SHILLAPOO WILDLIFE AREA
2017 MANAGEMENT PLAN UPDATE

Washington Department of Fish and Wildlife

Land Management Summary

This is an update to the 2006 Shillapoo Wildlife Area Management Plan that provides management direction for the 2,341-acre Shillapoo Wildlife Area in Clark County Washington. The plan identifies needs and guides activities on the area based on the Washington Department of Fish and Wildlife (WDFW) mission to *"preserve, protect and perpetuate fish, wildlife and ecosystems while providing sustainable fish and wildlife, recreational and commercial opportunities"* and its underlying statewide goals and objectives as they apply to local conditions.

Plans are updated every two years as habitat and species conditions change, as new regulations and scientific knowledge develop, as public issues and concerns evolve, and as administration of wildlife area changes. This management plan update includes 2014 - 2016 accomplishments, new issues, new land management strategies, and performance measures for 2017-2018.

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Updates/Changes

The decision was made to move forward with the South Unit Buckmire Slough (SUBS) restoration project to connect the Columbia River to the wildlife area, creating intertidal rearing habitat for juvenile salmonids as they migrate to the ocean. Although the project would provide fish habitat and food export to the Columbia River, there are concerns regarding impacts to waterfowl habitat availability, year round waterfowl use, hunting opportunities, and to multiple other wildlife species. Efforts are underway to identify impacts to waterfowl and hunting opportunities, and discuss options for mitigating impacts to both. Additional concerns that need to be addressed include providing adequate flood protection for neighboring landowners, minimizing project costs, funding source restrictions, and if needed, providing sufficient mitigation in close proximity to the site. If the intertidal project is implemented it will represent a major change to the current management and enhancement of native wetland plant communities, along with decreasing our abilities to control non-native invasive plant species, and ensuring critical year-round habitat for many wildlife species on the wildlife area. Several analyses are involved to help determine what the possible impacts may be and associated mitigation options.

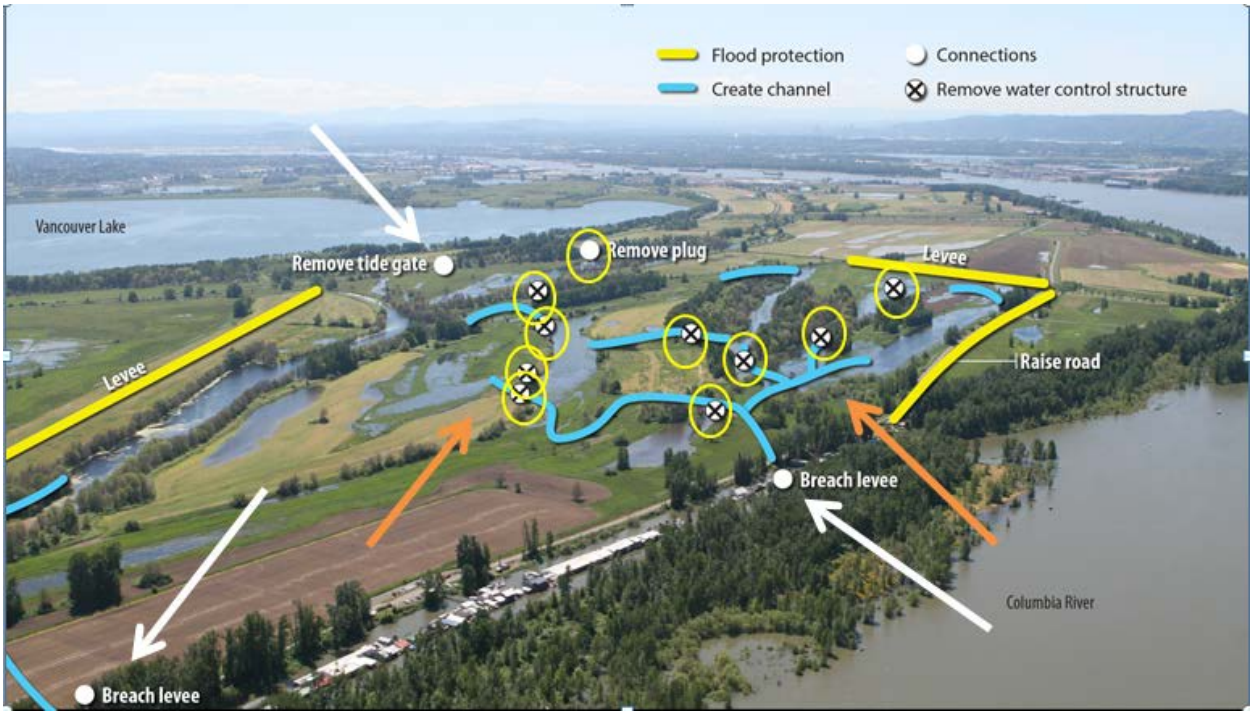

Figure 1. Illustration of the South Unit Buckmire Slough project and concept elements.

WDFW has been seeking ways to strike a balance between salmon restoration and wildlife needs on agency lands, but finding ways to meet many different species needs in one location can be problematic. The Shillapoo Lakebed reconnection project, which would have also provided juvenile salmonid rearing habitat on the wildlife area, was terminated by Bonneville Power Administration (BPA) and WDFW due to the overall high costs, combined with other project restraints. Both SUBS and Shillapoo Lakebed projects were developed as part of an agreement between Washington and the federal government in 2009 to provide off-channel juvenile salmonid rearing habitat.

Another change to the wildlife area has been hiring a new assistant manager. A new assistant was hired in October of 2014, filling a position that had been vacant for six months.

New Issues

A new issue that has affected some of the management practices on the wildlife area has been the arrival of Columbia white-tailed deer. The deer were initially translocated from the Julia Butler Hansen National Wildlife Refuge to the Ridgefield National Wildlife Refuge beginning in February 2013. In total, about 80 deer were moved and some have since made their way to the Shillapoo Wildlife Area. Having this new resident species in the area has meant that some of the management practices have changed, such as no longer being allowed to use certain herbicides at certain times of the year and needing to delay activities like field mowing during fawning season. Although the new restrictions require staff to modify management, they have not restricted achieving overall goals of managing, enhancing, or restoring the habitats on the wildlife area.

Major Stewardship Accomplishments

Over the past several years wildlife area staff have been developing new techniques and procedures to control reed canary grass in wetlands in order to establish native wetland plant communities that are more beneficial to wildlife. Although desired results can sometimes be achieved by only using a few of these methods, the preferred approach (which most consistently accomplishes our goal of increasing native plant species while decreasing non-native plant species) is fall herbicide spraying, winter inundation/flooding, spring disking, and planting summer cover crop. This method typically results in achieving more than 50% native plant cover the following year and sometimes 80% native plant cover. As seen in the pictures below (Figures 2 and 3) of the Twin Ponds wetland, the native plant cover before treatment was 5% and after the area was sprayed in the fall and inundated, native plant cover was over 60%. The reddish vegetation in the post-treatment picture is beggarticks, which produces a seed that is a highly desirable food source for dabbling ducks. Disking and planting of a cover crop was not needed in the situation to achieve desired results.

Figure 2. Twin Ponds Pre-treatment.

Figure 3. Twin Ponds Post-treatment

Several Oregon oak and riparian habitats enhancement areas are now complete. The only two sites that have not been completed are Chapman and Buckmire Slough riparian areas. The Chapman Slough planting should be completed in the spring of 2018. There is not an estimated completion date for the Buckmire Slough sites. From 2014-16, over 15,000 trees and shrubs were planted on the Shillapoo Wildlife Area at five different sites.

Overall plant survival remains good to excellent for most tree and shrub species that were planted. The exceptions are elderberry and cottonwood which only had fair survival when surveyed one year after planting. The survival survey results for trees and shrubs planted in 2013-15 are listed in Figure 5. The graph represents species survival in all of the planting sites.

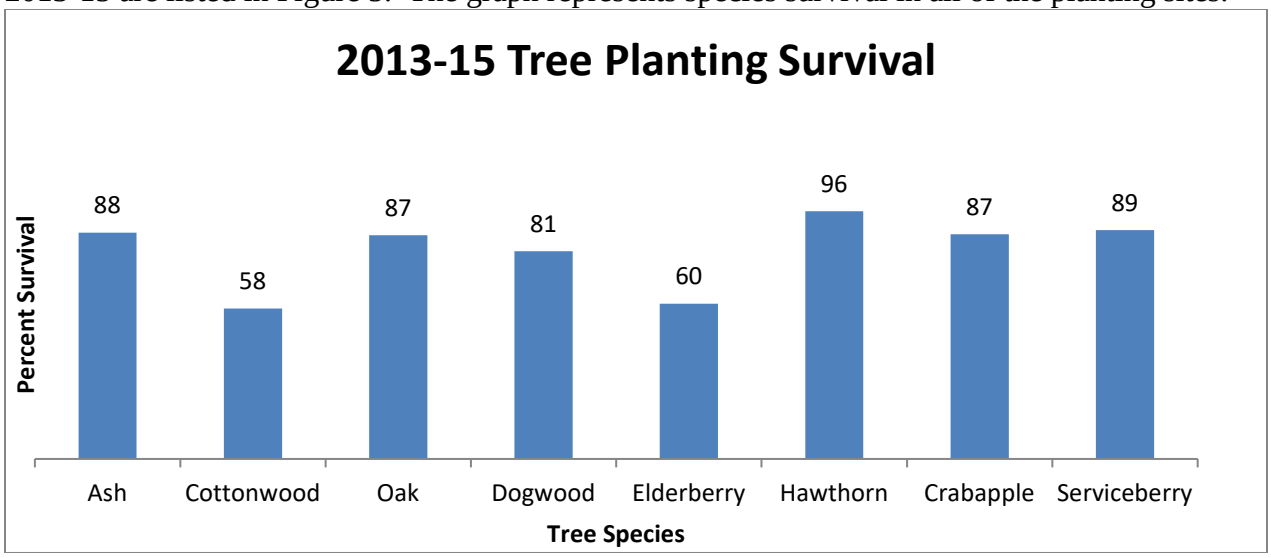

Figure 5. Species survival in all of the planting sites.

Seven pasture sites totaling about 85 acres were tilled and replanted with grass, clover, and grain mix the past three years. Several pasture areas totaling about 100 acres were sprayed to control Himalayan blackberry, Canada thistle, or other broadleaf weeds to improve habitat values. Washington Department of Natural Resources (DNR) crews cleared over 15 acres of blackberries in five areas to either improve sight distances for waterfowl or prepare sites for eventual planting of trees and shrubs. The initial clearings have or will be followed by herbicide treatment for long-term control.

Figure 4. Lake River riparian planting area.

We continued to make progress with regards to reducing problems associated with noxious weeds but this is tempered with the continual threat of new invasive species either on the wildlife area or on nearby sites. Although we have not encountered any new invasive plant species on the wildlife area the past three years, we continue to monitor the area in hopes of detecting any new weeds before it gets

a foothold. All major stands of poison hemlock and all known patches of English ivy were treated. Purple loosestrife continues to be a major concern on the area, and we continue to monitor our progress in controlling this problem species. Over the past 10 years we have noticed and monitored a decline in the number of loosestrife plants we encounter and treat every year in all of the units. Since 2007 we have seen a 90% decrease in the number of plants within a 75-acre survey area of the North Unit (Figure 6). Although we only officially survey this one area, staff has seen a significant decrease across the entire wildlife area. This decrease of purple loosestrife can be attributed to increase staff efforts to control this invasive wetland species every summer.

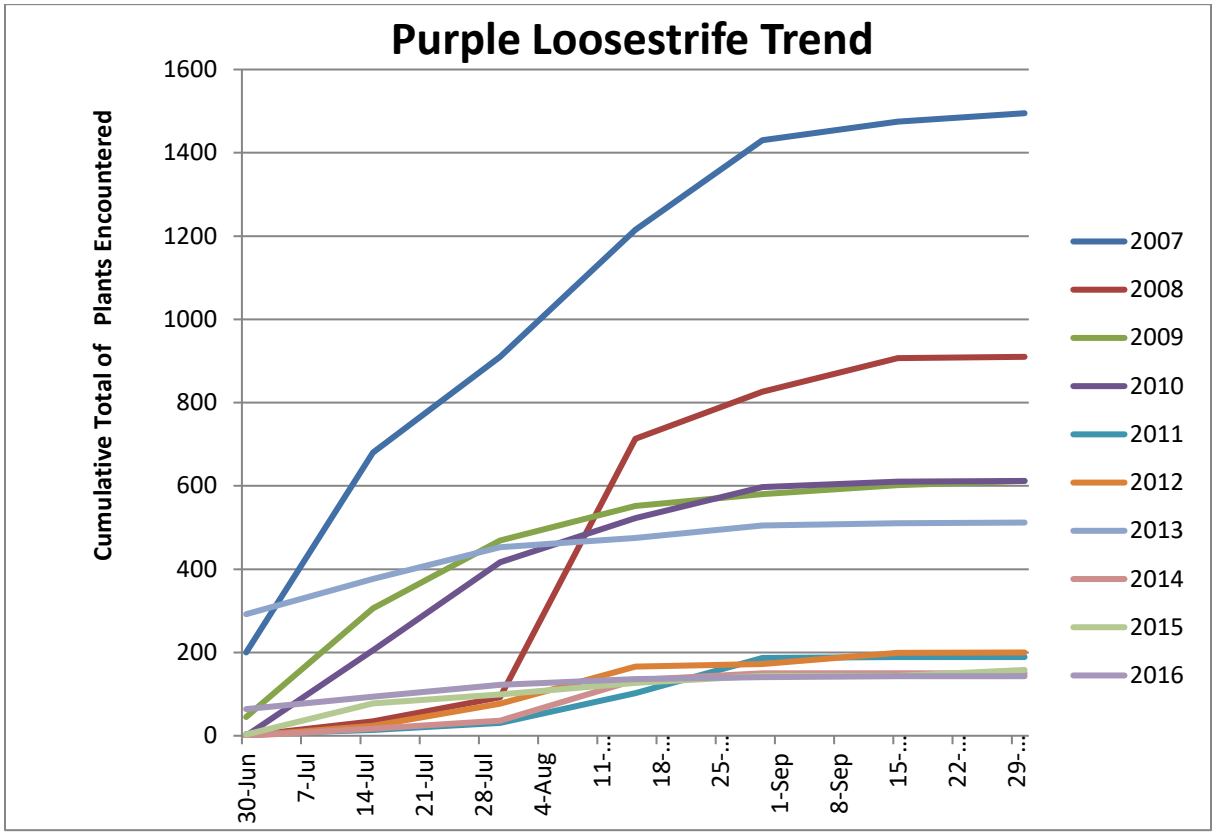

Figure 6. Purple loosestrife trend within a 75-acre survey area.

Status Report of 2014-16 Performance Measures

Key performance measures are identified each year to monitor progress and identify any issues that might interfere with planned priority activities. This information will be used to delete, add, or alter priority strategies for 2017-18.

2014-16 Performance Measure	Status of Performance Measure	Explanation of Progress/ 2017-18 Related Activity/ Comments
Participate in the feasibility study of reconnecting the Shillapoo Lakebed or other parts of the wildlife area with	The project to connect the Shillapoo Lakebed to the Columbia River has been cancelled due to high	Wildlife area staff will continue to be engaged in the process to assure that wildlife

the Columbia River to potentially benefit juvenile salmonids. Include an evaluation of the potential benefits or impacts to other species important in the area.	implementation cost and other limitations. The South Unit Buckmire Slough project is being considered and evaluated for potential benefits and impacts to fish, wildlife, habitats, and recreation.	habitat concerns are addressed.
Continue planting and maintaining trees and shrubs in the Lake River and Buckmire Slough riparian zones, abandoned heron rookery site, the old ag site in the North Unit, and others where planting has already been initiated.	Initial plantings are completed in all of the tree planting areas except the Buckmire Slough riparian area and the new Chapman Slough site. All tree planting areas are maintained and additional plantings occur as needed to replace trees that did not survive. Survival rates range from 50-95% depending on plant species	Planting will continue for several years until plant density and survival reach desired rates. We are currently planting fewer trees and shrubs as most sites have been completed and only replacement trees are being planted at most sites.
Continue clearing dense Himalayan blackberry along Buckmire Slough in preparation for ongoing understory enhancements.	Some progress has been made in clearing unwanted brush along Buckmire Slough; the work has been slowed due to a new bald eagle nest and blue heron rookery in areas that still need to be cleared.	Long-term goal will require at least several more years of effort.
Continue wetland basin enhancement through the removal of reed canary grass by disking.	Approximately 50-70 acres of reed canary grass has been controlled each year between 2014 and 2016. All of the sites were sprayed prior to winter inundation and spring disking to increase efficacy.	Spraying the sites prior to disking and planting cover crops has increased our control of reed canary grass, and allowed better native plant growth.
Control a minimum of 200 acres of Canada thistle and other broadleaf weeds by mowing or spraying.	This work was accomplished through both routine mowing and an increased spraying effort. Most weeds seem to be having a downward trend	Continue to maintain as a priority performance measure. Utilize monitoring results to inform adaptive management.

	in population size and distribution on the wildlife area. A survey method was developed and several sample sites have been established.	
Continue weed monitoring efforts and strive for early detection and rapid response to controlling new high priority weeds.	No new weed species have been detected on the wildlife area the past three years, but monitoring continues to be a top priority.	This is among the most important aspects of land management and should remain a priority.
Maintain and enhance waterfowl pasture areas by replanting 50 acres, mowing all sites, and continued removal of undesirable brush that obscures sight distances.	For each of the past three years, 30-45 acres of pasture have been replanted. All sites were mowed, and over 2,000 linear feet of blackberry hedges were removed improving site distances and increasing forage opportunities for wintering waterfowl.	Our current goal is to replant three pastures or approximately 30-50 acres a year. Continue to remove blackberry hedge rows to improve sight distances.
Implement measures as needed to protect habitat and other features from damage due to vandalism and other unlawful acts.	More boulders were placed along the roadway at Vancouver Lake where off-road driving had occurred.	Continue to monitor and address issues as they arise.
Begin developing a plan to address user conflicts and improve hunter satisfaction. Include opinion surveys in the process, and consider that potential landscape changes may affect recreation.	Due to work load capacities user group opinion surveys have not been conducted.	Information and maps are available to the public at the Regional office. Consider adding to the website and making a separate sheet specifically for waterfowl hunting. Comment boxes are also being considered at access points.
Initiate construction of the Old Slough Fence and preparation of the site for reforestation.	Construction on this fence was initiated in 2016 with the first of three sections being completed.	This fence is being constructed in phases/sections with Phase 2 being completed in 2017, and Phase 3 should be completed in early 2018.

New Strategies

The wildlife area plan identifies many strategies or activities to address the agency's strategic plan goals and objectives, why the area was purchased, habitat conditions, species present, and public issues and concerns. The following updated strategies have been added to respond to previously unaddressed or new issues or changes on the wildlife area. New strategies may also be in response to adaptive management as staff evaluate the impacts of past management activities.

Wildlife area staff continue to monitor and adapt the management of the wetland areas to maximize conditions for establishing native wetland plant communities, while controlling invasive and non-desirable vegetation. Moist soil management techniques will continue to be used and wetlands will continue to be surveyed for desired results in vegetation cover and wildlife use.

Strategies have also been adapted in establishing newly planted pastures. These new strategies include: herbicide spraying to control broadleaf weeds the fall before the rehabilitation begins, planting grain with the grass and clover mix to help reduce weeds, and mowing parts of the pasture in late summer while leaving strips un-mowed and with taller vegetation to deter geese from overgrazing the first winter and allowing the pasture to get established. Mowing also allows planted grasses and clovers to become rooted, increasing cover quickly. An example of this method is pictured below.

Lake River pasture rehabilitation site.

2017-18 Performance Measures

Performance measures for the Shillapoo Wildlife Area for 2017-18 are listed below. Accomplishments and progress toward desired outcomes will be monitored and evaluated annually.

1) Participate in the feasibility study of reconnecting Buckmire Slough and the South Unit of the wildlife area with the Columbia River to potentially benefit juvenile salmonids. Include

an evaluation of the potential benefits or impacts to migratory waterfowl and other species important in the area.

2) Continue planting and maintaining trees and shrubs in the Lake River, Buckmire and Chapman Slough riparian zones, Old Ag site and other areas where planting has already been initiated.
3) Continue clearing dense Himalayan blackberry along Buckmire Slough in preparation for ongoing understory enhancements.
4) Continue wetland basin enhancement through the removal of reed canary grass using moist soil management techniques.
5) Control a minimum of 200 acres of Canada thistle and other broadleaf weeds by mowing including 50 acres of herbicide spraying to control broadleaf weeds in pastures.
6) Continue weed monitoring efforts and strive for early detection and rapid response to controlling new high priority weeds.
7) Maintain and enhance waterfowl pasture areas by replanting 40 acres, mowing all sites, and continued removal of undesirable brush that obscures sight distances.
8) Implement measures as needed to protect habitat and other features from damage due to vandalism and other unlawful acts.
9) Begin developing a plan to address user conflicts and improve hunter satisfaction. Include opinion surveys in the process, and consider that potential landscape changes may affect recreation.
10) Reconnect with the U.S. Army Corps of Engineers and initiate the Shillapoo Ecosystem Restoration Feature project to restore the Shillapoo Lakebed as mitigation for the Columbia River channel deepening.

Volunteer Contributions

Over the years several volunteer organizations and individuals have helped to enhance and promote the resources and recreational activities on the wildlife area. For many years the Vancouver Wildlife League (VWL) have released pheasants in the South and Vancouver Lake units as part of the Western Washington Pheasant Hunting Program. Twice a week volunteers travel to the Game Farm in Chehalis to pick up pheasants released on wildlife areas in Southwest Washington. Without the VWL taking up this important task, the pheasant release program would be severely impacted. The group also organizes the Youth Pheasant Hunt at Shillapoo, as well as helping out at several youth fishing events across the region. Members also help out on the Game Farm repairing rearing pens damaged during wind and snow storms or flooding events. The group also contributes time and funds to build and repair hunting blinds located on the Shillapoo Wildlife Area.

Another organization that contributes significant time and funds to the wildlife area is the Washington Waterfowl Association (WWA), Lower Columbia Chapter. Over the past several years the Lower Columbia Chapter of WWA has built over 10 hunting blinds, including ADA accessible blinds, and repaired several more. Members of WWA have volunteered over a thousand hours building hunting blinds for the public to use at Shillapoo. They have also donated a hunting blind to the wildlife area worth several thousand dollars. WWA organizes work parties every year to maintain the wood duck boxes at Shillapoo and to prepare the blinds

for hunting season. Without the help of the local WWA chapter volunteering time and money to the area, the recreational experiences of the area would be impacted. Volunteers are not recognized often enough for what they do for the agency or the wildlife areas and this is a simple Thank You to everyone that donates their time to help others out when there is a need.

Washington Waterfowl Association work party constructing new ADA blind platform on the South Cell wetland.

Wildlife Area Advisory Committee

The Wildlife Area Advisory Committee (WAAC) meeting was held on May 19th, 2017 at the WDFW Regional office in Vancouver. In attendance were representatives from: Vancouver Wildlife League, Washington Waterfowl Association, Ducks Unlimited, Clark County Parks, Clark County Weed Management, WDFW Habitat and Wildlife Programs, USFWS, Bonneville Power Administration, Vancouver Lowlands Drainage and Diking District, and neighboring landowners.

The following issues and new input were addressed at the meeting:

Issue: Are there any new permitting requirements needed since Columbia white-tailed deer are now present on the wildlife area.

Response: There are no new permitting requirements with the presence of Columbia white-tailed deer on the wildlife area, however there are new restrictions on certain field activities to minimize disturbance and the possibility of injuring or killing a deer. Even though there are new restrictions and guidelines from the U.S. Fish and Wildlife Service on field activities, most of the new formal restrictions were already being observed to protect other wildlife species on site.

Issue: Several comments and questions regarding wetland enhancements were raised, especially on what techniques we use to control reed canary grass and what native species will often grow in the wetlands once the canary grass is removed.

Response: Several different techniques are used in order to control non-native reed canary grass on the wildlife area wetlands. Some or all of these techniques are used to control reed canary grass, which include: herbicide spraying, inundation, disking, planting of cover crops, and mowing. In some cases, all of the techniques are needed to control the grass, and in others only one or two of them may be implemented. Removing the grass allows for native plants to germinate and grow, producing better forage and wetland conditions for fish and wildlife species. The most common desirable or native species to grow in a wetland that has had the canary grass removed are smartweed, beggarstick, water plantain, and wild millet. Results from these techniques and procedures typically last 3-4 years until another treatment to control reed canary grass is needed once again. Results from a treatment to control canary grass typically increase native vegetation cover from less than 10% to greater than 50% cover.

Issue: Possible construction of the South Unit Buckmire Slough project to connect the Columbia River to the wildlife area wetlands to benefit juvenile salmonids and the possible impacts to wildlife.

Response: Construction of this project would represent a major change in how the wildlife area's wetland habitats are managed. Over the past several years, hydrologic and vegetation modeling has been done on the area for the project's conceptual design. Overall the modeling has indicated that the area will be drier on average, but there will be periods, although infrequent, when the wetlands would be wetter if the project was constructed. Estimated changes to hydrology are:

- October - November drier on average in higher elevation wetlands; there may be little change to lower wetlands
- December - January more variable water surface elevations; drier on average in mid and higher elevation wetlands
- February – March drier than existing conditions across all wetlands
- April – June similar to December – January
- June – September higher elevation wetlands will dry out more quickly; lower elevation wetlands will be drier, have variable water surface elevations and will be completely dry for days to weeks

Native plant cover and areas of mudflat habitat essential for shorebirds and other wildlife species would likely decrease from current existing conditions, and permanent waterbodies such as Bass Lake and Buckmire Slough could become dry for substantial parts of the year impacting several wildlife species. Wildlife area staff have been conducting wintering waterfowl surveys for over 15 years and recording variables such as the presence/absence of water on the survey units and have observed that waterfowl are significantly fewer in number and occurrence in the survey units during times when water is not present. Concerns for waterfowl include hunting season (Oct-Jan), nesting season (Feb-Jun), brooding season (Apr-Sept), and overwintering (Oct-Apr). Due to the project, changes are anticipated in waterfowl abundance, habitat, water flow, water

quality, forage, and water surface elevations to wetlands, which will be more variable compounded by the natural variability in wetland elevation. We have concerns about impacts to habitat availability, year round waterfowl use, and hunting opportunities.

Issue: If the South Unit Buckmire Slough project was constructed and waterfowl were displaced where would they go?

Response: If waterfowl were displaced they would likely go to nearby areas with appropriate habitats such as Sauvie Island, the Ridgefield Refuge, or adjacent private properties; likely placing additional stress on food resources which are critical for winter survival, migration, and nesting.

Issue: Restricting the use of watercraft on the wildlife area if the Buckmire Slough project was constructed.

Response: Allowing watercraft on to the wildlife area, whether motorized or non-motorized, would likely cause conflicts between user groups and diminish the recreational experience. Watercraft would also disturb and impact sensitive species that forage and nest along the waterways, such as nesting bald eagles, heron rookeries, and foraging waterfowl. There was a suggestion to allow non-motorized watercraft for hunting only, but this would also likely impact other hunters and their experience in the field, as well as being difficult to enforce.

Information on BPA's Wildlife Mitigation Program

The Bonneville Power Administration (BPA) has received mitigation credit for funding land acquisition, habitat enhancement, and ongoing management of habitats on the Shillapoo Wildlife Area, as described above in the Major Stewardship Accomplishment section. The project provides an estimated 1,581 habitat units (HUs) toward their overall wildlife mitigation debt for the Columbia River hydroelectric system. Habitat units are related to a portion of the wildlife impacts from Bonneville, John Day, and The Dalles dams. The number of habitat units achieved is based on the sampling of a number of habitat characteristics that are components of mathematical models for individual species that generate a numeric value of habitat quality from zero to one, known as a Habitat Suitability Index. The suitability index is then multiplied by the number of acres being evaluated to generate the number of HUs. This process is commonly referred to as a Habitat Evaluation Procedure (HEP). Species models being applied to mitigation activities on the Shillapoo Wildlife Area include: black-capped chickadee, western meadowlark, yellow warbler, mink, great blue heron, Canada goose, mallard, and dabbling duck.

Most of the management strategies relating to habitat management identified in the Shillapoo Wildlife Area Management Plan are funded through BPA's mitigation program. A summary of these activities can be found in our most recent project review and funding proposal to the Northwest Power and Conservation Council who provides oversight of BPA's mitigation programs. The Shillapoo Wildlife Area Proposal (Project #200301200) is located at: http://www.nwcouncil.org/Fw/budget/2010/proposal.asp?id=1008. This document includes a

summary of activities (work elements), and a link to the project narrative. A number of activities included in the mitigation work plan are designed to monitor the effectiveness of the project including habitat/plant community monitoring, wildlife population response, and periodic HEP surveys to track progress toward mitigation goals.

While BPA funds most of the habitat management activity on the wildlife area, other contributions have come from outside sources including grants obtained in cooperation with Ducks Unlimited, Columbia Land Trust, Natural Resources Conservation Service, U.S. Fish and Wildlife Service, Vancouver Clark Parks and Recreation, Clark Public Utilities, and others. These grants have helped to fund many of the wetland enhancement projects on the wildlife area. While habitat work has been well funded, dollars for wildlife surveys and recreational management have lagged behind. Improvement of recreational activities will have to be funded through state funding or other grant sources. Much of the recreational emphasis in recent years has been directed toward waterfowl hunting through State Migratory Bird Stamp grants. A wildlife viewing area and parking facility are planned to be constructed on the South Unit, and a storage facility is needed, but additional funds will be required to complete construction.

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Want to see the full plan?
Go to –

https://wdfw.wa.gov/lands/wildlife_areas/management_plans/shillapoo/