



WIDGEON VALLEY NATIONAL WILDLIFE AREA

MANAGEMENT PLAN
[PROPOSED] 2019



Environment and
Climate Change Canada

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Canada 

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About Environment and Climate Change Canada's Protected Areas and Management Plans

What are Environment and Climate Change Canada protected areas?

Environment and Climate Change Canada establishes marine and terrestrial National Wildlife Areas for the purposes of conservation, research and interpretation. National Wildlife Areas are established to protect migratory birds, species at risk, and other wildlife and their habitats. National Wildlife Areas are established under the authority of the *Canada Wildlife Act* and are, first and foremost, places for wildlife. Migratory Bird Sanctuaries are established under the authority of the *Migratory Birds Convention Act, 1994* and provide a refuge for migratory birds in the marine and terrestrial environment.

How has the federal government's investment from Budget 2018 helped manage and expand Environment and Climate Change Canada's National Wildlife Areas and Migratory Bird Sanctuaries?

The Nature Legacy represents a historic investment over five years of \$1.3B and will help Environment and Climate Change Canada expand its national wildlife areas and migratory bird sanctuaries to contribute to Canada's biodiversity targets and increase Environment and Climate Change Canada's capacity manage its protected areas.

Environment and Climate Change Canada will be conserving more areas, and have more resources to effectively manage and monitor the habitats and species who reside in its protected areas

What is the size of the Environment and Climate Change Canada Protected Areas Network?

The current Protected Areas Network consists of 55 National Wildlife Areas and 92 Migratory Bird Sanctuaries, comprising more than 14 million hectares across Canada.

What is a management plan?

A management plan provides the framework in which management decisions are made. They are intended to be used by Environment and Climate Change Canada staff to guide

decision making, notably with respect to permitting. Management is undertaken in order to maintain the ecological integrity of the protected area and to maintain the attributes for which the protected area was established. Environment and Climate Change Canada prepares a management plan for each protected area in consultation with First Nations, the public and other stakeholders.

A management plan specifies activities that are allowed and identifies other activities that may be undertaken under the authority of a permit. It may also describe the necessary improvements needed in the habitat, and specify where and when these improvements should be made. A management plan identifies Aboriginal rights and allowable practices specified under land claims agreements. Further, measures carried out for the conservation of wildlife must not be inconsistent with any law respecting wildlife in the province in which the protected area is situated.

What is protected area management?

Management includes monitoring wildlife, maintaining and improving wildlife habitat, periodic inspections of facilities, enforcement of regulations, as well as the maintenance of facilities and infrastructure. Research is also an important activity in protected areas; hence, Environment and Climate Change Canada staff carries out or coordinates research in some sites.

The series

All of the National Wildlife Areas are to have a management plan. All of these management plans will be initially reviewed 5 years after the approval of the first plan, and every 10 years thereafter.

To learn more

To learn more about Environment and Climate Change Canada's protected areas, please visit our website at <https://www.canada.ca/en/environment-climate-change/services/national-wildlife-areas.html> or contact the Canadian Wildlife Service in Ottawa.

Widgeon Valley National Wildlife Area

Widgeon Valley National Wildlife Area (NWA) is set in the largest undiked freshwater marsh in southwestern British Columbia. This protected area is part of a larger wetland complex comprising the diked marshes of the provincial Pitt-Addington Wildlife Management Area, the provincial Pitt Polder Ecological Reserve and Widgeon Marsh Regional Park Reserve. The NWA is close to one of the world's largest reverse deltas at the outlet of Pitt Lake. Pinecone Burke Provincial Park, which protects Widgeon Creek and its headwaters, borders Widgeon Valley NWA to the north and west while Katzie First Nations Pitt Lake Indian Reserve #4 shares the eastern boundary.

In 1973, Environment and Climate Change Canada signed a 99-year lease with The Nature Trust of British Columbia¹ (TNTBC) to establish and operate the Widgeon Valley NWA for conservation purposes. The NWA was established to protect the important wetland complex used by migratory and wintering waterfowl. Considerable numbers of trumpeter swans, non-migratory Canada geese, and several species of dabbling and diving ducks are present from mid fall through early spring. Many other resident (e.g., great blue heron, belted kingfisher) and breeding (e.g., American bittern, rails) wetland bird species are known or expected to use the NWA.

The diverse habitats in this small (125 ha) NWA potentially harbour as many as 54 species of concern, including 21 on Schedule 1 of the federal *Species at Risk Act* (SARA), with the remainder provincially ranked. Habitats include tidal river channels and tributary sloughs with stretches of intertidal freshwater marsh, ponds, herbaceous wetlands, shrub wetlands, deciduous riparian areas on the channel banks and forest edges, lowland old-growth coniferous forest and upland second-growth coniferous, deciduous, and mixed forest.

To date, management of Widgeon Valley NWA has been primarily focused on placing signs along the river channels to inform recreational users that they are in the NWA. The channels are very popular with canoeists and users of other non-motorized vessels on day trips or to access the Widgeon Creek campsite in the Pinecone Burke Provincial Park. The greatest threat is from people stopping to picnic or camp along the channel banks. Authorized activities

¹ The lease was originally with the National Second Century Fund of British Columbia, which later became The Nature Trust of British Columbia.

within the NWA are limited to wildlife viewing and passage by non-motorized boats (e.g. canoes and kayaks) unless otherwise posted or authorized by permit.

For thousands of years the Katzie First Nation occupied and used the area that is now within the NWA for hunting, trapping, fishing and gathering, as well as for social and ceremonial purposes. The surrounding watersheds and riparian areas were used for plant gathering, for species such as cedar bark, berries and particularly Indian potato (or wapato - *Sagittaria latifolia*). The Katzie First Nation also harvested waterfowl, smaller animals and both anadromous and freshwater fish were caught in and adjacent to the NWA.

Oral histories, ethnographies, and results of archaeological studies describe the lower Fraser Valley Coast Salish peoples' use of Pitt Lake, the upper Pitt River, Widgeon Slough and Widgeon Lake. These sources emphasize the economic and cultural importance of this area to the First Nations.

For greater certainty, nothing in this management plan shall be construed so as to abrogate or derogate from the protection provided for existing Aboriginal or treaty rights of the Aboriginal peoples of Canada by the recognition and affirmation of those rights in section 35 of the *Constitution Act, 1982*.

Table of Contents

1	DESCRIPTION OF THE PROTECTED AREA	1
1.1	REGIONAL CONTEXT	4
1.2	HISTORICAL BACKGROUND	4
1.3	LAND OWNERSHIP	6
1.4	FACILITIES AND INFRASTRUCTURE	6
2	ECOLOGICAL RESOURCES	7
2.1	TERRESTRIAL AND AQUATIC HABITATS	7
2.2	WILDLIFE SPECIES	8
2.3	SPECIES AT RISK	9
2.4	INVASIVE SPECIES	11
3	MANAGEMENT CHALLENGES AND THREATS	12
3.1	PUBLIC RECREATIONAL USE	12
3.3	PRESENCE OF INVASIVE SPECIES	13
4	GOALS AND OBJECTIVES	14
4.1	VISION	14
4.2	GOALS AND OBJECTIVES	14
4.3	EVALUATION	14
5	MANAGEMENT APPROACHES	15
5.1	HABITAT MANAGEMENT	17
5.2	WILDLIFE MANAGEMENT	18
5.2.1	<i>Waterfowl and Water Birds</i>	18
5.2.2	<i>Species at Risk</i>	19
5.2.3	<i>Alien Invasive Species</i>	20
5.3	MONITORING	21
5.4	RESEARCH	21
5.5	PUBLIC INFORMATION AND OUTREACH	21
6	AUTHORISATIONS AND PROHIBITIONS	23
6.1	PROHIBITION OF ENTRY	23
6.2	AUTHORIZED ACTIVITIES	23
6.3	AUTHORIZATIONS	24
6.4	EXCEPTIONS	24
6.5	OTHER FEDERAL AND PROVINCIAL AUTHORISATIONS	25
7	HEALTH AND SAFETY	26
8	ENFORCEMENT	27
9	PLAN IMPLEMENTATION	28
9.1	MANAGEMENT PLAN REVIEW	28
	MANAGEMENT AUTHORITIES & MANDATES	28
10	COLLABORATORS	29
11	LITERATURE CITED	30
	APPENDIX I: ASSESSMENT OF THE OCCURRENCE OF SPECIES LISTED ON SCHEDULES 1 OR 3 OF THE SPECIES AT RISK ACT THAT IS CONFIRMED OR LIKELY TO OCCUR IN WIDGEON VALLEY NWA	32

1 DESCRIPTION OF THE PROTECTED AREA

Table 1: Widgeon Valley National Wildlife Area Summary Information

Protected Area Designation	National Wildlife Area
Province or Territory	British Columbia
Latitude and Longitude	Latitude: 49° 22' 8.26" Longitude: 122° 38' 0.34"
Size	125.1 ha
Protected Area Designation Criteria (Protected Areas Manual)	<p>The site meets at least one aspect of all three criteria (Environment Canada 2015):</p> <p>1. Migratory birds <i>The area supports a population of a species or subspecies or a group of species which is concentrated, for any portion of the year. Wintering and migrating concentrations of waterfowl are both a historical and current criteria for establishing this NWA.</i></p> <p>2. Wild flora and fauna <i>The area supports an appreciable fauna assemblage of rare, vulnerable, threatened or endangered species or subspecies of plants or animals, or an appreciable number of individuals of any one or more of these species or subspecies. The presence or likely presence at this time of 21 species listed on Schedule 1 of SARA, and a total of 54 species assessed federally (COSEWIC) or provincially (CDC Red or Blue list, BC Wildlife Act) are current criteria for maintaining the NWA.</i></p> <p>3. Unique wildlife habitats <i>The area is a rare or unusual wildlife habitat, of a specific type in a biogeographic region. The NWA protects part of the extensive freshwater tidal wetland associated with the world's second largest freshwater tidal lake (Pitt Lake), as well as remnant areas of mature or old growth forest. This is both a historical and current criteria for establishing the NWA.</i></p>
Protected Area Classification System	Category A: Provides Species or Critical Habitat Conservation and has controlled public access (Environment Canada 2005)
International Union for Conservation of Nature (IUCN) Classification	Ia - Strict nature reserve
Order-in-Council Number	1977-2958; amending OIC 1978-1439
Directory of Federal Real Property (DFRP) number	Reference: Property 07771
Gazetted	1978
Additional designations	The Nature Trust of British Columbia conservation property
Faunistic and Floristic Importance	Part of the largest freshwater tidal marsh in the Fraser River lowlands (Ward et al.1992), comprising 22% of the Fraser Lowland marshes (Ward 1992), which together with the nearby (diked) provincial Pitt-Addington Wildlife Management Area and Pitt Polder Ecological Reserve forms an important habitat complex, particularly for wintering waterfowl.

Invasive Species	Invasive plant species recorded in adjacent freshwater tidal marsh include purple loosestrife (<i>Lythrum salicaria</i>) and reed canarygrass (<i>Phalaris arundinacea</i>) (Ducks Unlimited Canada 2012; Blackwell 2006; Gogel and Jedrzejczyk 1995b). Invasive animal species include green frog (<i>Lithobates clamitans</i>) and American bullfrog (<i>Lithobates catesbeianus</i>).
Species at Risk	No inventory has been conducted in the NWA, but currently 21 species listed on Schedule 1 and 1 species listed on Schedule 3 of SARA potentially occur.
Management Agency	Canadian Wildlife Service, Environment and Climate Change Canada, Pacific Region (99 year lease from The Nature Trust of BC beginning 1973).
Public Access and Use	No public use facilities are provided and public access is discouraged outside the tidal river channels passing through the NWA. The tidal river channels are Provincial Crown jurisdiction. Canoe and kayak access to a provincial campsite in the contiguous Pinecone Burke Provincial Park is along a channel passing through the NWA. There is also foot access through the Metro Vancouver Widgeon Marsh Regional Park Reserve along Quarry Road, which passes through the northwest corner of the NWA en route to the provincial camp site.

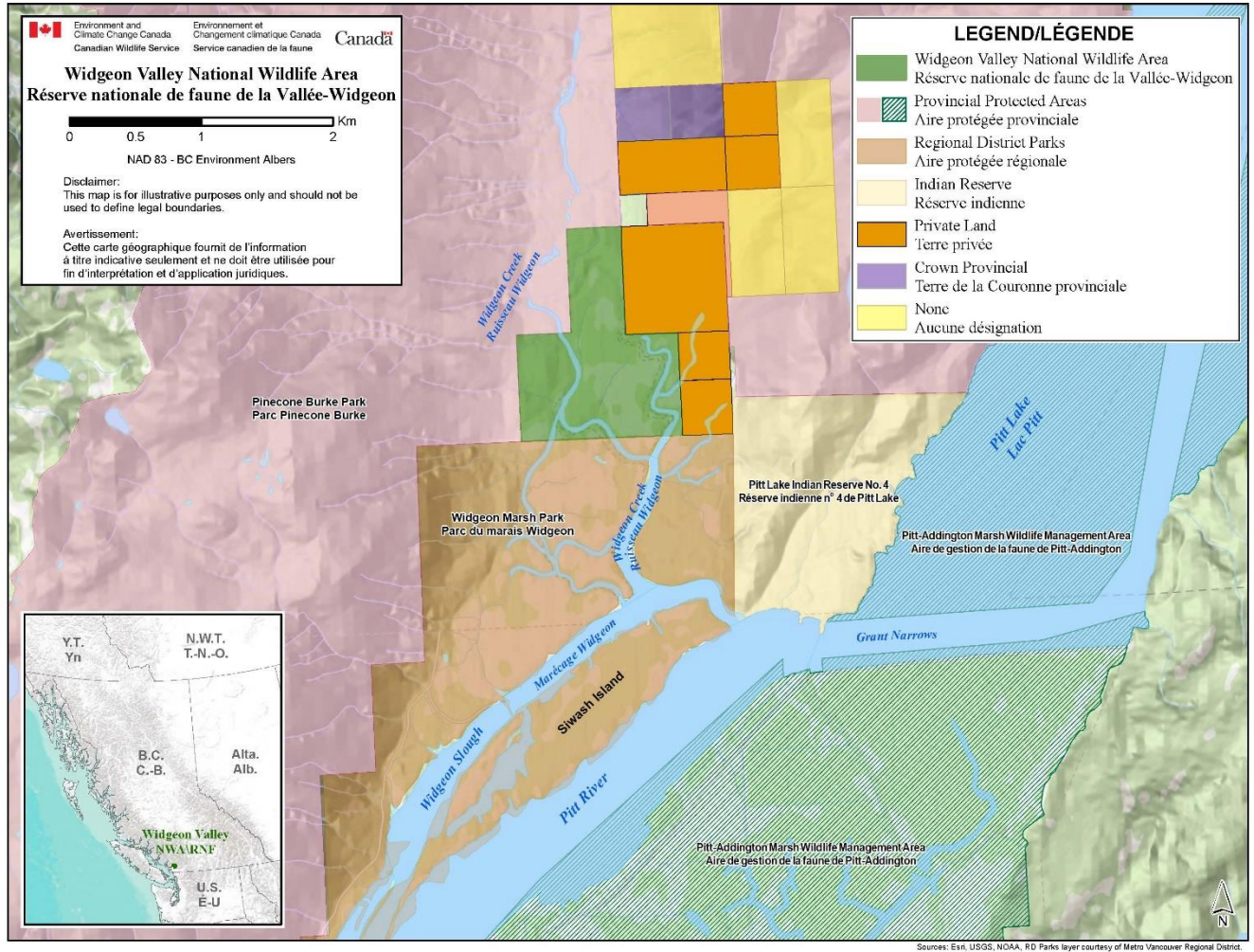


Figure 1: Widgeon Valley National Wildlife Area

1.1 REGIONAL CONTEXT

Located in Metro Vancouver Electoral Area A, Widgeon Valley NWA is set in the largest un-diked freshwater tidal marsh in the Fraser Lowlands. Most of the remaining intertidal marsh is protected by Metro Vancouver Parks' Widgeon Marsh Regional Park Reserve, which also includes lands owned by The Nature Trust of British Columbia (TNTBC) (Figure 1). These two protected areas are part of a larger wetland complex which also comprises the diked marshes of the provincial Pitt-Addington Wildlife Management Area (PAWMA) and the Pitt Polder Ecological Reserve, adjacent farmland, and one of the world's largest reverse deltas at the outlet of Pitt Lake, a very rare fresh water tidal lake, which is the largest in North America (and possibly the second largest in the world).

The Widgeon Valley National Wildlife Area is made up of open water, herbaceous and shrub-dominated wetlands, and deciduous and coniferous riparian habitats where Widgeon Creek flows from the coastal mountains west of Pitt Lake into the freshwater intertidal marshes of Pitt River. The watershed to the north and west of the NWA is protected by the Pinecone Burke Provincial Park, while most of the remaining intertidal marsh to the south is protected by Metro Vancouver's Widgeon Marsh Regional Park Reserve.

From mid-fall through early spring, migrating and wintering waterfowl make extensive use of the Widgeon Creek channels and adjoining sloughs and, probably, the open ponds and flooded herbaceous wetlands. While the area is rural, it is within the Metro Vancouver regional district with a population of approximately 2.5 million people. Although disturbance of migratory birds by recreational users is at its lightest during the migration and over-wintering period, it may still be of concern, particularly on weekends when the weather is good.

The lower reaches of Widgeon Creek flowing through the Regional Park Reserve and NWA are tidal provincial Crown land and are used by recreational canoeists and kayakers to access the Widgeon Campsite in the Pinecone Burke Provincial Park. All wetland and upland portions of both the NWA and Regional Park Reserve are currently closed to the public.

1.2 HISTORICAL BACKGROUND

The lands occupied by Widgeon Valley NWA were owned by two logging companies before the Burnett family purchased them in the 1940s and later sold them to TNTBC in 1973. The NWA was established in the same year, when TNTBC leased the land to Environment Canada to "be preserved and/or developed by the Lessee as a site of ecological interest for the

use, enjoyment and benefit of the people of British Columbia”. At the time, the value of the land was recognized to be principally for wintering and migrating waterfowl.

The *Canada Wildlife Act* was also passed in 1973 to provide a legislative mandate for the Canadian Wildlife Service (CWS) to expand its habitat program across Canada. The first Widgeon Valley NWA management plan was produced by the CWS in 1986 and is updated by this current plan.

Prior to the first European settlement in the region in the late 1800s, the Widgeon Slough area was traditionally used by the Katzie First Nation, a subgroup of the Coast Salish people (Katzie First Nation Website). The traditional territory asserted by q’e’yc’ey, or Katzie, includes the whole of the Pitt River watershed including sq’nesa?l xa’ce (“Lake of the Katzie” also known as Pitt Lake), and the upper and lower reaches of the sq’eyc’eya?l sta’?lew (“River of the Katzie” or Pitt River), including the Pitt Polder.

Ethnographers have recorded at least ten ancient villages within Katzie territory. These include XelXelse’le on the southwest shore of Pitt Lake near the mouth of Widgeon Slough (Indian Reserve #4), which was once a Katzie winter village.

Katzie practiced a form of agriculture within their territory, including along Widgeon Creek, cultivating cranberries and a potato-like tuber known as wapato (*Sagittaria latifolia*) (Donald Luxton & Associates 1998; Spurgeon 1999). Katzie First Nation also harvested cedar bark, berries, waterfowl, smaller animals and both anadromous and freshwater fish in and adjacent to the NWA.

Katzie were renowned among their Halkomelem-speaking kin and Coast Salish neighbours as the purveyors of a number of valuable wetland plant resources, namely the wapato and wild cranberry. The bark and roots of red cedar and branches of hemlock were regularly harvested for use in the manufacture of a wide variety of hunting, fishing, and gathering implements, and for making goods for trade. All of these resources could be accessed within one or two day’s travel from any of the main Katzie villages. Visitors to Katzie territory were able to access Katzie village and resource sites, including wapato patches managed by Katzie, for trade via the sloughs of the Polder or by paddling on Pitt Lake.

Although shellfish have not been identified as an important resource used by the Katzie, shell middens are found in the Pitt Lake area. At one time the active Fraser River delta

extended to the Pitt River. Predecessors of the Katzie would thus have had access to foods available in marine and estuarine intertidal areas. The Widgeon Marsh Regional Park Reserve south of the NWA protects 1 identified archaeological site associated with the Katzie (Cameron *et al.* 1999). The Katzie Indian Reserve (Pitt Lake, Indian Reserve 4) is located north of Grant Narrows between Pitt Lake and the tidal marshes of Widgeon Creek (Figure 1).

1.3 LAND OWNERSHIP

Since October 1st, 1973, the land has been managed as a NWA under a 99-year lease from TNTBC. Although the CWS is under no legal obligation to co-manage the NWA with TNTBC or any other party, other than adhering to the intent and restrictions of the lease with TNTBC, maintaining and building the partnerships with TNTBC and nearby land owners and managers is beneficial to conservation of this important wetland complex.

The land is within the traditional territory asserted by q'e'yc'ey, or Katzie First Nation. The NWA designation extends only to surface rights. Subsurface rights have not been registered for the NWA and remain in Provincial Crown ownership. The tidal river channels are Provincial Crown land up to the low water mark. The NWA lies outside of the area governed by Port Metro Vancouver, whose jurisdiction ends on the north shore of the Pitt River and does not extend up the Widgeon slough and creek channels.

1.4 FACILITIES AND INFRASTRUCTURE

No facilities or trails exist in Widgeon Valley NWA. Signs are posted periodically at intervals along the channel banks notifying paddlers of the existence and boundaries of the NWA.

2 ECOLOGICAL RESOURCES

The tidal marsh and riparian vegetation in the NWA are part of the largest tidal freshwater marsh in the Fraser River lowlands, and support a variety of wildlife species and habitats.

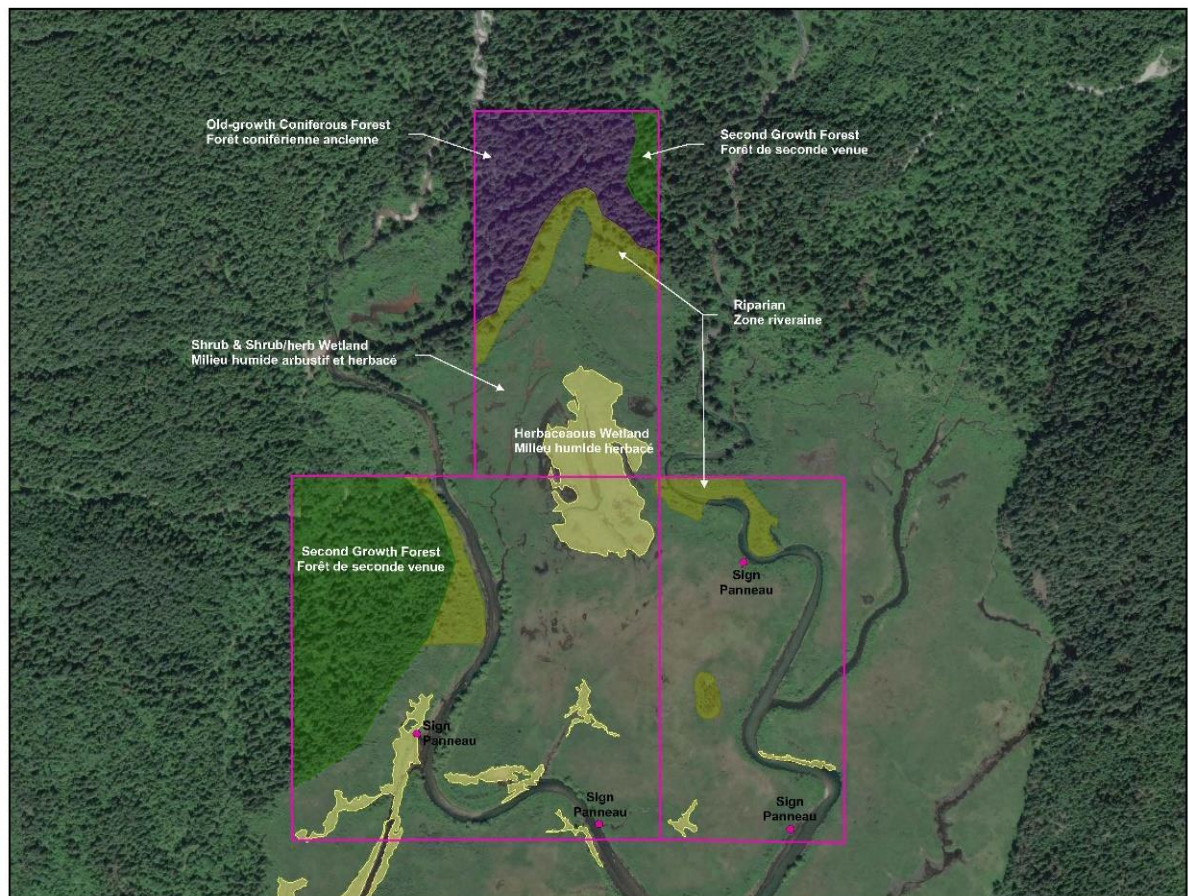


Figure 2: Wetland and Terrestrial Habitats of the NWA

2.1 TERRESTRIAL AND AQUATIC HABITATS

Five wetland habitats and two terrestrial habitats occur in the NWA (Figure 2). The wetland habitats are:

- 1) Riverine marsh occurring in the main Widgeon Creek channels and in tidal sloughs;
- 2) Banks of riverine and tidal sloughs (the highest-elevation wetland type) supporting riparian shrubs and, in some places, trees;

- 3) Open ponds scattered throughout the interior, which are often connected to the river by tidal sloughs;
- 4) Permanently or seasonally flooded herbaceous wetlands surrounding the ponds or sloughs; and
- 5) Extensive shrub regions (the largest habitat type) of primarily hardhack (*Spiraea douglasii*) that grades from the riparian stream and slough banks down to the herbaceous wetlands. This habitat type also includes large areas with mixed communities of herbaceous plants and encroaching shrubs.

Similar wetland types occur in Widgeon Marsh Regional Park Reserve lying between the NWA and the Pitt River (Blackwell 2006; Ducks Unlimited Canada 2012).

The two terrestrial habitats consist of:

- 1) Old-growth (>250 years old) Douglas-fir and western hemlock lowland coniferous forest to the north; and
- 2) Second-growth upland forests of alder, or Douglas-fir and western hemlock, or mixed deciduous-coniferous to the west (Forest Analysis and Inventory Branch 2013).

These forests are contiguous with the upland forests of the Pinecone Burke Provincial Park and with unprotected land to the east and northeast.

2.2 WILDLIFE SPECIES

No systematic documentation exists for the presence of any species in the NWA, although some reported locations are mapped for some species at risk on the B.C. Conservation Data Centre and E-flora and E-fauna websites. Six species of salmonids occur in Widgeon Creek, including chum, coho, and sockeye salmon; and cutthroat, rainbow, and steelhead trout (B.C. Ministry of Environment 2013; Gogel and Jedrzejczak 1995a). None of these are at risk. There is some potential for juvenile white sturgeon (SARA Schedule 1 Endangered species) to occur seasonally in the lower reaches of the tidal slough/river in the NWA. The best-known wildlife use of the channels and sloughs of the region is by migrating and wintering waterfowl, including Trumpeter Swans.²

² While the names of some waterfowl and other wildlife species using the area are repeated in various sources, there is a lack of available survey data.

2.3 SPECIES AT RISK

As of 2018, twenty-one species listed under the *Species at Risk Act* (SARA) are known to, or have the potential to, occur on the NWA (Table 2). Twenty-three COSEWIC assessed species are known to, or have the potential to, occur on the NWA. Some of the species listed would be rare transients if they occurred (e.g., grizzly bear, wolverine), or periodic foragers (e.g., northern goshawk). Other species are potential, but are unlikely to occur (e.g., Oregon spotted frog, nesting marbled murrelet). Most of the species listed in Table 2, however, have the potential to occur regularly or permanently. The CWS has identified the need for updated inventories and mapping of species at risk as a high priority for this NWA. As of 2016, critical habitat, as defined by the *Species at Risk Act*, has been identified for marbled murrelet and pacific water shrew in the NWA.

Table 2: Species at Risk in the Widgeon Creek National Wildlife Area and Crown channels

Common and Scientific Names of Species	Status			Presence or Potential of Presence ⁴
	Canada		British Columbia	
	SARA ¹	COSEWIC ²	Provincial Status ³	
Vascular plants				
Vancouver island beggarticks <i>Bidens amplissima</i>	Special concern	Special concern	Blue	Probable
Fishes				
White Sturgeon, Lower Fraser River pop. <i>Acipenser transmontanus</i>	Endangered	Threatened	Red	Probable
Amphibians				
Western toad <i>Anaxyrus (Bufo) boreas</i> Non-calling population	Special concern	Special concern	Yellow	Probable
Northern red-legged frog <i>Rana aurora</i>	Special concern	Special concern	Blue	Probable
Oregon spotted frog <i>Rana pretiosa</i>	Endangered	Endangered	Red	Potential
Reptiles				
Painted turtle Pacific coast pop. <i>Chrysemys picta bellii</i>	Endangered	Threatened	Red	Potential

Common and Scientific Names of Species	Status			Presence or Potential of Presence ⁴
	Canada		British Columbia	
	SARA ¹	COSEWIC ²	Provincial Status ³	
Painted turtle intermountain – Rocky Mountain pop. <i>Chrysemys picta bellii</i>	Special concern	Special concern	Blue	Potential introductions
Northern rubber boa <i>Charina bottae</i>	Special concern	Special concern	Yellow	Potential
Birds				
Great blue heron, fannini subspecies <i>Ardea herodias fannini</i>	Special concern	Special concern	Blue <i>BC Wildlife Act</i> (nests)	Confirmed (foraging) Potential (nesting)
Northern goshawk, laingi subspecies <i>Accipiter gentilis laingi</i>	Threatened	Threatened	Red	Potential
Marbled murrelet <i>Brachyramphus marmoratus</i>	Threatened	Threatened	Blue	Potential
Band-tailed pigeon <i>Patagioenas fasciata</i>	Special concern	Special concern	Blue	Probable
Barn owl <i>Tyto alba</i>	Threatened	Threatened	Red	Potential
Short-eared owl <i>Asio flammeus</i>	Special concern	Special concern	Blue	Potential
Western screech-owl, kennicottii subspecies <i>Megascops kennicottii kennicottii</i>	Threatened	Threatened	Blue	Potential
Common nighthawk <i>Chordeiles minor</i>	Threatened	Special concern	Yellow	Potential (foraging)
Black swift <i>Cypseloides niger</i>	No status	Endangered	Blue	Potential (nesting) Probable (foraging)

Common and Scientific Names of Species	Status			Presence or Potential of Presence ⁴
	Canada		British Columbia	
	SARA ¹	COSEWIC ²	Provincial Status ³	
Peregrine falcon, anatum subspecies <i>Falco peregrinus anatum/tundrius</i>	Special concern	Not at Risk	Red	Probable (foraging)
Olive-sided flycatcher <i>Contopus cooperi</i>	Threatened	Special concern	Blue	Probable
Barn swallow <i>Hirundo rustica</i>	Threatened	Threatened	Blue	Probable (foraging)
Mammals				
Pacific water shrew <i>Sorex bendirii</i>	Endangered	Endangered	Red	Probable
Little brown myotis <i>Myotis lucifugus</i>	Endangered	Endangered	Yellow	Confirmed
Grizzly bear <i>Ursus arctos</i> Western Population	Special concern	Special concern	Blue (Mapped as extirpated at NWA)	Potential (as rare transient)

1. *Species at Risk Act* (SARA): Extinct, extirpated, endangered, threatened, special concern, not at risk (assessed and deemed not at risk of extinction) or no status (not rated) (Environment and Climate Change Canada Species at Risk Website, 2013)
2. Committee on the Status of Endangered Wildlife in Canada: the same definitions as the SARA status (COSEWIC, 2015)
3. Provincial Ranking using provincial codes, if applicable: Red-listed (endangered or threatened), Blue-listed (special concern) (B.C. Conservation Data Centre 2013)
4. Evaluated as 'confirmed', 'probable', or 'potential' based on British Columbia Conservation Data Centre information, published COSEWIC info and subjective evaluation of habitat suitability as it relates to the current understanding of the habitats within the NWA.

2.4 INVASIVE SPECIES

Documented invasive species in Widgeon Valley NWA or adjacent areas include green frog and American bullfrog, and reed canary grass and purple loosestrife (Ducks Unlimited Canada 2012; Blackwell 2006; Gogel and Jedrzejczyk 1995b). Much of the herbaceous wetland appears to be occupied by reed canary grass, based on site visits by CWS staff (May 2018) and satellite images (Google Earth October 2013). Any invasive species that disrupt the natural ecology or diminish the value of the site for species at risk should be controlled where feasible.

3 MANAGEMENT CHALLENGES AND THREATS

The management challenges and threats to Widgeon Valley NWA have diminished since the first management plan was written in 1986 (Environment Canada 1986) due to the establishment and growth of Metro Vancouver's adjacent Widgeon Marsh Regional Park Reserve. Currently, the main threats to the NWA are recreational use, invasive plant and animal species, and succession from wetland habitats to shrubland. The existing management challenge related to lack of precise information on wildlife use of habitats within the NWA makes detailed management planning difficult.

3.1 PUBLIC RECREATIONAL USE

Public recreational use of the region has increased. A canoe rental operation rents canoes to recreationists who primarily head to the Widgeon Creek channels, often passing through the NWA to reach the provincial park. The rental operation has approximately 60 canoes, which are typically fully rented out all day, each day, on long weekends. Throughout the year they regularly rent six to eight canoes daily. Many additional users bring their own boats. The lightest level of recreational canoeing tends to occur during the mid-fall through early spring when waterfowl use of the Widgeon Creek channels tends to be at its highest.

Some visitors may camp and/or use campfires in the NWA, which is outside of the provincial park campsite boundary, when the provincial park campsite is full. This overflow camping is not generally a concern given its infrequency and limited potential impact. Visits by CWS staff in August 2007, September 2013, July 2016, and May 2018 discovered little evidence of illegal camping and habitat damage was minor. There is currently no public road access to, or on, the NWA, minimizing wildlife and habitat disturbance.

In response to regional population growth and an anticipated increase in public use of the adjacent Widgeon Marsh Regional Park Reserve ECCC will collaborate with Katzie First Nation, Metro Vancouver and BC Parks as adjacent land managers to increase coordination around the planning and management of activities that will increase public access.

3.2 LACK OF INFORMATION

The scarcity of information available on species' presence and wildlife use of habitats within the NWA presents a management challenge. Climate change is an additional variable that may have effects on the wildlife and habitat within the NWA, though the extent of this is

unknown. This lack of information is primarily due to the logistical challenges of reaching and accessing the NWA to conduct inventory, monitoring, and research projects. Sites in the NWA can only be reached by canoe, and access to those sites is further hampered by a thick barrier of riparian shrubs. Well-planned and cost-effective research and monitoring programs will be required to address this management challenge.

3.3 PRESENCE OF INVASIVE SPECIES

Invasive plants (reed canary grass and purple loosestrife) and animal species (green frog and American bullfrog) are common in the surrounding landscape. The presence of invasive species may compete with, or degrade habitat for, native species. Control or eradication of these species will require a coordinated approach with neighbouring agencies and landowners.

3.4 SUCCESSION FROM WETLAND VEGETATION TO SHRUBS DECREASES WETLAND HABITATS FOR WATERFOWL AND SOME SPECIES AT RISK

Widgeon Valley NWA is small and its value to waterfowl and some species at risk depends on the availability of wetland habitat. Succession of wetland habitat to shrubland is occurring within the NWA, limiting habitat availability for these species. It is unknown how quickly this succession is occurring.

4 GOALS AND OBJECTIVES

4.1 VISION

The long-term vision for Widgeon Valley NWA is to conserve its wildlife and habitat resources, focusing on habitat for waterfowl and species at risk.

4.2 GOALS AND OBJECTIVES

To achieve the overall conservation vision, the ecological goals and objectives for Widgeon Valley NWA are as follows:

Goal 1: Conserve or enhance a high quality habitat complex for waterfowl and other marsh-dependent wildlife species, with emphasis on the provision of staging and wintering habitat.

Objective 1.1: Conduct an inventory assessment, set up a monitoring program, and develop habitat mapping to determine and identify waterfowl use and extent of invasive species to inform management objectives.

Goal 2: Conserve or enhance identified habitats suitable for species at risk (SARA Schedule 1 species) in the area.

Objective 2.1: Manage herbaceous wetlands, open water and adjacent riparian areas to benefit species at risk, with special emphasis on those species with existing recovery strategies, action plans and management plans.

Objective 2.2: Manage shrub wetlands to set back encroachment of forest and invasive species and to expand the area of herbaceous wetlands used by species at risk and waterfowl, where appropriate and practicable.

Objective 2.3. Maintain and increase existing extent of old growth forest for marbled murrelet, western screech-owl *kennicottii* subspecies

4.3 EVALUATION

Evaluation will take the form of an annual review of data obtained from the monitoring and research projects outlined below. This will be used to establish priorities for action and to allocate resources. The management plan will be reviewed five years after its initial approval and reviewed and updated every ten years thereafter.

5 MANAGEMENT APPROACHES

This section and the following table contain a description of approaches to the management of the Widgeon Valley National Wildlife Area. Management actions will be determined during the annual work planning process and will be implemented in accordance with available resources.

Table 3: Management Approaches for Widgeon Valley NWA

Management Challenge or Threat	Goal and Objective(s)	Management Approaches (actions, including level of priority)¹
Public recreation by canoe/kayak users	<p>Goal 2: Conserve or enhance identified habitats suitable for species at risk (SARA Schedule 1 species) in the area.</p> <p>Objective 2.1: Manage herbaceous wetlands, open water and adjacent riparian areas to benefit species at risk, with special emphasis on those species with existing recovery strategies, action plans and management plans.</p>	<ul style="list-style-type: none"> • Evaluate the public use policy for the tidal/river channels passing through the NWA in conjunction with Metro Vancouver Parks, Parks and Protected Areas Division of the BC Ministry of Environment, and Fisheries and Oceans Canada, particularly with regard to boat access, vessel restrictions, discharge of firearms, hunting, and fishing to ensure a clear, consistent and workable set of regulations that meet the overall conservation and recreation goals for the Widgeon Slough/Creek area. (Priority 1) • Ensure signage identifying the NWA is up to date and in good repair. Provide additional signage in appropriate locations. (Priority 1) • Provide signage in conjunction with other agencies at public access sites (e.g., Grant Narrows) to inform the public about permitted and non-permitted uses. (Priority 2)
Lack of information	<p>Goal 1: Conserve or enhance a high quality habitat complex for waterfowl and other marsh-dependent wildlife species with emphasis on the provision of staging and wintering habitat.</p> <p>Objective 1.1: Conduct an inventory assessment, set up a monitoring program, and develop habitat mapping to determine and identify waterfowl use and extent of invasive species to inform management objectives.</p>	<ul style="list-style-type: none"> • Conduct species inventories, habitat mapping, and encourage post-secondary students to study habitat and species ecology. (Priorities 1 and 2) • Prepare species management objectives for SARA Schedule 1 species documented as residing in the NWA during a portion of their life cycle. (Priority 2) • Engage in discussions with adjacent landowners and key stakeholders around climate change and its effects on the Widgeon marsh as a whole. (Priority 2)

Management Challenge or Threat	Goal and Objective(s)	Management Approaches (actions, including level of priority) ¹
	<p>Goal 2: Conserve or enhance habitats for species at risk (SARA Schedule 1 species) for which the area is identified as having suitable habitat.</p> <p>Objective 2.1. Manage herbaceous wetlands, open water and adjacent riparian areas to benefit species at risk, with special emphasis on those species with existing recovery strategies, action plans and management plans.</p>	<ul style="list-style-type: none"> • Conduct species inventories and habitat mapping, and encourage post-secondary students to study habitat and species ecology. (Priorities 1 and 2) • Prepare species management objectives for SARA Schedule 1 species documented as residing in the NWA during a portion of their life cycle. (Priority 2)
Presence of invasive species may compete with native species or degrade habitat.	<p>Goal 1: Conserve or enhance a high quality habitat complex for waterfowl and other marsh-dependent wildlife species with emphasis on the provision of staging and wintering habitat.</p> <p>Objective 1.1: Conduct an inventory assessment, set up a monitoring program, and develop habitat mapping to determine and identify waterfowl use and extent of invasive species to inform management objectives.</p>	<ul style="list-style-type: none"> • Conduct inventories and mapping of plant and animal invasive species and prescribe management actions as required. (Priorities 1 and 2)
	<p>Goal 2: Conserve or enhance habitats for species at risk (SARA Schedule 1 species) for which the area is identified as having suitable habitat.</p> <p>Objective 2.2. Manage shrub wetlands to set back encroachment of forest and invasive species and to expand the area of herbaceous wetlands used by species at risk and waterfowl, where appropriate and practicable.</p>	<ul style="list-style-type: none"> • Conduct inventories and mapping of plant and animal invasive species and prescribe management actions as required. (Priorities 1 and 2)

Management Challenge or Threat	Goal and Objective(s)	Management Approaches (actions, including level of priority) ¹
Succession from wetland vegetation to shrubs may devalue wetland habitats for waterfowl or some species at risk.	<p>Goal 2: Conserve or enhance habitats for species at risk (SARA Schedule 1 species) for which the area is identified as having suitable habitat.</p> <p>Objective 2.2: Manage shrub wetlands to set back encroachment of forest and invasive species and to expand the area of herbaceous wetlands used by species at risk and waterfowl, where appropriate and practicable.</p>	<ul style="list-style-type: none"> Following habitat mapping and assessment, prescribe management actions where appropriate to enhance desired wetland habitats for species at risk and waterfowl. (Priority 3)

¹ Level of Priority: 1 (from 0 to 3 years); 2 (from 4 to 6 years); 3 (from 7 to 10 years)

5.1 HABITAT MANAGEMENT

5.1.1. Forest

Old-growth Douglas fir and western hemlock, and second-growth upland forests of alder, Douglas fir and western hemlock will remain intact. Communication with neighboring landowners, specifically BC Parks and Metro Vancouver, with similar unprotected forest will continue.

5.1.2. Wetlands

Monitoring and habitat mapping is essential in gaining an understanding of the extent and characteristics of the wetland habitats within the NWA and their change over time, both naturally and as a possible result of a changing climate. Habitat mapping has been completed by Metro Vancouver in and around the Regional Park Reserve, and has begun to occur on the NWA using UAV technology as of the winter of 2017-2018. Management of wetlands and meadows will be directed towards (a) maintaining the existing diverse wetland habitats (b) restoring the historic hydrological regime of herbaceous wetlands, to the extent practical, from potential detriment caused by succession and shrub encroachment and (c) reducing or eliminating alien invasive species.

Habitat management to support species at risk recovery will be coordinated with activities on nearby lands and based on recommendations in applicable SARA recovery strategies, action plans and management plans. Impacts to habitat from human disturbance will

be monitored and minimized through signage, education, other compliance promotion efforts, and enforcement of prohibitions.

If ongoing inventory and monitoring identify a need for increasing available habitat, particularly for management of waterfowl or other wetland species, management action will be taken as appropriate.

5.2 WILDLIFE MANAGEMENT

Management to recover species at risk will be coordinated with activities on nearby lands and described in applicable SARA action plans.

Hunting is not permitted in the NWA and Regional Park Reserve, but is permitted in the provincial park.

Indigenous rights give Indigenous people (status and non-status Indians, First Nations, Inuit, and Métis) the right to participate in their traditional activities on their ancestral lands, including their traditional harvesting activities. These activities include traditional harvesting activities, such as fishing, hunting, or gathering. In Canada, Indigenous rights are protected under the Constitution Act.

Katzie continue to participate in their traditional activities in and around the National Wildlife Area and the Pitt-Addington Wildlife Management Area. The Katzie community voluntarily choose not to harvest species at risk or of concern in the protected areas.

The following general guidelines are identified for waterfowl and water birds, species at risk and alien invasive species.

5.2.1 *Waterfowl and Water Birds*

Waterfowl and water birds management objectives will be achieved through access restrictions and controls over activity timing and type. Specifically, to avoid disturbance to waterfowl and water birds, public access is restricted and permitted activities for management and research on the NWA will also be restricted to outside peak waterfowl migration periods. Should further critical habitat for species at risk be identified on the NWA, these objectives may need to be modified to accommodate legal habitat protection requirements.

5.2.2 Species at Risk

Twenty-one species currently on Schedule 1 of the *Species at Risk Act* occur or potentially occur in the NWA (Appendix A). Species at risk will be managed in an integrated fashion and in accordance with recovery strategies, action plans, and management plans. Habitat management will be ecosystem-based to provide the greatest benefit to the greatest number of species at risk, with specific consideration for high-priority species.

Four of the twenty-one species potentially occurring in the NWA, white sturgeon, Oregon spotted frog, painted turtle (Pacific coast population) and Pacific water shrew, are listed as Endangered. A recovery strategy for the white Sturgeon has been developed by the Department of Fisheries and Oceans (DFO) and the Province of British Columbia. Although the Lower Fraser River population, which may occur in the NWA, is not currently listed under SARA, the DFO Recovery Strategy includes an appendix which outlines recovery objectives for that population.

Due to the rarity of protected wetland habitats for Oregon spotted frog and Pacific water shrew in the Fraser Lowlands, the potential for this NWA to support the recovery of these species will specifically be assessed. Widgeon Valley NWA overlaps Pacific water shrew critical habitat, and, while no occurrences of the Oregon spotted frog have been documented in the vicinity of the NWA, suitable habitat for this species may be present. The Recovery strategies developed by ECCC and the province of BC for the Oregon spotted frog and Pacific water shrew have objectives to (1) maintain and, where feasible, expand extant Oregon spotted frog populations; (2) ensure that the current B.C. population of Pacific water shrew is maintained with no further loss of local populations; and (3) restore the species back to their historical range in Canada, where suitable and/or connecting habitat still exists, or can be rehabilitated. Should the NWA have good potential to support recovery of either of these two species, a separate work plan will be developed and priority actions will be implemented.

The western painted turtle, pacific coast population, is listed as endangered due to significant wetland habitat loss near large urban centres, such as the Metro Vancouver region. The presence of this species is documented in the region and a SARA recovery strategy has been developed. Surveys will be conducted at wetlands in the Widgeon Valley to confirm its presence in the NWA and, if confirmed, management activities will be developed in accordance with the recovery strategies and action and management plans.

Another seven of the potentially occurring species (northern goshawk, marbled murrelet, common nighthawk, olive-sided flycatcher, barn owl, barn swallow, and western screech-owl) are listed on Schedule 1 as Threatened. Recovery strategies are in place for the marbled murrelet, common nighthawk and olive-sided flycatcher. The NWA has potential habitat for nesting sites and foraging for these species. While recent nesting activity by the marbled murrelet has not been observed, the old-growth and mature forests in the NWA are suitable nesting habitat. The current extent of the old growth forest in the NWA will be maintained for the benefit of this and other species. A recovery strategy for the northern goshawk has been prepared and is currently under peer review. The NWA offers possible foraging and nesting habitats for this species. The recovery strategies for the western screech-owl *kennicottii* subspecies, barn swallow, and the barn owl are being planned.

The remaining eleven species (Vancouver island beggarticks, western toad, painted turtle (Rocky Mountain population), northern red-legged frog, northern rubber boa, great blue heron, band-tailed pigeon, short-eared owl, black swift, grizzly bear, and peregrine falcon) are listed as special concern. All have management plans in place. The management goals for each of these species include the protection and/or restoration of habitat, to stabilize and maintain populations and to mitigate threats posed by predators or the use of pesticides.

5.2.3 Alien Invasive Species

Alien invasive species have been identified in the downstream Widgeon Slough area and in the NWA. Management actions for invasive plants or animals will be identified once species have been identified and the significance of occurrences determined. Known or potential species include purple loosestrife, reed canary grass, green frog and American bullfrog. Purple loosestrife can be managed to some extent by manual cutting, in addition to biological controls that have been shown to be effective (Hovick and Carson 2015) and should be considered. Various methods have been used to control reed canary grass, including burning, mechanical and chemical control (Paveglio and Kilbride 2000, Adams and Galatowitsch 2006). The relative feasibility and effectiveness of these control methods will be investigated. The control of green frog and bullfrog at Widgeon Valley NWA will be challenging, as the NWA is surrounded by fresh water with connectivity to various drainage systems. Controlling or eradicating these species will require continued monitoring to prevent repopulation from the surrounding area. Control methods will be developed in consultation and cooperation with the provincial and regional governments and First Nations that own or manage the land surrounding the NWA.

5.3 MONITORING

Effective and efficient monitoring requires clear objectives and a planned approach.

Ongoing monitoring is required to support Goals 1 and 2 (Section 4.2) as follows:

1. Map habitat type distribution and successional change over time;
2. Document, by habitat type, the presence/absence and seasonal abundance of species at risk and other wildlife ;
3. Document the abundance and distribution over time of alien invasive plant and amphibian species; and
4. Monitor public access, including the volume and seasonal timing of recreational canoe/kayak use of the channels, and of unauthorized foot access to the NWA.

5.4 RESEARCH

Research activities will be considered for permitting when the research objectives have the potential to contribute to the following:

1. Protecting, maintaining, restoring or enhancing naturally occurring habitats and, in particular, maintaining wetlands in a state most beneficial to wetland-dependent wildlife;
2. Recovering species at risk or conserving migratory birds;
3. Reducing the encroachment of invasive species in the NWA; and
4. Assessing the trends in species populations (especially species at risk) and habitats of concern.

To obtain a permit to conduct research in Widgeon Valley National Wildlife Area and to receive instructions concerning guidelines for a research proposal, please contact:

Environment and Climate Change Canada
Canadian Wildlife Service
Pacific Region
5421 Robertson Rd
Delta, BC, V4K 3N2

5.5 PUBLIC INFORMATION AND OUTREACH

Currently, information about the Widgeon Valley NWA is available on the Environment and Climate Change Canada website <https://www.canada.ca/en/environment-climate-change/services/national-wildlife-areas/locations/widgeon-valley.html>.

The boat launch and parking lot operated by the Katzie Cultural Education Society located at Grant Narrows and the Widgeon Creek campsite in Pinecone Burke Provincial Park offer good locations for providing more public information about the NWA and permitted activities. The CWS will explore opportunities to work jointly with the Katzie Cultural Education Society, Metro Vancouver Parks and BC Parks to develop the potential for public outreach in these areas.

6 AUTHORISATIONS AND PROHIBITIONS

In the interest of wildlife and their environment, human activities are minimized and controlled in NWAs through the implementation of the *Wildlife Area Regulations*. These regulations set out activities that are prohibited (subsection 3(1)) in the wildlife area and provide mechanisms for the Minister of Environment and Climate Change to authorize certain activities to take place in NWAs that are otherwise considered prohibited. The regulations also provide the authority for the Minister to prohibit entry into NWAs.

Particular activities within a NWA are authorized where notices have been posted at the entrance to or along the boundaries of the NWA or when notices have been published in local newspapers. All activities in a NWA are prohibited unless a notice has been posted or published authorizing the particular activity to take place. However, in addition to notices, certain activities may be authorized by obtaining a permit from the Minister of Environment and Climate Change.

6.1 PROHIBITION OF ENTRY

Under the *Wildlife Area Regulations*, the Minister may publish a notice in a local newspaper or post notices at the entrance of any wildlife area or on the boundary of any part thereof prohibiting entry to any wildlife area or part thereof. These notices can be posted when the Minister is of the opinion that entry is a public health and safety concern or when entry may disturb wildlife and their habitat.

For Widgeon Valley NWA, access by non-motorized boats is allowed. Authorized activities and those activities that will be considered for permitting are described below.

6.2 AUTHORIZED ACTIVITIES

Authorized activities **without** special restrictions:

1. Wildlife viewing

Authorized activities **with** special restrictions:

1. Boating: non-motorized boats only (e.g., canoes and kayaks)

Note: If there is a discrepancy between the information presented in this document and a published or posted notice, the notice prevails as it is the legal instrument authorizing the activity.

6.3 AUTHORIZATIONS

Permits and notices authorizing an activity may be issued only if the Minister is of the opinion that the activity is scientific research relating to wildlife or habitat conservation; or the activity benefits wildlife and their habitats or will contribute to wildlife conservation; or the activity is not inconsistent with the purpose for which the NWA was established and is consistent with the most recent management plan.

The Minister may also add terms and conditions to permits in order to minimize the impact of an activity on wildlife and wildlife habitat.

All requests for permits or authorizations must be made (in writing or online) to the following address:

Environment and Climate Change Canada
Canadian Wildlife Service
Pacific Region
5421 Robertson Rd
Delta, BC V4K 3N2

Permit requests should be directed to: ec.scfpacpermitscwspacpermits.ec@canada.ca

For further information, please consult the *Policy when Considering Permitting or Authorizing Prohibited Activities in Protected Areas Designated under the Canada Wildlife Act and Migratory Bird Convention Act, 1994* (December, 2011). This Environment and Climate Change Canada policy document is available on the Protected Areas Website <https://www.canada.ca/en/services/environment/conservation/protected-areas.html>.

6.4 EXCEPTIONS

The following activities will be exempt from the requirements for permitting and authorizations:

- Activities related to public safety, health or national security, that are authorized by or under another Act of Parliament or activities that are authorized under the *Health of Animals Act* and the *Plant Protection Act* to protect the health of animals and plants;
- Activities related to routine maintenance of National Wildlife Areas, implementation of management plans, and enforcement activities conducted by an officer or employee of Environment and Climate Change Canada.

6.5 OTHER FEDERAL AND PROVINCIAL AUTHORISATIONS

Depending on the type of activity, other federal or provincial permits or authorizations may be required to undertake an activity in this NWA.

Contact your regional federal and provincial permitting office for more information.

Environment and Climate Change Canada

Canadian Wildlife Service

Pacific Region

5421 Robertson Rd

Delta, BC V4K 3N2

7 HEALTH AND SAFETY

Responses to environmental and other emergencies will follow the established course of action for the Widgeon Creek area: the RCMP will be the main contact for most emergencies.

Any environmental emergency relating to the NWA should be reported to:

Canadian Wildlife Notification System, at 1-800-663-3456

Or Contact:

Emergency Management British Columbia

Ministry of Justice

Telephone: 1-800-663-3456

All reasonable efforts will be made to protect the health and safety of the public, including adequately informing visitors to the vicinity of any known or anticipated hazards or risks. In 2009, Public Works and Environmental Services Canada conducted an Environmental Phase II Site Assessment and found no environmental contamination hazards at that time (URS Canada Inc., 2009). Further, Environment and Climate Change Canada staff will take all reasonable and necessary precautions to protect their own health and assure safety as well as that of their co-workers. However, visitors, including researchers and contractors must make all reasonable efforts to inform themselves of risks and hazards in order to be prepared and self-sufficient. Natural areas contain some inherent dangers and proper precautions must be taken by visitors, recognizing that Environment and Climate Change Canada staff neither patrol regularly, nor offer services for visitor safety in NWAs.

Incidents or emergencies may be reported to:

1. Marine salvage (Canadian Coast Guard) (1 800 463-4393)
2. Report All Poachers and Polluters (RAPP) program (1-877-952-7277)
3. Environmental emergencies: Environment and Climate Change Canada (1 866 283-2333)
4. Emergency (911)
5. RCMP Non-Emergency (604-945-1550)
6. Fire & Rescue Non-Emergency (604-927-6400)

8 ENFORCEMENT

The management of NWAs is based on three Acts:

- *Migratory Birds Convention Act, 1994, and Migratory Birds Regulations*
- *Canada Wildlife Act and Wildlife Area Regulations*
- *Species at Risk Act*

Migratory birds and their nests and eggs are protected by the first Act and its Regulations and wildlife and habitat in National Wildlife Areas are protected by the *Wildlife Area Regulations* (e.g., see Section 6.1 above). These can be enforced by any officer of the law.

As the NWA is federal land, the general prohibitions of the *Species at Risk Act* (sections 32 and 33) apply to all species listed on Schedule 1 as extirpated, endangered or threatened. Individuals of such listed species shall not be killed, harmed, harassed, captured or taken, and residences shall not be damaged or destroyed. If critical habitat of a federally listed species is identified within the NWA, a description of that habitat must be published in the *Canada Gazette*. Section 58 of the *Species at Risk Act* prohibits the destruction of critical habitat within the NWA.

Public education and awareness promotes compliance. Preventative measures such as strategic use of signage as well as public outreach activities and events, combined with an on-the-ground presence, are more likely to result in effective compliance. In this regard, signage has been placed along the tidal channels of Widgeon Creek informing users that they are in the NWA, and additional signage could be considered.

Poaching may be reported to the Environment and Climate Change Canada Enforcement Branch at 1-888-569 5656, the RCMP or to Wilderness Watch at 1-877-952-7277.

Enforcement concerns, as identified in Section 3 (Threats and Challenges), include camping (without a permit), and the use of motorized watercraft within the NWA.

9 PLAN IMPLEMENTATION

The management plan will be implemented over a 10-year period. Detailed plan implementation will be developed in annual work plans in accordance with departmental priorities and actions will be implemented as human and financial resources allow. The implementation of the plan will be evaluated five years after its publication, on the basis of the actions identified in Table 4.

Table 4: Implementation Strategy Timeline

Activity	2019	2020	2021	2022	2023	2024	2025	2026
Habitat mapping	x							
Invasive plant species inventory and mapping	x							
Species at risk inventory	x	x	x					
Wildlife inventory, including waterfowl and water birds	x	x	x					
Invasive amphibian inventory and mapping	x							
Species at risk habitat mapping			x					
Any habitat or species management activities that may be identified during preceding steps for waterfowl, species at risk, and invasive species				x	x	x	x	x

9.1 MANAGEMENT PLAN REVIEW

The Canadian Wildlife Service will review and update this management plan in 2022, five years after implementation, and every ten years thereafter. Implementation of the plan is reviewed annually as indicated in Section 4.3.

MANAGEMENT AUTHORITIES & MANDATES

ECCC-CWS (Pacific), operating under a 99-year lease from TNTBC, is responsible for site management of Widgeon Valley NWA. Although the CWS is under no legal obligation to co-manage the NWA with TNTBC or any other party, other than adhering to the intent and restrictions of the lease with TNTBC, maintaining and building the partnerships with TNTBC and nearby land owners and managers is beneficial to conservation of this important wetland complex.

10 COLLABORATORS

Collaboration with local agencies and sector organizations to contribute to the protection and conservation of wildlife species and their habitats in the NWA will be favoured.

For example, collaborations could be developed or pursued with universities and research centres to fill scientific knowledge gaps; with the province to implement species at risk recovery measures, particularly for species under provincial jurisdiction; and with non-governmental organizations and municipal authorities to increase public awareness of the objectives of the NWA. The main organizations likely to collaborate or to have an interest in the management of Widgeon Valley NWA include:

1. The Nature Trust of British Columbia
2. Katzie First Nation
3. BC Ministry of Environment (or one of its permutations, or its successors)
4. Metro Vancouver Parks
5. SFU/Centre for Wildlife Ecology
6. University of British Columbia
7. Other universities, colleges, and post-secondary educational institutions in British Columbia

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**APPENDIX I: ASSESSMENT OF THE OCCURRENCE OF SPECIES
LISTED ON SCHEDULES 1 OR 3 OF THE SPECIES AT RISK ACT
THAT IS CONFIRMED OR LIKELY TO OCCUR IN WIDGEON
VALLEY NWA³**

Species	Status	Recovery strategy/Management Plan	RS	MP	AP	Links
Endangered						
White sturgeon, Lower Fraser River population <i>Acipenser transmontanus</i>	SARA: No status COSEWIC: Threatened (2013) BC list: Red Provincial Rank: S1S2 (2018)	Fisheries and Oceans Canada Recovery Strategy (2014)	DFO 2014			White Sturgeon Species Profile White Sturgeon Response Statement DFO Recovery Strategy (does not address Lower Fraser pop.)
Oregon spotted frog <i>Rana pretiosa</i>	SARA: Endangered (2003) COSEWIC: Endangered (2011) BC list: Yellow Provincial Rank: S1 (2016)	Environment and Climate Change Canada Recovery Strategy (2015). BC Ministry of Environment Recovery Strategy (2012)	ECCC 2015 BC 2012			Oregon Spotted Frog Species Profile ECCC Recovery Strategy BC Recovery Strategy Oregon Spotted Frog Response Statement

³ Environment Canada Species at Risk Website, 2019 and B.C. Conservation Data Centre, 2013

Species	Status	Recovery strategy/Management Plan	RS	MP	AP	Links
Painted turtle, Pacific coast population <i>Chrysemys picta bellii</i>	SARA: Endangered (2007) COSEWIC: Threatened (2016) BC list: Red Provincial Rank: S1S2 (2018)	Environment and Climate Change Canada Recovery Strategy (2018). BC Ministry of Environment Recovery Strategy (2016).	ECCC 2018 BC 2016			Western Painted Turtle Pacific Coast pop Species Profile Painted Turtle Response Statement ECCC Recovery Strategy BC Recovery Strategy
Pacific water shrew <i>Sorex bendirii</i>	SARA: Endangered (2007) COSEWIC: Endangered (2016) BC list: Red Provincial Rank: S2 (2015)	Environment Canada and Climate Change Recovery Strategy (2014). BC Ministry of Environment Recovery Strategy (2009).	ECCC 2014 BC 2009			Pacific Water Shrew Species Profile ECCC Recovery Strategy

Species	Status	Recovery strategy/Management Plan	RS	MP	AP	Links
Little brown myotis, <i>Myotis lucifugus</i>	SARA: Endangered (2014) COSEWIC: Endangered (2013) BC list: Yellow Provincial Rank: S4 (2015)	Environment and Climate Change Canada Recovery Strategy (2015)				Little Brown Myotis Species Profile ECCC Recovery Strategy Little Brown Myotis Response Statement
Threatened						
Northern goshawk, laingi subspecies <i>Accipiter gentilis laingi</i>	SARA: Threatened (203) COSEWIC: Threatened (2013) BC list: Red Provincial Rank: S2 (2010)	Environment and Climate Change Canada Recovery Strategy (2017). BC Ministry of Environment Recovery Strategy (2008). BC Ministry of Forests, Lands, and Natural Resource Operations Management Plan (2013).	ECCC 2017 BC 2008	BC 2013		Northern Goshawk Species Profile Northern Goshawk Response Statement ECCC Recovery Strategy FLNRO Management Plan

Species	Status	Recovery strategy/Management Plan	RS	MP	AP	Links
Marbled murrelet <i>Brachyramphus marmoratus</i>	SARA: Threatened (2003) COSEWIC: Threatened (2012) BC list: Blue Provincial Rank: S3B,S3N (2015)	Environment and Climate Change Canada (2014)	ECCC 2014		ECCC 2016, 2017, 2018.	Marbled Murrelet Species Profile ECCC Recovery Strategy ECCC Action Plans Marbled Murrelet Response Statement
Barn owl <i>Tyto alba</i>	SARA: 1- Threatened (2018) COSEWIC: Threatened (2010) BC list: Red Provincial Rank: S2 (2015)	BC Ministry of Environment Recovery Plan (2014)	BC 2014			Barn Owl Species Profile Barn Owl Response Statement BC Recovery Plan

Species	Status	Recovery strategy/Management Plan	RS	MP	AP	Links
Western screech-owl, kennicottii subspecies <i>Megascops kennicottii kennicottii</i>	SARA: Threatened (2005) COSEWIC: Threatened (2012) BC list: Blue Provincial Rank: S2S3 (2017)	BC Ministry of Environment Recovery Plan (2013)	BC 2013			Western Screech-owl Species Profile Western Screech-owl Response Statement BC Recovery Plan Western Screech-Owl Response Statement
Barn swallow, <i>Hirundo rustica</i>	SARA: Threatened (2017) COSEWIC: Threatened (2011) BC list: Blue Provincial Rank: S3S4B (2015)					Barb Swallow Species Profile Barn Swallow Response Statement

Species	Status	Recovery strategy/Management Plan	RS	MP	AP	Links
Common nighthawk <i>Chordeiles minor</i>	SARA: Threatened (2010) COSEWIC: Special Concern (2018) BC list: Yellow Provincial Rank: S4B (2015)	Environment and Climate Change Canada Recovery Strategy (2016)	ECCC 2016		ECCC 2018	Common Nighthawk Species Profile Common Nighthawk Recovery Strategy Multi-species Action Plan Gulf Islands National Reserve Common Nighthawk Response Statement
Olive-sided flycatcher <i>Contopus cooperi</i>	SARA: Threatened (2010) COSEWIC: Special Concern (2018) BC list: Blue Provincial Rank: S3S4B (2015)	Environment and Climate Change Canada Recovery Strategy (2016)	ECCC 2016		ECCC 2018	Olive-sided Flycatcher Species Profile ECCC Recovery Strategy Multi-species Action Plan Gulf Islands National Reserve Olive-sided Fly Catcher Response Statement

Species	Status	Recovery strategy/Management Plan	RS	MP	AP	Links
Special Concern						
Vancouver island beggarticks <i>Bidens amplissima</i>	SARA: Special Concern (2003) COSEWIC: Special Concern (2001) BC list: Blue Provincial Rank: S3 (2015)	Environment and Climate Change Canada Management Plan (2015)		ECCC 2015		Vancouver Island Beggarticks Species Profile ECCC Management Plan
Western toad <i>Anaxyrus (Bufo) boreas</i>	SARA: Special Concern (2018) COSEWIC: Special Concern (2012) BC list: Blue Provincial Rank: S4 (2016)	Environment and Climate Change Canada Management Plan (2016).		ECCC 2016		Western Toad Species Profile ECCC Management Plan Western Toad Response Statement

Species	Status	Recovery strategy/Management Plan	RS	MP	AP	Links
Painted turtle: Rocky Mountain population <i>Chrysemys picta</i>	SARA: Special Concern (2007) COSEWIC: Special Concern (2016) BC list: Blue Provincial Rank: S3 (2018)	BC Ministry of Environment Management Plan (2017). Environment and Climate Change Canada Management Plan (2018).		ECCC 2018 BC 2017		Western Painted Turtle Rocky Mountain pop Species Profile ECCC Management Plan Western Painted Turtle Rocky Mountain Population Response Statement
Northern red-legged frog <i>Rana aurora</i>	SARA: Special Concern (2005) COSEWIC: Special Concern (2015) BC list: Blue Provincial Rank: S3 (2016)	BC Ministry of Environment Management Plan (2015). Environment and Climate Change Canada Management Plan (2017).		ECCC 2017 BC 2015	ECCC 2017	Northern Red-legged Frog Species Profile ECCC Management Plan BC Management Plan Red-legged Frog Response Statement

Species	Status	Recovery strategy/Management Plan	RS	MP	AP	Links
Northern rubber boa <i>Charina bottae</i>	SARA: Special Concern (2005) COSEWIC: Special Concern (2016) BC list: Yellow Provincial Rank: S4 (2018)	Environment and Climate Change Canada Management Plan (2017). BC Ministry of Environment Management Plan (2015).		ECCC 2017 BC 2015		Northern Rubber Boa Species Profile ECCC Management Plan BC Management Plan Northern Rubber Boa Response Statement
Great blue heron, fannini subspecies <i>Ardea herodias fannini</i>	SARA: Special Concern (2010) COSEWIC: Special Concern (2008) BC list: Blue Provincial Rank: S2S3B, S4N (2018)	Environment and Climate Change Canada Management Plan (2017).		ECCC 2017		Great Blue Heron Species Profile ECCC Management Plan Great Blue Heron Response Statement

Species	Status	Recovery strategy/Management Plan	RS	MP	AP	Links
Band-tailed pigeon <i>Patagioenas fasciata</i>	SARA: Special Concern (2011) COSEWIC: Special Concern (2008) BC list: Blue Provincial Rank: S3S4 (2015)	Environment and Climate Change Canada Management Plan (2016).		ECCC 2016		Band-tailed Pigeon Species Profile ECCC Management Plan Band-tailed Pigeon Response Statement
Short-eared owl <i>Asio flammeus</i>	SARA: Special Concern (2012) COSEWIC: Special Concern (2008) BC list: Blue Provincial Rank: S3B, S2N (2015)	Environment and Climate Change Canada Management Plan (2018)		ECCC 2018		Short-eared Owl Species Profile ECCC Management Plan Short-eared Owl Response Statement

Species	Status	Recovery strategy/Management Plan	RS	MP	AP	Links
Peregrine falcon, anatum subspecies <i>Falco peregrinus anatum</i>	SARA: Special Concern (2012) COSEWIC: Not at Risk (2017) BC list: Red Provincial Rank: S2 (2011)	Environment and Climate Change Canada Management Plan (2017)		ECCC 2017		Peregrine Falcon Species Profile ECCC Management Plan Peregrine Falcon Response Statement
Grizzly bear, <i>Ursus arctos</i> Western Population	SARA: Special Concern (2018) COSEWIC: Special Concern (2012) BC list: Blue Provincial Rank: S3 (2015)					Grizzly Bear Western Population Species Profile Grizzly Bear Response Statement

Species	Status	Recovery strategy/Management Plan	RS	MP	AP	Links
Black swift, <i>Cypseloides niger</i>	SARA: No schedule, no status COSEWIC: Endangered (2015) BC list: Blue Provincial Rank: S2S3B (2015)					Black swift Species Profile Black Swift Response Statement