dog training. Each of the identified activities were evaluated for it's potential impact upon the existing environment, as well as for compatibility with the goals and objectives for the area. The "best use" goals included limiting human access onto the site, providing for educational and research opportunities, and having interpretive signs and/or facilities for the area.

Three levels of recreational impact were developed, varying from a low level of impact (Option One), to a high level of impact (Option Three). Option One contains recreational activities that need very minor site improvements. Options Two and Three propose activities with progressively more intense site improvements and activities.

The final recreation plan for Alternative 1 for the Burlington Bottoms Management Plan/Environmental Assessment was developed using information from the recreational master plan that met the goals developed for the site. The main emphasis of the recreation plan for Alternative 1 is to provide limited public access, while preserving and protecting the wildlife and wildlife habitat of the area.

Burlington Bottoms Management Plan

Recreational Use Master Plan



Suggested Interpretive Subjects

A. Environmental Protection
B. Wildlife Types & Interdependence
C. Hydrology
D. Vegetation Types & Management
E. Human Impacts
F. Seasons
G. Research & Education
H. Recreation
I. Future Care/ Maintenance/ Support

POTENTIAL VIEWING/BLIND AREA SECTION

PACIFIC

Oregon Department of Fish and Wildlife
Bonneville Power Administration

Alternative 1 - Recreation Plan

APPENDIX D

HISTORICAL SURVEY NOTES OF 1853 AND 1854

INTERPRETATION OF HISTORIC SURVEY NOTES FOR BURLINGTON BOTTOMS NATURAL AREA, MULTNOMAH COUNTY, OREGON

John A. Christy
Oregon Natural Heritage Program
1 September 1993

Burlington Bottoms was described in 1853 as level, wet and sparsely timbered, containing groves of ash and open prairie. Much of the interior was occupied by pond or sloughs. Witness trees included willow, cottonwood, ash and crabapple in the lowlands, with these as well as oak and cedar on slightly higher ground near what is now Highway 30. In at least one area, the bank along Multnomah Channel was 20 feet high. A house and small field occurred along Multnomah Channel, and apparently two alignments existed for the road between Portland and St. Helens.

Section lines crossing Burlington Bottoms, in T2N, R.W, were first surveyed by Joseph Hunt in November 1853, under contract with the General Land Office (GLO). A donation land claim (DLC) had been established previously on a portion of Burlington Bottoms by James Taylor (Tailor?). Under terms of the Donation Land Act, the GLO contracted Peter W. Crawford to survey Taylor's claim (DLC 52) in August 1854. On the modern USGS map, DLC 52 is superimposed on portions of sections 17 and 20.

Surveyors were required to describe briefly the changes in topography, woody vegetation and soils along the lines they surveyed, and to summarize these features at the end of each line. When section and quarter section corners were set, bearings were taken to witness trees, and the species, diameter and distance to each tree was recorded in chains and links. Trees encountered along the survey line were also recorded. Finally, at the end of the survey, the topography and vegetation of the entire township was described briefly, and a plat map of the township was prepared at a scale of 1:31,680 (2 in = 1 mi). Existing farms and roads were shown on the maps, as well as natural features.

If large enough, wetlands and prairies were also mapped. Because the surveyors were required to list only woody species in their descriptions of vegetation, the herbaceous components of these habitats can only be inferred from what we know of similar surviving examples. The location of these habitats therefore can be plotted, but their vegetation cannot be determined with certainty.

Cultural features in 1853

The survey notes and plat map indicate that a house and small field existed approximately where the former railroad turnaround and sheds were located along Multnomah Channel ["Willamette Slough" in the notes]. These apparently were not part of the Taylor DLC. The plat map shows the trail or road between Portland and St. Helens running along the shore of Multnomah Channel, but also shows a dotted line farther inland near the present alignment of the railroad and Highway 30. The survey notes indicate that the latter was the correct location of the trail, although perhaps there were two alignments for use during different seasons. Another trail branched off near the south end of the tract, crossing over the Tualatin Mountains diagonally in Section 29, leading to the Tualatin Valley ["Tualatin Plains"].

Vegetation in 1853

On the bottomland, two section corners were located on the bottomland near the foot of the Tualatin Mountains, and witness trees selected included a mix of upland and wetland species: willows 6-8 inches in diameter, an oak 30 inches in diameter, ash trees 12-14 inches in diameter, and a cedar 12 inches in diameter. Two quarter section corners were located in the center of the bottomland, and witness trees were willows 6 inches in diameter, and cottonwood ["balmgilead" or "balm"] 6-14 inches in diameter. Hunt, when establishing meander posts on the banks of Multnomah Channel, cited willows 6 inches in diameter, crabapple 6 inches in diameter, and cottonwoods 6-14 inches in diameter.

Hunt described the bottoms as level, wet and "sparsely timbered" with ash, willow, cottonwood and oak. Other than ponds or sloughs, he did not describe what occurred in open areas. Crawford described areas of "open prairie," with "groves of ash timber." Similar areas in other townships contained "wet prairie," but surveyors seldom described the composition of these prairies. Based on remnant native species in such areas at Burlington Bottoms and on Sauvie Island, the prairies would have been dominated by Columbia sedge, meadow barley, tufted hairgrass and probably woodreed, reedgrass and several other species of sedge.

The forested slopes of the Tualatin Mountains overlooking Burlington Bottoms were covered with fir, cedar, maple, alder, hemlock and yew, with a thick understory of vine maple, herbs and briars. The upper slopes between sections 19 and 20 had been burned and mostly killed, with many fallen trees.

Wetlands and hydrology in 1853

Although details on the plat maps are typically somewhat sketchy in the interior of sections, the plat shows a central lake or pond, and also shows the original alignment of streams feeding the ponds. These features of 1853 have been highlighted in blue on the modern USGS map, to indicate some of the changes that have occurred.

The central pond of 1853 included much of the modern configuration of the ponds, and appears to have extended to the junction of the streams near the present heron rookery. The southern end of the pond, crossed by the line between sections 21 and 28, was 132 feet wide. A pond also straddled the NW boundary of the site.

Three major streams fed the site with runoff from the Tualatin Mountains. The two streams upstream from Burlington Bottoms drained directly into Multnomah Channel, and at that time did not contribute to the water budget of the interior pond. The tidal stream draining the central pond was 66 feet wide where it was crossed by the line between sections 17 and 20. Reworking by subsequent floods, particularly that of 1894, may have been responsible for some of the changes seen today in configurations of ponds and streams.

Crawford noted that the site would flood to a depth of 8 feet during the annual spring flood.

Topography in 1853

The notes contain little information on topography, other than noting that the bottoms were level. However, the surveyor described a 20-foot-high bank on the shore of Multnomah Channel, where he set a meander post for the line between sections 21 and 28. This site is where the railroad grade parallelled Multnomah Channel, and shows that at least some of the banks were tall, built up as natural levees during floods, and that not all of the shoreline was diked in later years. There are examples of natural levees on Sauvie Island, with banks of similar height to those observed by the GLO surveyors.

Transcription of General Land Office survey notes for Burlington Bottoms.

T2N R1W - Surveyed by Joseph Hunt, November 1853 [Only portions relative to the section lines crossing Burlington Bottoms are included here]

North between secs 28 & 29 [N from quarter section post]
6900 A trail course west
8000 Set post corner to secs 20,21,28 & 29 from which
A Willow 6 in dia bears N30E 357 lks
A " 6 " " S88E 287 "
A Oak 30 " " S40W 74 "
A Willow 8 " " N15W 315 "
Ground hilly with a general descent to the East. Soil second rate & stony. Timber fir, cedar, hemlock. [This refers to the forested slopes of the Tualatin Mountains, overlooking Burlington Bottoms].

West on the line between secs 21 & 28
6545 Over slough [Multnomah Channel] and set meander post on bank 20 feet high from which
7000 A slough 2 chs wide course N10W
8030 To section corner
Land level bottoms. Sparsely timbered with ash, balmgilead, oak etc. Soil first rate.

North on the line between secs 20 & 21
300 Fr a pond offset 4 chs west
1200 Came back to line
3000 Fr the east point of a pond
4000 Set qtr sec post from which
A Balm 14 in dia bears S85E 32 lks
A Willow 6 " " N88W 515 "
5050 Enter field course east
5250 A Balmgilead 20 in dia for meander corner on the left bank of the Willamette Slough [Multnomah Channel] from which
A Balmgilead 20 in dia bears S45W 93 lks
A House bears N40W 5 chs dist
" " Thence for a base N30W 828 lks
Over slough [Multnomah Channel]...

North bet sections 19&20 [from qtr sec post]
4500 Summit of line course NW
7250 To a stream 3 lks wide course NE
7450 A fir 60 in dia
8000 Enter bottoms course S45E

Set post corner of sections 17,18,19 and 20 from which
An Ash 14 in dia bears N62E 68 lks
A " 12 " N55W 74 "
A Cedar 12 " S50W 100 "
Ground very hilly & broken. Soil 2nd rate. Timber fir, maple & on S half mostly killed by fire.

West on the true line bet secs 17 &20
2345 A willow 6 in dia for meander corner on the left bank of the Willamette Slough [Multnomah Channel] from which
A crabapple 6 in dia bears N80W 70 lks
2500 A slough 100 lks wide course north
4010 Set qtr sec post from which
A Balm 6 in dia bears N55E 330 lks
A Willow 6 " " S15W 114 "
6700 A stream 20 lks wide course S70E
8020 To section corner
Land level and wet. Sparsely timbered with ash, willow, balmgilead etc.

West on the true line bet secs 20 & 29
1300 To a stream 2 lks wide course North
2000 A Ridge course S 60E....

General Description of T2N, R1W, November 1853

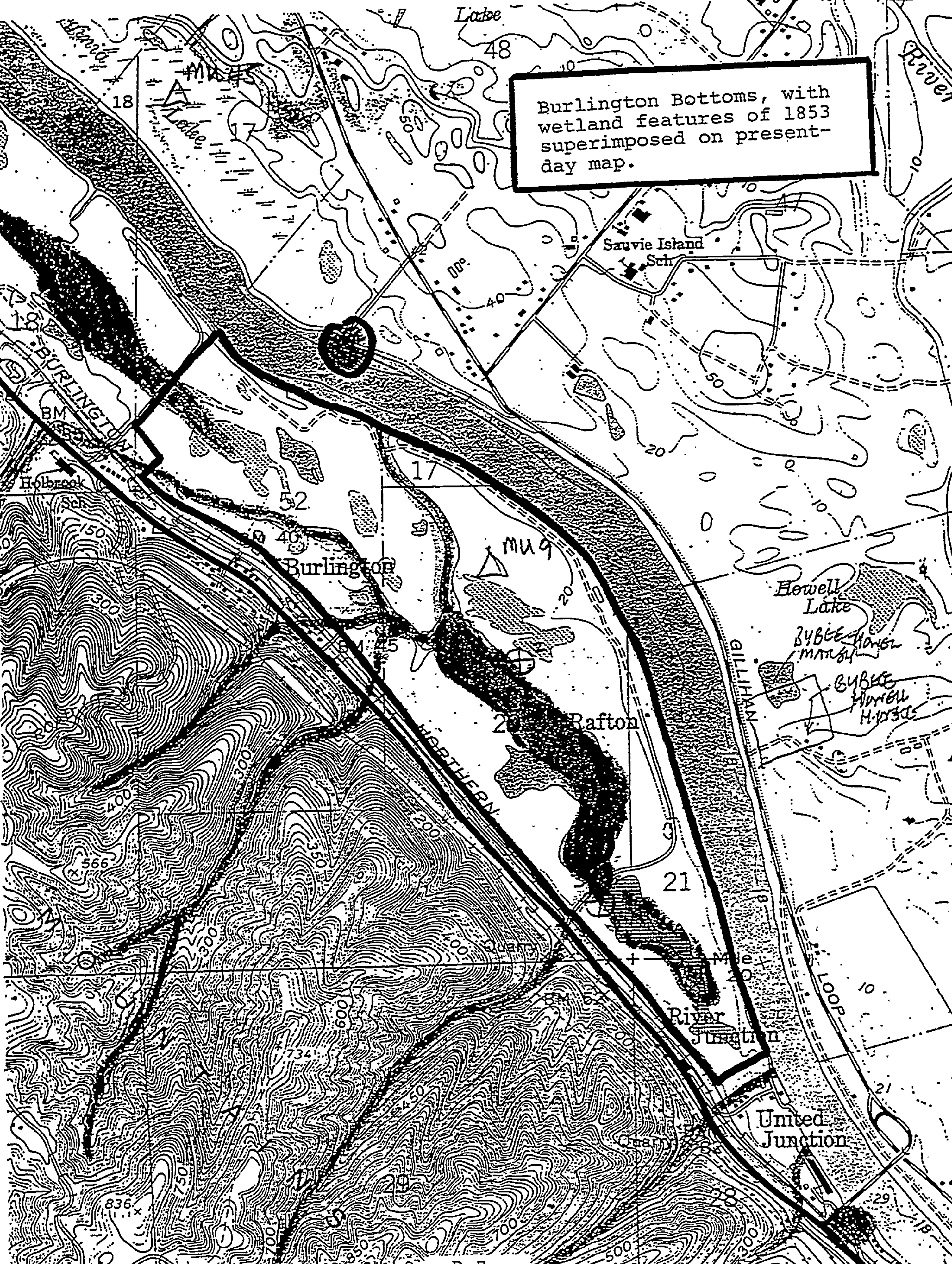
All that portion of this township east of the Willamette River and slough of the Willamette [Multnomah Channel] is elevated from 5 to 20 feet above the river. Soil rich vegetable loam. Alternatively wet prairie and low narrow ridges of timber and brush very much cut up with sloughs, lakes, ponds, marshes etc. The greater portion of which is subject to annual inundation varying from one to fifteen feet deep. Timber willow, balm gilead, thorn etc. On the western portion of Sauvies Island there is some oak, fir, yew, maple etc. Sauvies Island is considered very valuable for pasturage. It is too wet except on the highest places for agriculture. All that portion of the township west of the Willamette River & the slough of the Willamette [Multnomah Channel] is hilly or mountainous [except Burlington Bottoms], soil 2nd and good 2nd rate clay loam, some portions very stony. Maple, alder, cedar, hemlock, yew etc. Partially burned and fallen with a thick undergrowth of vine maple, herbs, briars etc.

Transcription of Donation Land Claim survey notes for Burlington Bottoms

Donation Land Claim 52 [James Taylor/Tailor]. Surveyed by Peter W. Crawford, August 1854

[Most of notes with little useful information].

Open prairie; grove of ash timber. Land low; has the appearance of being [over]flowed to the depth of 8 feet.

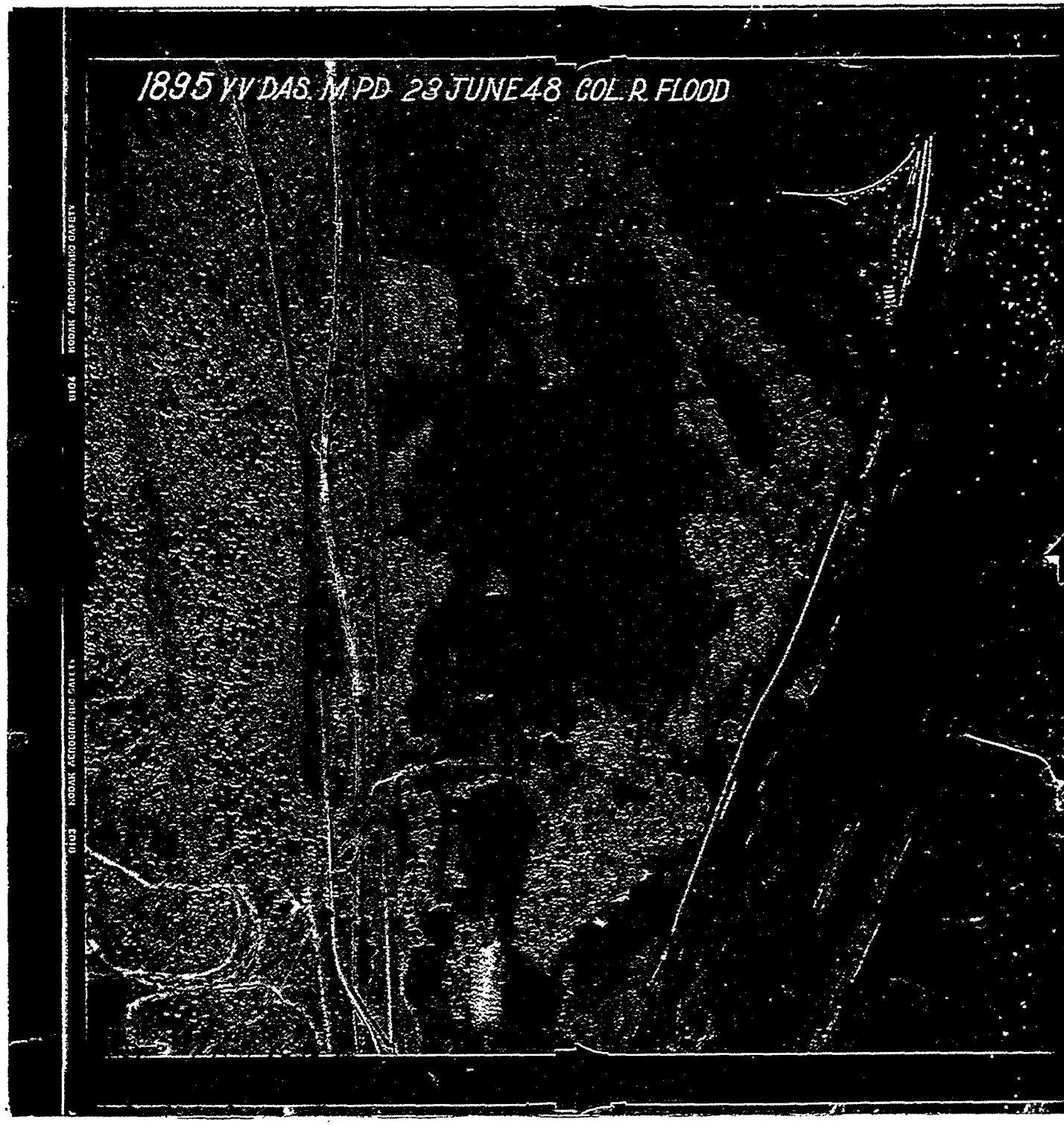

Burlington Bottoms, with wetland features of 1853 superimposed on present-day map.
Sauvie Island Sch
Burlington
Holbrook Sch
Howell Lake
Rafton
River Junction
United Junction
GILLIHAN LOOP
NORTHERN
BURLINGTON
Quarry

APPENDIX E

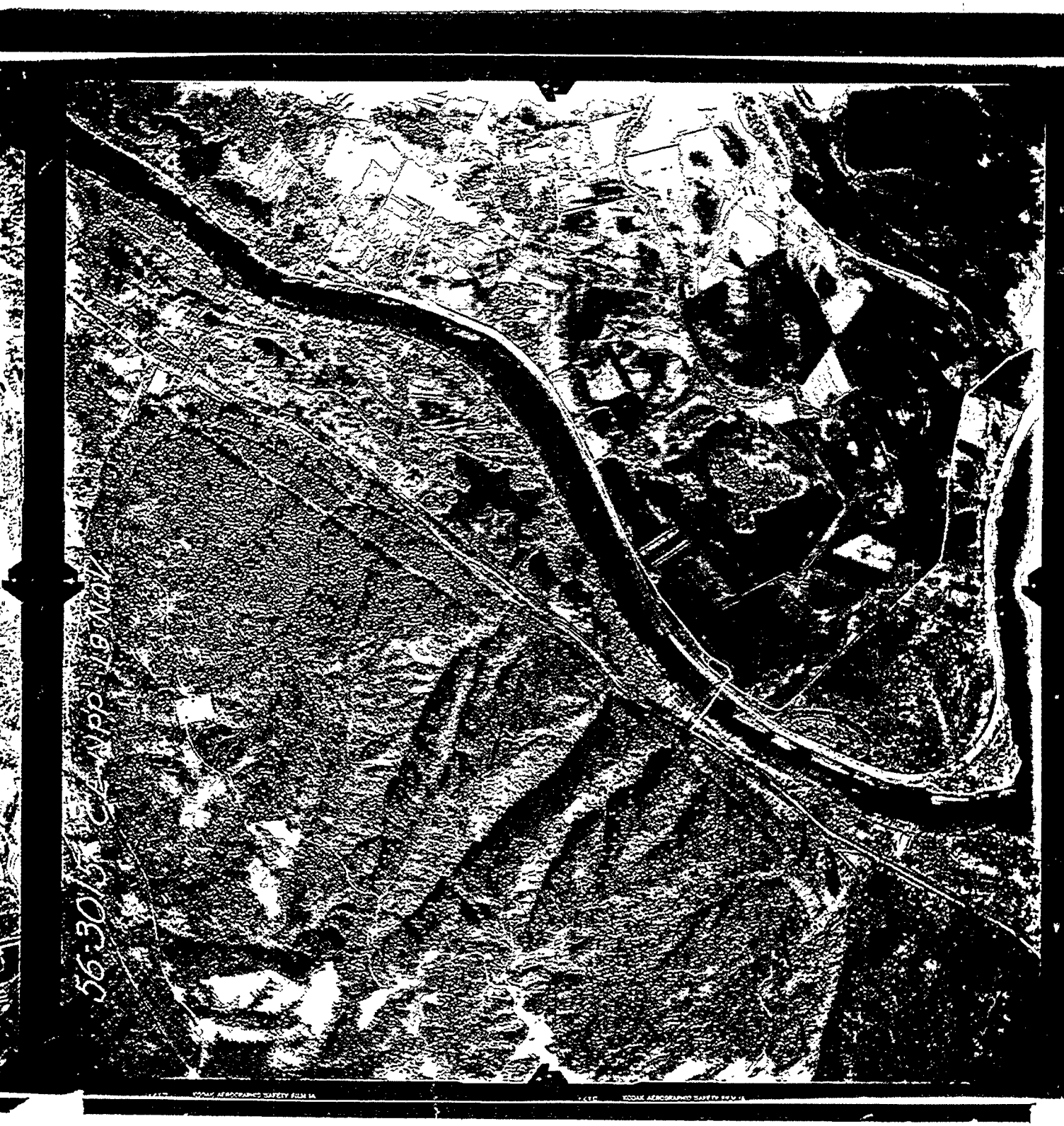
HISTORICAL PHOTOGRAPHS

The road which crossed Burlington Bottoms and connected Hwy. 30 to the ferry operating from Sauvie Island, is visible on the left. On the upper portion of the photograph can be seen the logdump operation. Photograph taken in 1945.

This photograph shows the northern half of Burlington Bottoms after the Vanport flood of 1948. The logdump operation and the ferry are visible in the top half of the photograph. Photograph was taken on June 23, 1948.

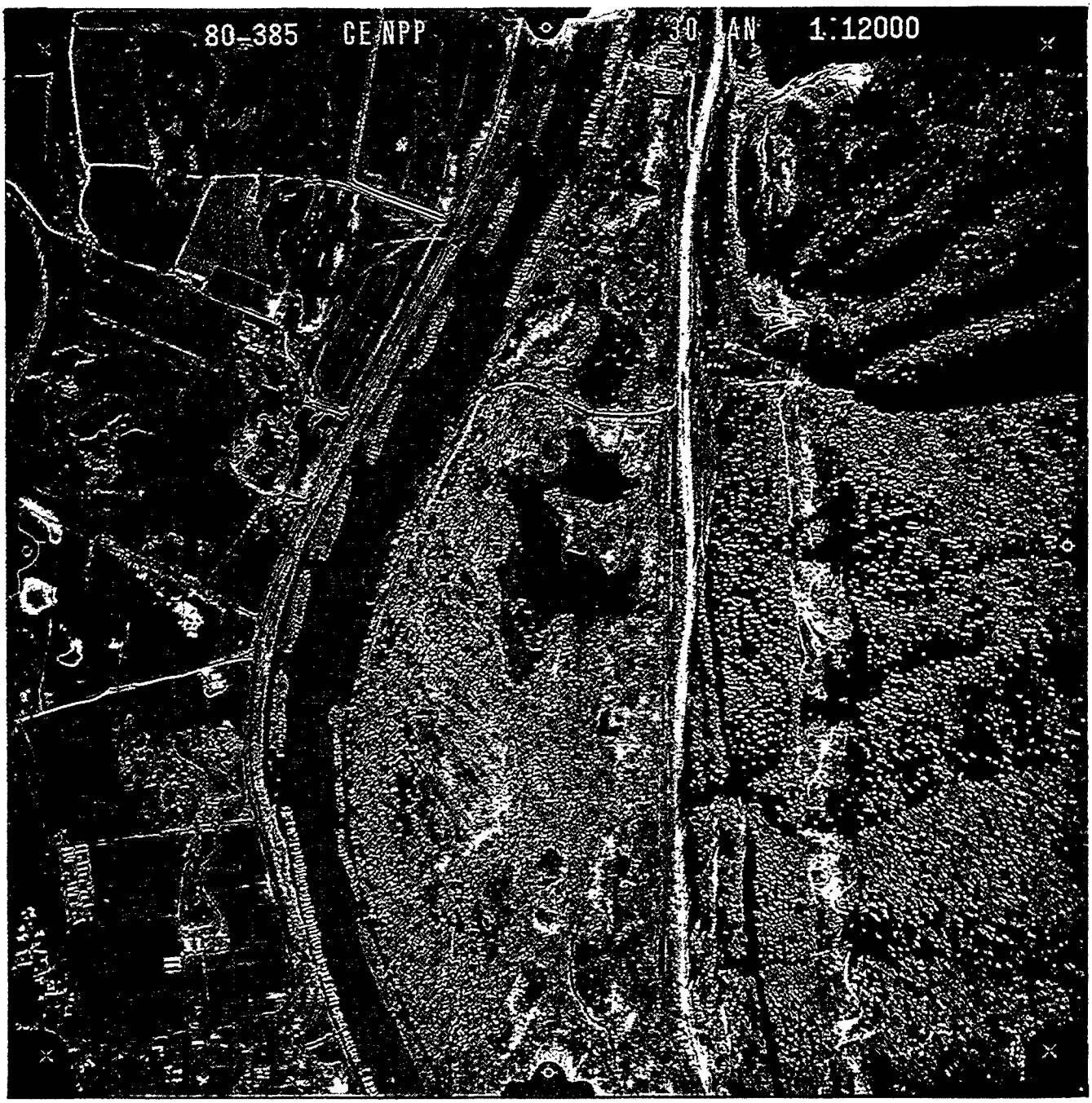


This photograph shows the south half of Burlington Bottoms after the Vanport flood of 1948. The logdump operation is visible in the upper right portion. Photograph was taken on June 23, 1948.



This photograph was taken on November 19, 1956. The bridge to Sauvie Island is visible in the center of the photograph.

Logbooms from the logdump operation are visible in Multnomah Channel, located to the left (east) of Burlington Bottoms. Photograph was taken on December 9, 1963.



This photograph was taken on January 30, 1980. The logdump operation was no longer operating.

APPENDIX F

LETTER ON ENDANGERED SPECIES

United States Department of the Interior

FISH AND WILDLIFE SERVICE

Portland Field Office
2600 SE 98th Avenue, Suite 100
Portland, Oregon 97266

October 14, 1993

Ref: 1-7-94-SP-3

Carlene R. Fleskes
Department of Energy
Bonneville Power Administration
PO Box 3621
Portland, OR 97208-3621

RE: PGA

Dear Ms. Fleskes:

This is in response to your letter, dated September 21, 1993, requesting information on listed and proposed endangered and threatened species that may be present within the area of the Burlington Bottoms Wetland Purchase in Multnomah County, Oregon. The U.S. Fish and Wildlife Service (Service) received your letter on September 22, 1993.

We have attached a list (Attachment A) of threatened and endangered species that may occur within the area of the Burlington Bottoms Wetland Purchase. The list fulfills the requirement of the Service under Section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 USC 1531 et seq.). The Bonneville Power Administration's (BPA) requirements under the Act are outlined in Attachment B.

Should BPA's biological assessment determine that a listed species may be affected by the project, the BPA should consult with the Service following the requirements of Federal Regulation 50 CFR 402 which implement the Act.

Attachment A includes a list of candidate species under review for listing. These candidate species have no protection under the Act but are included for consideration as it is possible candidates could become formal proposals and be listed prior to project completion. Therefore, if the proposed project may affect candidate species, BPA is not required to perform a biological assessment or to consult with the Service. However, if early evaluation of the project indicates that it is likely to adversely impact a candidate species, the BPA may wish to request technical assistance from this office.

Your interest in endangered species is appreciated. If you have questions regarding your responsibilities under the Act, please contact Laura Todd at (503) 231-6179. For questions regarding anadromous fish, please contact National Marine Fisheries Service, 911 NE 11th Ave., Room 620, Portland, Oregon, (503) 230-5420. All correspondence should include the above referenced case number.

Sincerely,

Roger E. Anderstrom

for Russell D. Peterson
State Supervisor

Attachments

SP3

ONHP/LT/NP

cc: OSO-ES
ISO-SE
ODFW (Nongame)
ONHP

ATTACHMENT A

FEDERALLY LISTED AND PROPOSED ENDANGERED AND THREATENED SPECIES AND CANDIDATE SPECIES THAT MAY OCCUR IN THE AREA OF THE BURLINGTON BOTTOMS WETLAND PURCHASE
1-7-94-SP-3

LISTED SPECIES[1/]

Mammals
Columbian white-tailed deer — *Odocoileus virginianus leucurus* — LE
Documented occurrence at the project area

Birds
Bald eagle — *Haliaeetus leucocephalus* — LT
Documented occurrence within 5 miles, Sauvie Island
Aleutian Canada goose — *Branta canadensis leucopareia* — LT
Documented occurrence within 5 miles, Sauvie Island

Fish
Chinook salmon — *Oncorhynchus tshawytscha* — **LT
Spring/summer and fall runs in the Snake River.
(petitioned June 7, 1990; proposed June 27, 1991 in 56 FR 29542-29544; listed April 22, 1991 in 57 FR 14653)

Snake River Sockeye salmon — *Oncorhynchus nerka* — **LE
Salmon River tributary to the Snake River, Idaho.
(petitioned April 2, 1990; proposed April 6, 1991 in 56 FR 14055; listed November 20, 1991 in 56 FR 58619)

PROPOSED SPECIES[2/]

Howellia — *Howellia aquatilis* — PT
Documented historical occurrences from Sauvie Island

CANDIDATE SPECIES[3,4/]

Mammals
Pacific western big-eared bat — *Plecotus townsendii townsendii* — C2

Birds
Tricolored blackbird — *Agelaius tricolor* — C2
Documented occurrence within 5 miles to the east

Amphibians and Reptiles
Northwestern pond turtle — *Clemmys marmorata marmorata* — C2
Documented occurrence on project area
Northern red-legged frog — *Rana aurora aurora* — C2

Plants
Howell's montia — *Montia howellii* — C2

Columbia cress	*Rorippa columbiae*	C2
Documented historical occurrence from Sauvie Island		
Oregon sullivantia	*Sullivantia oregana*	C2
Documented historical occurrence from Sauvie Island		

(E) - Endangered (T) - Threatened (CH) - Critical Habitat
(S) - Suspected (D) - Documented

(C1)- Category 1: Taxa for which the Fish and Wildlife Service has sufficient biological information to support a proposal to list as endangered or threatened.

(C2)- Category 2: Taxa for which existing information indicates may warrant listing, but for which substantial biological information to support a proposed rule is lacking.

(3A)- Category 3A: Taxa for which the Service has persuasive evidence of extinction.

(3B)- Category 3B: Names that on the basis of current taxonomic understanding do not represent taxa meeting the Act's definition of "species."

(3C)- Category 3C: Taxa that have proven to be more abundant or widespread than was previously believed and/or those that are not subject to any identifiable threat.

* *If a vertebrate or plant, a single asterisk indicates taxon is possibly extinct. If an invertebrate, a single asterisk indicates a lack of information for the taxon since 1963.*

** *Consultation with National Marine Fisheries Service required.*

1/ U. S. Department of Interior, Fish and Wildlife Service, July 15, 1991, Endangered and Threatened Wildlife and Plants, 50 CFR 17.11 and 17.12.

2/ Federal Register Vol. 58, No. 72, April 16, 1993, Proposed Rule-Howellia aquatilis

3/ Federal Register Vol. 56, No. 225, November 21, 1991, Notice of Review-Animals

4/ Federal Register Vol. 55, No. 38, February 21, 1990, Notice of Review-Plants

ATTACHMENT B

FEDERAL AGENCIES RESPONSIBILITIES UNDER SECTIONS 7(a) and (c)
OF THE ENDANGERED SPECIES ACT

SECTION 7(a) --Consultation/Conference

Requires: 1) Federal agencies to utilize their authorities to carry out programs to conserve endangered and threatened species;

2) Consultation with FWS when a Federal action may affect a listed endangered or threatened species to insure that any action authorized, funded or carried out by a Federal agency is not likely to jeopardize the continued existence of listed species or result in the destruction or adverse modification of Critical Habitat. The process is initiated by the Federal agency after they have determined if their action may affect (adversely or beneficially) a listed species; and

3) Conference with FWS when a Federal action is likely to jeopardize the continued existence of a proposed species or result in destruction or adverse modification of proposed Critical Habitat.

SECTION 7(c) - Biological Assessment for Major Construction Projects [1/]
Requires Federal agencies or their designees to prepare a Biological Assessment (BA) for construction projects only. The purpose of the BA is to identify any proposed and/or listed species which are/is likely to be affected by a construc- tion project. The process is initiated by a Federal agency in requesting a list of proposed and listed threatened and endangered species (list attached). The BA should be completed within 180 days after its initiation (or within such a time period as is mutually agreeable). If the BA is not initiated within 90 days of receipt of the species list, the accuracy of the species list should be informally verified with our Service. No irreversible commitment of resources is to be made during the BA process which would foreclose reasonable and prudent alternatives to protect endangered species. Planning, design, and administrative actions may be taken; however, no construction may begin.

To complete the BA, your agency or its designee should: (1) conduct an on- site inspection of the area to be affected by the proposal which may include a detailed survey of the area to determine if the species is present and whether suitable habitat exists for either expanding the existing population or for potential reintroduction of the species; (2) review literature and scientific data to determine species distribution, habitat needs, and other biological requirements; (3) interview experts including those within FWS, National Marine Fisheries Service, State conservation departments, universities, and others who may have data not yet published in scientific literature; (4) review and analyze the effects of the proposal on the species in terms of individuals and populations, including consideration of cumulative effects of the proposal on the species and its habitat; (5) analyze alternative actions that may provide conservation measures and (6) prepare a report documenting the results, including a discussion of study methods used, any problems encountered, and other relevant information. The BA should conclude whether or not a listed or proposed species will be affected. Upon completion, the report should be forwarded to our Portland Office.

[1/] A construction project (or other undertaking having similar physical impacts) which is a major Federal action significantly affecting the quality of the human environment as referred to in NEPA (42 U.S.C. 4332.(2)c). On projects other than construction, it is suggested that a biological evaluation similar to the biological assessment be undertaken to conserve species influenced by the Endangered Species Act.

APPENDIX G

COMMENT LETTERS

August 24, 1994

Carlene Fieskes
Bonneville Power Administration
P.O.Box 3621
Portland, Oregon 97208

RE: Burlingtom Bottoms Proposed Management Plans

Dear Ms. Fieskes:

I am writing to offer comments/suggestions regarding proposed management of the Burlingtom Bottoms natural area. I live near the site and have had an intimate relationship with the site for the last 15 years. I have intentionally befriended the various leasors of the site e.g. tugboat operators, sheep/cattle ranchers, houseboaters etc., in order to ensure my continued access to it. Over these 15 years, I have observed the impacts of various uses and have become painfully aware of the fragility of this site.

There has been an increase in wildlife and native plant species in the past 3 years since cattle grazing ceased. This is encouraging, and it would be good to see this trend continue. The swans which used to winter there regularly, have not yet returned however.

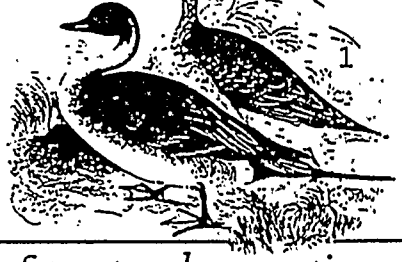
Of the three management plans I have seen, only plan #1 is within keeping with the goal of maintaining wildlife habitat. And in this plan, the hiking/viewing trail should end at the bridge between the two lakes. If it continues where the plan proposes, it will be disrupting a significant Woodduck nesting area. It is my opinion that use of the site should be restricted to walking/wildlife viewing and studying only. If other recreational uses are allowed, it will irreversibly change the charactor of the site.

As developement pressures continue to increase in adjacent areas, it is important to uphold the wildlife habitat enhancement goal. Good luck in establishing a responsible plan. If I may be of any assistance whatsoever, please let me know.

Sincerely,

Stephen Scheer D.C.

SAUVIE ISLAND
Conservancy
dedicated to the preservation of island rural life, wildlife & natural recreation areas



25 August 1994

Carlene Fleskes
Bonneville Power Administration
PO Box 3621
Portland, OR 97208

Dear Ms Fleskes,

We have reviewed and discussed the proposed Burlington Bottoms Wildlife Mitigation Project Plan and offer the following comments.

In general, we feel the plan is well researched, thorough and thoughtful, and gives strong and needed protection to the Bottoms. Throughout, it seems to detail concerns and offers appropriate plans and alternatives. We favor ALTERNATIVE 1: MAINTENANCE AND ENHANCEMENT WITH LIMITED PUBLIC ACCESS. Alternative 2, with no public access, deprives the public of the educational and wildlife appreciation values of the Bottoms. It also would serve to increase visitors to the Sauvie Island Wildlife Area, which has more than 800,000 annual visitors. Alternative 3, no action, would not sufficiently protect the wildlife and habitat values of the site. We also recommend the proposed concept of an on-site caretaker.

But while the proposed plans for wildlife and habitat are very good, the proposed recreation options are for the most part ludicrous and seem not at all in keeping with the purposes of the Burlington Bottoms acquisition.

The Maps

The recreation maps included with the plan are almost unintelligible. Even with the enlarged versions that we made, the writing is difficult to decipher. The map also doesn't show Sauvie Island and the relevant areas that would be affected by development at Burlington Bottoms. One look at the indexed and color-coded versions we've included here makes it pretty obvious that the proposed recreation sites and activities for Options 2 and 3 would have an enormous detrimental impact on wildlife and habitat.

Option 1

We feel that even the "least impact" option is too involved. Human impact needs to be minimized .

The Trails. Conservancy members who frequent the Bottoms confirm that the birds are not accustomed to having humans around and are easily spooked. The plan should not transform the Bottoms into an area that will attract people who just want to hike. People frequently don't stay on trails, and the more miles of trails you create, the more opportunities there will be for visitors to adversely impact habitat areas.

The Trails' Impact on Wildlife. One of your target mitigation species is the great blue heron, which is the most skittish of all wetlands birds. In a wetlands study conducted by San Diego State University, great blues took flight when a person walking was 195 feet away -- compared to a killdeer, at 15 to 40 feet.

Viewing Blinds. It also appears that there are a voluminous number of viewing blinds. It's been our experience on the island at Virginia Lakes that the viewing blind is unused and a target for graffiti. We recommend natural vegetative blinds.

Proposed parking lot and other riverside development. We are also concerned about the proposed parking lot, which appears to be directly across from the picnic area and boat dock at Hadley's Landing on Sauvie Island. There have been illegal structures on the mainland side that we have been working with the county to remove. We would hate to see the view then transformed into a parking lot or area with a lot of visible human activity. We would also like to point out that the Willamette River Greenway OAR 660-20-025(2)(b)(B) states that "To the greatest possible degree the intensification, change of use, or development will provide the maximum possible landscaping, aesthetic enhancement, open space or vegetation between the activity and the river."

Interpretive Center. Any interpretive center should not be conceived as a Burlington-Bottoms-only information area. Metro is currently working on an interpretive center for Smith and Bybee Lakes. There has been talk of eventually having some sort of interpretive center at Bybee Howell on Sauvie Island and also at Ridgefield NWR. If we are to truly have a regional greenspaces program and master plan, then all of these interpretive centers should be coordinated. Each one should focus on a different aspect of wildlife and should work together as complementary experiences.

Perhaps Burlington Bottoms should focus on the Pacific Flyway, Smith and Bybee should focus on the disappearing wetlands history of the area, Ridgefield with its recently discovered Native American village could focus on native American history, Sauvie could focus on the interconnectedness of the wildlife using all the areas. These various facilities should be developed in tandem, with the appropriate people from the different agencies working in close cooperation. We should also consider Mike Houck's long-standing dream of a tyvec map (like the Portland bicycling map) of the region's natural areas, and a brochure that advertises them all.

Option 2

This proposal seems absurd, and not at all in keeping with the basic management goal of "increasing the quality and quantity of wildlife habitat."

Inappropriate Uses. Your study states that these identified activities were "evaluated for their compatibility with the goals and objectives for the area." How does a fitness course relate to enhancing wildlife habitat? What about a jogging trail? A picnic area?

Inland Canoe Route. Conservancy members who frequent the site have said that the "inland canoe route" is ridiculous; it wouldn't even be navigable for most of the year without major dredging.

Increasing Channel Use. We are concerned about developing a canoe launch or ferry landing -- or any development along the Multnomah Channel, for that matter. For the past four years we have been actively fighting development along the congested channel. The increasing development and use greatly impact the wildlife who use the channel, including threatened and endangered species like bald eagles and peregrine falcons. Also, if that proposed site for the launch/landing extends into the channel and is across from Hadley's Landing, it would violate county zoning which does not allow "double-loading" of the channel.

Option 3

The color-coded version of this plan looks like an amusement park, not a wildlife area. It's appalling, and seems unbelievable that it could have been developed in conjunction with the agencies cited. For example, it includes a mountain bike trail and horseback trail, both of which were specifically excluded in the new Sauvie Island Management Plan because they weren't wildlife-based recreation. The same could be said for nearly all the other proposed recreation -- swimming, picknicking, fitness

training, sailboarding and dog training. To even consider developing a campground is unfathomable.

Our Conservancy, along with Portland Audubon and Friends of Forest Park, recently used our own funds to file an appeal to the Multnomah County Commission in opposition to a proposed 140+ acre expansion of the Angell Brothers Quarry which had been approved by the Planning Staff and Planning Commission. We were concerned, based on the advice of experts, that runoff from the quarry would silt in the Bottoms. We organized testimony which convinced the Board of County Commissioners to deny any expansion. We are very committed to helping to protect the Bottoms, and we appreciate this opportunity to comment on the proposed plan.

Sincerely,

Donna Matrazzo
for
The Sauvie Island Conservancy

August 26, 1994
Friends of Retaining Channel
Environment, Inc. (FORCE),
13100 NW Marina Way
Portland, Oregon 97231

Carlene Fieskes
Bonneville Power Administration
PO Box 3621
Portland, Oregon 97208

Dear Ms. Fieskes:

Our group is a non-profit citizens group interested in maintaining and enhancing the unique natural and scenic qualities of Multnomah Channel. We have reviewed the Burlington Bottoms Wildlife Mitigation Project Plan and would like to respond with our own observations.

Generally, we are very excited to see the Wildlife Mitigation Project at Burlington Bottoms, as we are very concerned about the increased development and human uses of the Channel and adjacent properties. Burlington Bottoms is potentially the last piece of riparian property along Multnomah Channel in Multnomah County where natural, undisturbed habitat exists for local and migrating flora and fauna. The importance of this property will grow as development pressures build in the West Hills, on Sauvie Island, and along Multnomah Channel.

For this reason, we can only support Alternative Mitigation Plans that protect and enhance wildlife over human needs. We favor Alternative 1: Maintenance and Enhancement with Limited Public Access. We cannot support Alternative 3, (no action) as the encroachment of non-native species can be expected to continue to choke out native species, and wetlands will continue to fill in with and become obliterated by reed canarygrass and other exotic grasses. This will be detrimental to the riparian habitats which were meant to be protected by the BPA's purchase of this site. Alternative 2, with no public access, is too restrictive by not allowing educational and/or minimal public use of the property.

Assuming limited public access to the site, we would like to discuss the various options offered by the Mitigation Project Plan (Maps 1-3 in Appendix C). It is hard to believe how Options 2 and 3 (medium and high impact) can be compatible with either "maintaining and enhancing the existing wildlife habitat" or with the physical limitations of the site. We support a plan similar to Option 1, with minimal human uses and/or encroachment into most of Burlington Bottoms. Our comments are as below:

Comments on Option 1:

Overall, the least impact recreational plan is the only plan that makes any sense at all with regards to protecting wildlife habitat and nesting. In fact, we would encourage even fewer trails and blinds, so to discourage visitors from straying off trails and into prime nesting and foraging habitats. Several of our members live on the property adjacent to Burlington Bottoms, and have many years of experience watching wildlife on the Bottoms. Their experience is that most of the birds, turtles, otters, and other wildlife are not habituated to human activity and flee at the slightest provocation. The presence of a lone angler on a lake will empty the area of migrating birds. Much of the lowlands on Burlington Bottoms is used by birds and turtles as nesting habitat: it would be unwise to encourage off trail meandering.

We would also encourage the use of natural vegetation for blinds: constructed wooden blinds such as those at Virginia Lakes are rarely used and become unsightly when constantly vandalized. We would also like to see the parking area placed back from the shore and well camouflaged from the river, so to be in keeping with the Willamette River Greenway Act. Human activity could be further controlled by keeping the parking lot small, limiting access during critical nesting times, and encouraging wildlife viewing activities over hiking, jogging, exercising, or picnicing. Domesticated animals should not be allowed on any trails, even while leashed (dogs are a sure way to limit waterfowl use of the site). An onsite manager or a system of volunteers may be the only way to implement a policy of low human impact on the site, and should be entertained.

Comments on Option 2:

Option 2 suggests canoe trails, ferry landings, jogging and fitness trails, viewing stations, picnic areas and an interpretive center for this site. These many uses support human recreation over the values of "maintaining and enhancing wildlife habitat". Although the impacts of these varied activities are considered middle of the road, the site would need to be dredged, engineered and drastically changed to truly support these activities. This plan is inappropriate for this site.

Comments on Option 3:

This is the Disney fantasyland of wildlife management plans, that couples high impact human uses with a plethora of impossible activities. It is hard to believe that this is even a serious management plan. Among the mountain bike trails, horseback trails, fitness stations, dog training areas, sailboard launches, canoe routes, campsites and swimming holes, we must suppose the planners intend to place plastic replicas of the wildlife that

used to inhabit the site prior to its conversion into a recreational maelstrom. Furthermore, there are no waterways on Burlington Bottoms currently capable of year-round or even seasonal boating (note the description of beaver dams noted elsewhere in the report...beavers are always felling trees across the various streams). We consider this option as wholly incompatible with the BPA's mitigation goals and objectives identified for this area.

In sum, our public interest group wholly supports the many thoughtful, well researched and well documented aspects of the proposed Burlington Bottoms Wildlife Mitigation Project Plan. We would like to add that the Burlington Bottoms site provides a safe haven for animals now rare in the metropolitan area: deer, beaver, mink, weasals, otter, painted turtles, bald eagles, waterfowl, and the many other species outlined so nicely in Appendix A of the Mitigation Plan. These animals are not accustomed to interfacing with humans and will disappear if the Burlington Bottoms is developed along the lines of a park. We would like to encourage the BPA to develop and manage the Burlington Bottoms site primarily for the well being of these wildlife species, and to allow minimal human access only for the study of and appeciation of these animals or their habitat.

Sincerely yours,

Mark Valeske, President
FORCE

United States Department of the Interior

FISH AND WILDLIFE SERVICE

Portland Field Office
2600 S.E. 98th Avenue, Suite 100
Portland, Oregon 97266
(503) 231-6179 Fax: (503)-231-6195

September 6, 1994

Mrs. Sue Beilke
Oregon Department of Fish and Wildlife
17330 S.E. Evelyn St.
Clackamas, OR 97015

Dear Sue,

We have reviewed the Burlington Bottoms Wildlife Mitigation Project, Preliminary Environmental Assessment/Management Plan. We are providing the following comments for your consideration:

Page 9, Last paragraph.
Would goose or osprey nesting platforms also have potential in this area?

Page 10, Section 2.1.2.1 Native Fish Management.
We suggest you consider allowing some angling for resident fish, especially warmwater species. Angling could be restricted to only those non-sensitive wildlife areas or to certain times of the year. A regulated angling program could provide a portion of the public use which is an important part of the project.

Page 11, 2.1.2.2, Non-native Fish Management, First sentence.
Delete "predatory" so as to include all non-native fish.

Page 14, Fourth paragraph.
Consider adding temperature to the water quality parameters to be monitored.

Page 15, 2.1.4, Public Access/Recreation Management
As on page 10, we suggest warmwater angling be considered for certain parts of Burlington Bottoms to provide a balanced public access/resource management plan.

Page 20, 3.2.3, Hydrologic Resources. Second paragraph.
To emphasize that there are not any flood control dams on or near Burlington Bottoms you may wish to rewrite the first sentence as follows: "Prior to completion of the Columbia and Willamette River flood control dams in the 1960's, an annual spring freshet inundated portions of Burlington Bottoms"..

printed on unbleached recycled paper

Page 27, 5.1, Objectives, Number 2 and Page 28, Number 2.
It appears that only the "presence" of species would be monitored. We suggest that be expanded to include monitoring the densities or relative numbers of species.

Thank you for the opportunity to provide comments on the plan. If you have any questions please call Larry Rasmussen at this office (503-231-6179).

Sincerely,

Patrick D. Wright

Patrick Wright
Senior Staff Biologist

LR/cb/mehC:caas2/09-01-94

APPENDIX H

FINDING OF NO SIGNIFICANT IMPACT

DEPARTMENT OF ENERGY

Bonneville Power Administration

Finding of No Significant Impact (FONSI) for
Burlington Bottoms Wildlife Mitigation Project

SUMMARY: BPA proposes to fund wildlife management and enhancement activities for the Burlington Bottoms wetlands mitigation site. Acquired by BPA in 1991, wildlife habitat at Burlington Bottoms would contribute toward the goal of mitigation for wildlife losses and inundation of wildlife habitat due to the construction of Federal dams in the lower Columbia and Willamette River Basins. BPA has prepared an environmental assessment (DOE/EA-0928) evaluating the potential environmental effects of the proposed project. Alternative 1 (Proposed Action) evaluated maintenance and enhancement of the property with limited public access; Alternative 2 evaluated maintenance and enhancement of the property with no public access; and Alternative 3 evaluated the No-Action Alternative. Maintenance and enhancement under Alternative 1 would not cause significant environmental impact because: (1) there would be no adverse impacts on soils, air quality, water quality, wildlife (including no effect on endangered species), vegetation, fish, and land use; and (2) there would be no effect on cultural resources. Based on the analysis in the environmental assessment (EA), BPA has determined that the proposed action is not a major Federal action significantly affecting the quality of the human environment, within the meaning of the National Environmental Policy Act (NEPA) of 1969. Therefore, the preparation of an environmental impact statement (EIS) is not required and BPA is issuing this FONSI.

FOR FURTHER INFORMATION AND COPIES OF THE EA, CONTACT: John Taves, Bonneville Power Administration - EC-5, P.O. Box 3621, Portland, Oregon 97208-3621, phone number 503-230-4995. Or Charles Craig, Bonneville Power Administration - EWP/State, P.O. Box 3621, Portland, Oregon 97208-3621, phone number 503-231-6964; or the Public Involvement and Information office voice TTY 503-230-3478 in Portland, or toll free 1-800-622-4519.

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

SUPPLEMENTARY INFORMATION: Under provisions of the Pacific Northwest Electric Power Planning and Conservation Act of 1980 (Northwest Power Act), BPA has the authority and obligation to fund wildlife mitigation activities approved by the Northwest Power Planning Council (Council) and included in the Council's Fish and Wildlife Program (Program). The initial phase of mitigation planning for wildlife habitat losses was submitted to the Council for amendment into the Program in 1989. The Program includes a process for review of habitat losses and design of mitigation plans for each Federal hydro project in the Willamette and Columbia River Basins (Section 1002). In 1989, the Council amended the Program to include wildlife habitat losses resulting from construction and operation of Bonneville, The Dalles, John Day, and McNary Dams. Consistent with Section 1003(7) of the Program's Wildlife Mitigation Rule, BPA proposes to fund projects that are intended to help reach the Council's mitigation goals. BPA

funding would provide management of habitat management, recreation, hydrology, cultural resources, and public access to the area.

Under Alternative 1, the proposed action, control or eradication of non-native invasive plant species and re-establishment or enhancement of native plants would be beneficial to fish and wildlife and would not significantly impact other environmental resources.

Control of non-native fish and wildlife populations through trapping and netting would be beneficial by reducing competition with native species for resources.

Control of non-native invasive plant species at Burlington Bottoms may include the burning of vegetation (Reed canary grass) in certain areas (pasture habitat) and at certain times of the year. This may cause, for the short term, an increase in carbon monoxide and smoke particulates. Burning would be coordinated with the Oregon Department of Environmental Quality to ensure that impacts to air quality would be minimal.

To avoid adverse impacts to fish and wildlife habitat, management of public access will include the use of interpretive signs to educate visitors on the need to stay in designated areas, using vegetation as a natural barrier to prevent off-trail use, and/or having seasonal restrictions on visitor access.

Timing and location of management activities (burning of Reed canary grass, mechanical removal of blackberries, and trapping of bullfrogs) would occur in such a manner as to minimize disturbance to native fish and wildlife, especially during such critical periods as the breeding season for waterfowl.

A cultural resource survey was performed on the Burlington Bottoms site in September of 1994. No prehistoric materials were observed, possibly due to twentieth century fill material and dense vegetation which obscure the ground surface, hindering recognition of these resources. Any ground-disturbing activities (e.g., excavations or surface leveling) related to the construction of the trail and wildlife viewing areas and the placement of interpretive signs will be monitored by an archaeologist since it is possible that unrecorded prehistoric sites exist beneath the ground surface.

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

Issued in Portland, Oregon, on December 28, 1994.

/s/ Randall W. Hardy

Randall W. Hardy
Administrator and Chief Executive Officer