

Appendix D

Current and Future Bird Use of the Project Area

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INTRODUCTION

This section discusses the bird population within the project area located in the northeast corner of Smith Island. The potential changes to avian diversity were identified as an important part of the restoration project. Snohomish County Public Works staff Terri Wentworth-Davis, Paul Marczin, Jed Marshall, Sean Gross, and Beth Larsen worked on various aspects in collecting and assembling data for this discussion. County staff also conducted a fall survey to identify bird species found in the project area. No detailed surveys have been conducted within the project area, however, some information for the bird species has been extrapolated from known sightings at nearby Spencer Island. It is expected that many of the same species would be found in the project area.

Information for the bird species discussion was also collected from the following publications: Washington Department of Fish and Wildlife (WDFW) Priority Habitat and Species Management Recommendations (2000) and WDFW Comprehensive Wildlife Conservation Strategy (2005), the City of Everett Snohomish Estuary Wetland Integration Plan (1997), Breeding Birds of Washington State (1997), Snohomish County Public Works DD6 Restoration plan (1996), Northern Pacific Coast Regional Shorebird Management Plan (2000), USFWS Nisqually National Wildlife Refuge Final Comprehensive Conservation Plan (2005), Nearshore Birds in Puget Sound (2006), International Union for Conservation of Nature (IUCN) Red List (2010) and Fish Assemblages and Juvenile Salmon Diets at a Breached Dike Wetland Site: Spencer Island (2001).

Websites reviewed include the National Audubon Society Christmas Bird Count, Audubon Washington State of the Birds, Partners in Flight, Birdweb, Tweepers, Cornell Lab of Ornithology, and the Washington Ornithological Society (see Reference in this Appendix for full citations). Information was also collected from personal communications with Pilchuck Audubon Society members and individuals knowledgeable of bird use of the area.

The Snohomish River estuary is an important stopover on the Pacific Flyway, which is a regional flight corridor for migratory waterfowl, neotropical migrants, and other avian fauna. The Pacific Flyway extends from Alaska south to Mexico and South America. Smith Island also provides habitat for many resident bird species. Historically, the tidal marshes were interspersed with islands of forested wetlands on Smith Island which provided roosting habitat for shorebirds during high tides and important habitat for many other bird species (City of Everett 1997). Most of the original estuary has been diked and drained eliminating much of this habitat.

Estuaries are one of the most productive ecosystems on Earth, supporting more life per square inch than the richest farmland (NERRS accessed 2011). Breaching the existing dike would restore part of the estuarine tidal marshes and dendritic channels that were historically here and

benefiting vulnerable populations of sandpipers that have declined along the Pacific Coast as well as other species (see Table A, Vulnerable Bird Species in the Project Area; see also Table C, Smith Island Wildlife Population – Birds in Appendix E).

The project area is expected to provide critical wintering habitat, and feeding and resting habitat during migration, benefiting waterfowl, shorebirds, and raptors. Loss of upland habitat such as shrubby areas and patches of trees would affect more common species in the short term including wrens, sparrows, woodpeckers, and warblers. Changes in the habitat may also affect foraging by some raptors and upland birds, such as ring-necked pheasants. However, the trade-off of disturbed upland and wetland habitat for estuarine mudflats and marsh is of regional effect and an overall benefit to shorebirds and waterfowl.

Native trees and shrubs will be planted and are expected to reestablish in the project area which will benefit many species in the long term. For more information on birds expected to be present in the project area pre- and post-construction, see Table C, Smith Island Wildlife Population – Birds in Appendix E.

WATERFOWL

It is anticipated that breaching the dike will provide more habitat for waterfowl to forage. Currently, waterfowl use parts of the project area year round with an influx of species during fall migration. Many of these species will stay to winter in the fields and along the shores of Union Slough. Smaller numbers migrate through in the spring. Species found year round in the project area may also nest in the grassy fields and near the slough.

Canada geese and mallards are found year round while Northern pintail*, green-winged teal, Northern shoveler, and American wigeon arrive during fall migration with many wintering over. Blue-winged teal and redhead can be found on occasion during summer months. Gadwall and ring-necked duck* are found on Spencer Island so it is expected they would use the project area too.

Species such as tundra and trumpeter swan may currently use the estuary as a night roost during fall and winter. Swans* and snow geese use may increase as new food supplies become available such as wapato (Cordell 1999). The Spencer Island report found that wapato recolonized the island after breaching the dike. Wapato is a favorite plant of swans as well as a variety of other waterfowl (USDA NRCS 2011). Greater white-fronted geese found on Spencer Island may also start using the project area during winter. Marine species such as goldeneye, bufflehead, and mergansers are expected to increase their use of the project area. Providing more estuarine area will change the use by dabbling ducks such as northern pintails and mallards. They would spend time foraging on the mudflats and in shallow water as opposed to foraging in flooded fields as they currently do. They would also lose nesting habitat in areas adjacent to the slough.

*Vulnerable Bird Species (see Table A).

WATERBIRDS AND SEABIRDS

Waterbirds and seabirds tend to be found in or near the slough bordering the dike as well as in the pasture and cattail areas. Waterbirds and seabirds found year-round in the project area include great blue heron*, Virginia rail, double-crested cormorant, glaucous-winged gull, ring-billed gull, and American coot. Other species found on and around the project area seasonally include Western grebe*, sora, and Bonaparte's and mew gull. Soras are generally found during the summer months in the project area, however, they are known to winter here on rare occasions. Based on the habitat types and sightings on Spencer Island, it is also expected that American Bittern*, green heron, and pied-billed grebe would be found in the project area. Virginia rail are found in cattail areas and tall grassy areas, while great blue herons forage in the pastures. Western grebe are expected to continue to use the area.

It is anticipated that most waterbird and seabird species populations would increase in the project area. Restoring the estuarine area will provide more feeding opportunities for great blue heron and most species of waterbirds and seabirds. Sora, Virginia rail, and American bittern may initially lose some nesting habitat, but as cattail cover increases in the project area, this would provide additional habitat for these species.

SHOREBIRDS

It is anticipated that breaching the dike will improve habitat for shorebirds. According to the Washington Department of Fish and Wildlife (WDFW), many shorebirds in Western Washington require tidal estuarine ecosystems for foraging. These include black-bellied plover, dunlin, western sandpiper, and dowitchers that forage on mudflats with high levels of silt. Joseph Buchanan writes, "Shorebirds are specialists with a narrow range of microhabitat condition needs." (WDFW 2000) Estuarine restoration will provide this valuable microhabitat and restore vital wintering and migratory habitat for shorebirds. Trees left in the project area will eventually fall and may provide roosts for shorebirds during high tide. Wood material structures may also provide roosting areas for shorebirds.

The Snohomish River estuary is known to support long-billed and short-billed dowitchers*, dunlin*, black-bellied plovers*, western sandpipers* and greater* and lesser yellowlegs* during both spring and fall migration. Neotropical migrants such as Baird's*, sharp-tailed, and pectoral* sandpipers, and Pacific* and American golden plovers* are found on rare occasions during fall migration. It is likely that all of the above species can be found during migration within the project area. Some of these species such as dunlin and plovers also commonly winter in the project area.

Shorebird species that were confirmed to use the project area include killdeer*, Wilson's snipe*, dunlin, pectoral sandpiper, Baird's sandpiper, Black-bellied, American and Pacific golden plovers, and both species of dowitchers and yellowlegs. Wilson's phalarope* have been found in the project area during summer and are rare breeders in Western Washington.

*Vulnerable Bird Species (see Table A).

Dowitchers, greater yellowlegs, black-bellied plover, dunlin, western sandpiper, and least sandpiper*use of the project area is expected to increase during migration and winter. These species are found foraging in tidal mud flats and flooded fields. Lesser yellowlegs may utilize the area periodically, however, they primarily forage along shallow ponds and lakes. Killdeer will lose nesting habitat but more foraging opportunities are expected in the mudflats. Wilson's snipe will lose wet meadows for wintering.

Less common species such as golden plovers may increase their use of the project area and forage in mud flats. It is expected that solitary sandpiper and Baird's sandpiper which do not use the area regularly will use other areas as the current habitat changes to estuarine conditions. Wilson's phalarope are a rare breeder and possible migrant to the area. It is expected that if they are breeding in the project area, they would potentially lose this opportunity upon estuarine restoration but may still forage in the shallow water (see Table C in Appendix E).

LANDBIRDS

Landbirds include both resident birds and neotropical migrants. Many neotropical migratory populations have been in decline. Most of these migratory species depend on forested habitat which are limited within the project area. As overall ecological productivity increases it is likely that most landbirds will benefit. The following discussion of landbirds includes raptors, nonpasserines, and passerines.

RAPTORS

Raptors using the project area include a variety of owl and hawk species. All of these species have varied life histories and use the project area differently. Resident raptors observed in the project area include short-eared owl*, barn owl, great horned owl, bald eagle*, northern harrier, red-tailed hawk, Cooper's hawk, sharp-shinned hawk, merlin, and peregrine falcon*. Turkey vultures have been observed flying over the project area during fall migration.

Osprey nest in nearby Port Gardner Bay and hunt the slough in the project area during summer months. Rare winter raptors seen in the project area include snowy owl, Northern goshawk*, gyrfalcon, and golden eagle*. Based on the habitat types, it is expected that Western screech owls may occur in the evergreen trees and American kestrels may occur in the pastures. Both of these species would occur in the project year-round.

It is anticipated that peregrine falcons, merlins, and gyrfalcons will benefit from the increase in food sources provided by increasing numbers of shorebirds and waterfowl. Buteos, such as red-tailed hawks, and accipiters, such as Cooper's hawks, will lose foraging habitat in the short term. As the old dike becomes forested, habitat for these raptors would return. Bald eagles will benefit from the increasing numbers of waterfowl and fish.

Osprey-use of the project area is expected to significantly increase as more fish become available. Golden eagles are a rare winter visitor and are not known to forage in the project area. If so, they may lose the opportunity to forage since they primarily feed on small mammals.

*Vulnerable Bird Species (see Table A).

Northern harriers nest in cattail marshes so they may eventually benefit from the increase in cattails. They would lose the ability to forage for small mammals but gain in their ability to forage for ducks. Northern goshawks and snowy owls are uncommon winter visitors that may lose foraging opportunities.

It is anticipated that owl species will decline due to the loss of forested habitat and open areas. The trees left in the project area to be inundated will create snags providing temporary roosting or nesting areas. Short-eared owls and barn owls would lose foraging areas. Trees on the old dike and wood material complexes will provide limited roosting and nesting habitat in the long term.

NONPASSERINES

A variety of nonpasserines are found in the project area. Snags provide nesting and feeding opportunities for woodpeckers as well as smaller birds. Shrubby areas and nearby flowering trees provide food and shelter for hummingbirds. Mourning doves are found during fall and winter in the meadow areas and belted kingfishers hunt in Union Slough.

Species found in the project area include rufous hummingbird, mourning dove, belted kingfisher, pileated woodpecker*, red-breasted sapsucker, Northern flicker, and downy woodpecker. Black and Vaux's swifts forage for flying insects over the project and adjacent areas during the summer months. Pasture and meadow areas provide habitat for ring-necked pheasants.

It is anticipated that woodpeckers would benefit in the short term by the increased number of dead and dying trees in the project area. Once these trees fall, they would lose foraging habitat. As trees mature on the old dike, new habitat will be created in the long term. Rufous hummingbirds would lose foraging and nesting habitat as the shrubs and trees die. They will gain some of this lost habitat back as planted shrubs and trees mature. Black and Vaux's swifts will benefit from the increase in flying insects over the estuary. Mourning doves would lose foraging habitat in pastures and meadows. The project will increase foraging opportunities for belted kingfishers.

PASSERINES

Cattails, shrubby areas, evergreen tree patches and deciduous trees provide habitat for a variety of passerine species. The deciduous trees in the nursery provide cover during the spring and summer nesting season.

Resident passerines commonly found in the project area include American crow, Stellar's jay, song sparrow, spotted towhee, American robin, red-winged blackbird, marsh wren, Bewick's wren, Pacific wren, black-capped and chestnut-backed chickadee, bushtit, dark-eyed junco, cedar waxwing, purple finch, and golden-crowned and ruby-crowned kinglet. European starling, brown-headed cowbird, and brewer's blackbird are found in the pasture areas. Fox sparrow, white-crowned sparrow, golden-crowned sparrow, yellow-rumped warbler, orange-crowned warbler, and purple finch are also found in the project area. Brown creepers forage on the bark of the evergreen trees. It is expected that American goldfinch would be found in the project area year-round.

*Vulnerable Bird Species (see Table A).

Neotropical migrant passerines, commonly found in the project area, include cliff, tree, and barn swallows and common yellowthroat. Small numbers of Western meadowlarks winter in the fields and savannah sparrows summer in the project area. Other neotropical migrants expected to be found include olive-sided flycatcher*, black-headed grosbeak, western tanager, yellow warbler, and Wilson's warbler.

Several uncommon species are seen regularly in small numbers. Western kingbird are a rare migrant and eastern kingbird are a rare breeder. Lazuli bunting* have been seen on occasion in the fall and spring. Lincoln's sparrow are uncommon in the project area; rare sparrows found include swamp sparrow and Harris's sparrow.

It is anticipated that swallows would benefit by the increase in insect forage over the water. Red-winged blackbirds and marsh wrens would benefit by increases in insects and cattail marsh habitat. Sparrow numbers will fall initially but as shrubs grow on the old dike, it is expected that this will provide habitat for them.

Many passerines that rely on shrubby or forested areas would lose foraging and nesting habitat in the project area. Birds such as flycatchers would lose nesting areas and chickadees and kinglets would temporarily lose foraging areas. Vireos, warblers, finches, and wrens would also lose nesting and foraging areas. Small numbers of the displaced species may return as native trees and shrubs recolonize the area on the old dike. Native shrubs and trees will also be planted on the old dike and will provide increased habitat areas for many passerine species in the long term.

*Vulnerable Bird Species (see Table A).

TABLE A – VULNERABLE BIRD SPECIES IN THE PROJECT AREA

Species Name	WDFW CWCS ¹	WDFW PHS or Listed Species ²	USFWS Birds of Conservation Concern ³	US Shorebird Plan priority ⁴	USFWS ESA listed	Audubon WA State of the Birds ⁵	Audubon/American Bird Conservancy Watch list ⁶	IUCN Red List ⁷
Brant	Y	Migratory stopovers						
Trumpeter swan	Y	Regular concentrations					Yellow-rare	
Cinnamon teal						Low risk		
Northern pintail	Y							
Canvasback						Moderate risk		
Ring-necked duck						Moderate risk		
Greater scaup	Y							
Lesser scaup	Y					Moderate risk		
Common goldeneye						Low risk		
Hooded merganser						Moderate risk		
Ruddy duck						Moderate risk		
Western grebe	Y	Candidate-Regular winter concentrations, migratory stopovers				High risk		
American bittern						Moderate risk		
Great blue heron	Y	Breeding areas						
Bald eagle	Y	Sensitive-Breeding, regular concentrations	Breeding		Species of concern			
Northern goshawk	Y	Candidate-Breeding area				Moderate risk		

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Golden eagle	Y	Candidate-Foraging areas						
Peregrine falcon	Y	Sensitive-Breeding areas, regular occurrences	Breeding		Species of concern			
Virginia rail						Moderate risk		
Sora						Moderate risk		
Black bellied plover				M and W high concern		Low risk		
American golden plover						Low risk	Yellow-declining	
Pacific golden plover						Low risk		
Semipalmated plover						Moderate risk		
Killdeer				M, W high concern				
Greater yellowlegs				M, W high concern		Low risk		
Lesser yellowlegs			Non-breeding	M low priority		Low risk		
Solitary sandpiper			Non-breeding	M low priority				
Western sandpiper				M, W high concern		Low risk	Yellow-rare	
Least sandpiper				M, W moderate concern		Low risk		
Baird's sandpiper						Low risk		
Pectoral sandpiper						Low risk		
Dunlin				M, W high concern				
Short billed dowitcher			Non-breeding	M high concern		High risk		

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Long billed dowitcher				M, W moderate concern		Moderate risk		
Wilson's snipe				M, W, B high concern		Moderate risk		
Wilson's phalarope						Moderate risk		
Heermann's gull								NT
Short-eared owl							Yellow-declining	
Vaux's swift	Y	Candidate-Breeding areas, communal roosts						
Pileated woodpecker	Y	Candidate-Breeding areas						
Olive-sided flycatcher							Yellow-declining	NT
Willow flycatcher						Moderate risk		

- 1 WDFW Comprehensive Wildlife Conservation Strategy. 2005. Identifies species of greatest conservation needs in Washington State.
- 2 WDFW Priority Habitats and species. 2010.
- 3 US Fish and Wildlife Service. Division of Migratory Bird Management. 2008.
- 4 Northern Pacific Coast Regional Shorebird Management Plan conservation priority species. 2000. See report for details of definitions.
- 5 Audubon Washington State of the Birds Report. 2009. Annual list of species of concern. Moderate risk/low risk as it relates to the threat of climate change and habitat changes.
- 6 Comprehensive analysis of all of the bird species in the United States that reveals those in greatest need of immediate conservation attention. Yellow rare- population is stable; may not be facing extreme threats but have small ranges and small populations/Yellow declining- currently widespread & relatively abundant but facing significant threats & undergoing population declines. 2007.
- 7 International Union for Conservation of Nature Red List of Threatened Species. Version 2010.4. IUCN list is a comprehensive, objective global approach for evaluating the conservation status of plant and animal species. NT- near threatened.

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