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Environnement et Changement climatique Canada

LONG POINT NATIONAL WILDLIFE AREA

MANAGEMENT PLAN 2022

Canada

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Environment and Climate Change Canada
Public Inquiries Centre
12th Floor, Fontaine Building
200 Sacré-Coeur Boulevard
Gatineau QC K1A 0H3
Telephone: 819-938-3860
Toll Free: 1-800-668-6767 (in Canada only)
Email: enviroinfo@ec.gc.ca

Aussi disponible en français

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https://www.canada.ca/en/environment-climate-change/services/national-wildlife-areas.html

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

What are Environment and Climate Change Canada's 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 $1.3 billion dollars to help Environment and Climate Change Canada expand its national wildlife areas and migratory bird sanctuaries, pursue its biodiversity conservation objectives and increase its capacity to manage its protected areas.

According to the Budget 2018, Environment and Climate Change Canada will be conserving more areas, and have more resources to effectively manage and monitor the habitats and species found inside 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. It is intended to be used by Environment and Climate Change Canada staff to guide decision making on the monitoring of wildlife and enhancement to its habitat, the enforcement of regulations, the maintenance of facilities, and 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 Indigenous Peoples, 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 be consistent 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, 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 carry out or coordinate research in some sites.

The series

All of the National Wildlife Areas are to have a management plan. The management plans should 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.

Long Point National Wildlife Area

The Long Point National Wildlife Area (NWA) is located on the Long Point peninsula — a 40 km sand spit located on the north shore of Lake Erie. Established in 1978, it is Ontario's largest NWA, covering 3,162 hectares (ha). The NWA represents about 40% of the Long Point peninsula (**Figure 1**). The NWA consists of two separate units – the Long Point Unit and the Thoroughfare Unit.

The Long Point peninsula and the surrounding marshes are renowned as one of the most important staging habitats for migratory waterfowl on the lower Great Lakes, and recognized as one of the most significant stopover habitats for waterfowl in eastern North America. Every spring and fall, tens of thousands of waterfowl visit the Long Point area during their annual migration. More than100,000 waterfowl may be found resting and feeding in the marshes and offshore waters during the peak of fall migration. The most abundant waterfowl species using the marshes are wood duck *(Aix sponsa),* American wigeon *(Anas americana),* green-winged teal *(A. crecca),* mallard *(A. platyrhynchos),* American black duck *(A. rubripes),* gadwall *(A. strepera),* redhead *(Aythya americana),* ring-necked duck *(Aythya collaris),* canvasback *(Aythya valisineria),* Canada goose *(Branta canadensis),* tundra swan *(Cygnus columbianus),* ruddy duck *(Oxyura jamaicensis),* and blue-winged teal *(Spatula discors).*

The southern geographic position and convergence of several migration corridors (the Mississippi and Atlantic Flyways) combine to make the Long Point region a North American hub for birds. Over 400 bird species have been recorded, including 174 species that have also nested in the Long Point area (Norfolk County). Several bird species recorded at the Long Point NWA are rare or absent elsewhere in Canada. The NWA is also a significant migration stopover for bats, dragonflies and butterflies.

The Long Point NWA is one of three sites in Canada recognized as a International Monarch Butterfly Reserve due to the large numbers of monarchs (*Danaus plexippus*) that congregate and use the area to roost and feed during migration. In late summer and early fall, tens of thousands of monarchs move through the Long Point area as they migrate to their southern wintering grounds.

The Long Point area is also recognized internationally due to its global significance to wildlife and conservation. The Long Point coastal wetlands cover approximately 13,465 ha

along the peninsula and Inner Bay of Long Point Bay. In 1996, the Long Point peninsula and associated marshes were identified by BirdLife International as the first globally significant Important Bird Area (IBA) in Canada under the congretory species category. In 1982, the Long Point area was designated as a wetland of international importance as per the Convention on Wetlands of International Importance signed in 1971 in Ramsar, Iran. In addition, the Long Point area has been designated as a United Nations Educational, Scientific and Cultural Organization (UNESCO) World Biosphere Reserve, as an example of a Great Lakes coastal ecosystem. Much of the core of this reserve is the Long Point NWA. The area also holds several other designations (**Table 1**) that demonstrate the significance of the area to wildlife and their habitat on a regional, provincial, national, and international scale.

The Long Point peninsula is a dynamic sand spit, meaning that erosion and deposition processes actively occur along the beaches and interior dune ridges. The Long Point dune system is the largest freshwater sandspit in the world (Kreutzwiser and Gabriel, 2000). In addition to the beaches and dunes, the Long Point NWA also includes wetland habitat, ponds, savannah ecosystems, as well as lowland and upland forest communities.

Fifty species at risk (endangered, threatened, or special concern) listed under the federal *Species at Risk Act* (SARA) have been reported within the Long Point NWA, including: five vascular plants, one mollusc, one invertebrate, five fishes, seven reptiles, one amphibian, twenty-eight birds, and two mammals.

The lands comprising the Long Point NWA were donated to the Government of Canada by the Long Point Company and The Nature Conservancy (USA) . One of the terms of the donation was that the Canadian Wildlife Service (CWS) would maintain the area in its natural state. Prior to federal ownership, it had been protected for over one hundred years by the Long Point Company for the purposes of waterfowl management and recreational hunting.

The Long Point NWA is managed by Environment and Climate Change Canada's Canadian Wildlife Service (ECCC-CWS) to maintain and improve habitats for migratory birds, native wildlife, plants, and many species at risk. Priority management actions include the protection of habitat to limit and mitigate impacts of human disturbance, monitoring and research to improve and inform conservation and management decisions, and habitat management to increase and improve native biodiversity and support wildlife and species at risk.

Public access to most of the NWA is prohibited year-round to limit disturbance to wildlife and protect the fragile habitats associated with the sand beaches, dunes, wetlands, savannahs, and forest and that are home to many species. However, there are two designated beach areas open to the public for walking, wildlife viewing and swimming from May 15th to September 15th each year. Some activities are allowed in designated areas (identified with signage) that may include recreational boating, fishing, and waterfowl hunting (federal and provincial licences and legislation still apply).

The Long Point NWA is one of ten NWAs in Ontario. This 2022 Long Point National Wildlife Area Management Plan provides the framework for management activities and replaces all previous versions.

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*.

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The Long Point National Wildlife Area (NWA) is located on a 40 km sandspit on the north shore of Lake Erie, approximately 10 km southeast of Port Rowan, in southwestern Ontario (**Figure 1**). Long Point, the largest freshwater sandspit in the world (Kreutzwiser and Gabriel, 2000), encloses a large area of water and expansive marshes within Long Point Bay known as the Inner Bay. The shoreline along the lakeward southern side of Long Point is a long, curved and usually continuous spit, but the north shore of Long Point is interrupted by marsh, ridge and sandbar systems. The dynamic nature of the sandspit is reflected in the erosion and deposition patterns that occur on the beaches along the shoreline and the dune ridges found in the interior. In addition to the beaches and dunes, habitats within the NWA include marshes and ponds, savannahs, and forest communities.

Established in 1978, the Long Point NWA remains the largest NWA in Ontario, totalling 3,162 ha (**Figure 1**). The NWA is comprised of two units covering approximately 40% of the Long Point peninsula: the Long Point Unit and the Thoroughfare Unit (**Figure 2** and **Figure 3**, respectively). The two NWA units are separated by private property.

The Long Point Unit is located near the tip of the peninsula adjacent to properties administered by the Province of Ontario to the east, and private lands to the west (**Figure 1** and **Figure 2**). This Unit is comprised of marsh, lowland and upland forest, savannah, dunes and beaches.

The Thoroughfare Unit is situated within the Inner Bay portion of Long Point Bay nearer to the base of the peninsula, and is comprised of cattail marsh, sand dunes and beach. The Thoroughfare Unit is bordered to the east by the private land, to the west by two provincially administered properties—the Long Point Provincial Park and Long Point Waterfowl Management Unit (**Figure 1** and **Figure 3**) and to the south by private land that is periodically submerged by Lake Erie.

Another NWA, the Big Creek NWA, is located within the Big Creek marshes at the base of the Long Point sandspit, approximately five kilometers west of the Thoroughfare Unit (information related to the Big Creek NWA Management Plan can be found under separate title).

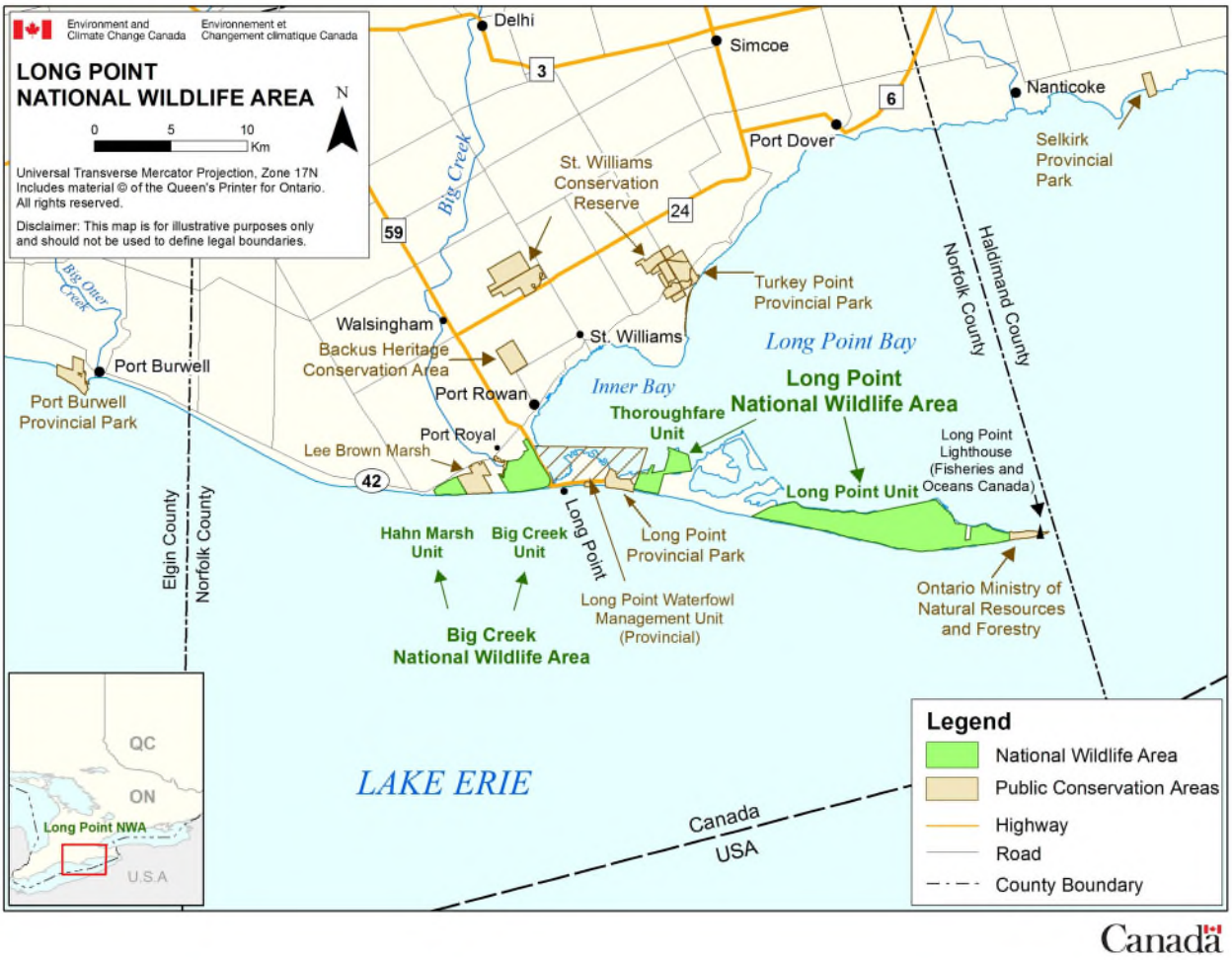

Figure 1: Location of Long Point National Wildlife Area, Lake Erie, Ontario.

Figure 2: Aerial view of the Long Point Unit, Long Point National Wildlife Area, Ontario.

Figure 3: Aerial view of the Thoroughfare Unit, Long Point National Wildlife Area, Ontario.

Table 1: Protected Area Summary

Protected Area Designation	Long Point National Wildlife Area
Province or Territory	Ontario
Municipality	Norfolk County
Geographic Township	South Walsingham
Latitude and Longitude	Latitude 42°553933' N Longitude 80°174504' W
Size	Total: 3,162 ha
Protected Area Designation Criteria (Protected Areas Manual (unpublished)	Criteria 1.a) "The area supports a population of a species or subspecies or a group of species which is concentrated, for any portion of the year." Criteria 3.a) "There is rare or unusual wildlife habitat, of a specific type in a biogeographic region."
Protected Area Classification System (Protected Areas Manual (unpublished)	Category A: Species or critical habitat conservation.
International Union for Conservation of Nature (IUCN) Classification	Category IV Habitat/Species Management Area: Category IV: Areas to protect particular species or habitats, where management reflects this priority. Many will need regular, active interventions to meet the needs of particular species or habitats, but this is not a requirement of the category (Dudley, 2008).
Order in Council Number	P.C. 1980-1827
Directory of Federal Real Property (DFRP) Number	22852
Gazetted	1980
Additional Designations	The Long Point NWA is part of the: • Long Point Ramsar Site - Wetland of International Importance • UNESCO Long Point World Biosphere Reserve: Core Area • Long Point Peninsula and Marshes BirdLife International nationally and globally significant Important Bird Area (IBA) • Long Point International Monarch Butterfly Reserve, Canada/Mexico International Network of Monarch Butterfly Reserves • Long Point Wetland Complex Provincially Significant Wetland

	(Ontario Ministry of Northern Development, Mines, Natural Resources, and Forestry-OMNDMNRF) • Long Point Provincially Significant Life Science Area of Natural and Scientific Interest (ANSI) (OMNDMNRF) • North American Waterfowl Management Plan 'Lower Great Lakes and St. Lawrence River Area of Continental Significance' (Eastern Habitat Joint Venture)
Faunistic and Floristic Importance	• Over 400 bird species recorded (between 1960 and 2020) and 174 of these species have been observed nesting in the Long Point area. • The NWA provides important breeding habitat for landbirds, waterfowl, waterbirds and shorebirds. • High numbers of migratory species congregate along the Long Point peninsula in the spring and fall with single-day counts of 70,000 to over 100,000 waterfowl being made regularly. • Over 25 species of waterfowl, primarily mallard *(Anas platyrhynchos*), American black duck *(A. rubripes)*, ring-necked duck *(Aythya collaris)*, redhead *(Aythya americana)*, lesser scaup (*Aythya affinis*), greater scaup (*Aythya marila*), canvasback (*Aythya valisineria)* and Canada goose *(Branta canadensis)* (Southern James Bay and Temperate-breeding populations) have been recorded at the NWA. • Significant proportion (10-20%) of the eastern population of tundra swans (*Cygnus columbianus*) pass through the Long Point peninsula in the spring on route to breeding grounds in the Canadian Arctic and Alaska. During peak spring migration counts range from 15,000-20,000 in a single day. • Tens of thousands of monarchs (*Danaus plexippus*) move through Long Point peninsula during fall migration to south. • The NWA provides important habitat for both common and rare species. • Over 700 documented vascular plant species, including species at risk. • Provides important habitat for 50 species at risk listed under the *Species at Risk Act.* • Carolinian Life Zone (Eco Region 7E) Carolinian Canada Coalition). • Key habitats include sand dunes and beach, forest, savannah, wetlands (marsh and swamp) and ponds. • Various Globally, Nationally and Sub-nationally rare habitats (Nature Serve).

Invasive/Hyperabundant and/or Non-native Species (partial list)	• **Flora include** garlic mustard (*Alliaria petiolata*), European black alder (*Alnus glutinosa*), Japanese barberry (*Berberis thunbergii*), smooth brome (*Bromus inermis*), flowering-rush (*Butomus umbellatus*), Canada thistle (*Cirsium arvense*), European frog-bit (*Hydrocharis morsus-ranae*), yellow iris (*Iris pseudacorus),* purple loosestrife (*Lythrum salicaria*), white sweet-clover (*Melilotus albus*), Eurasian water-milfoil (*Myriophyllum spicatum*), reed canarygrass (*Phalaris arundinacea*), flat-stemmed bluegrass (*Poa compressa),* Kentucky bluegrass *(P. pratensis),* the European lineage of common reed (*Phragmites australis* subsp. *australis*), white poplar (*Populus alba*), bittersweet nightshade (*Solanum dulcamara*) and blue cattail (*Typha* X *glauca*). • **Fauna include** faucet snail (*Bithynia tentaculata*), Chinese mystery snail (*Cipangopaludina chinensis*), mute swan (*Cygnus olor*), common carp (*Cyprinus carpio*), zebra mussel (*Dreissena polymorpha*), quagga mussel (*D. bugensis*), and round goby (*Neogobius melanostomus*). **Fauna may include** in the future native species that are hyperabundant in other locations, such as *double-crested cormorant* (*Phalacrocorax auritus*).
Species at Risk	• 50 federally listed (endangered, threatened, and special concern) species under the *Species at Risk Act* including: 5 vascular plants, 1 mollusc, 1 invertebrate, 5 fishes, 7 reptiles, 1 amphibian, 28 birds and 2 mammals. • 48 Committee on the Status of Endangered Wildlife in Canada (COSEWIC) designated species have been recorded at the NWA. • Four additional species listed exclusively under the Ontario *Endangered Species Act, 2007* (ESA).
Management Agency	Environment and Climate Change Canada - Canadian Wildlife Service (ECCC-CWS), Ontario
Public Access and Use	To protect wildlife and their habitats, most of the Long Point NWA is closed to the public, and some areas are closed seasonally during spring and fall waterfowl migration. No public facilities on-site. Low-level use consists of traditional activities such as fishing, boating, waterfowl hunting, walking, wildlife viewing, photography, beach use and swimming in designated areas as posted. See Sections 5.8 and 6.2 for more information. **Note:** Federal and provincial licences, seasons, and legislation for use of aircraft, boating, fishing and hunting apply within the NWA unless posted.

	Open fires, motorized vehicles, construction of hunting blinds, dogs off-leash, use of lead sinkers, overnight boat mooring, camping, and walking in the dunes are prohibited at all times. Research, surveys, monitoring, and habitat and wildlife management, and all commercial activities require a permit under the *Canada Wildlife Act*. For more information on access and permitting for Long Point NWA, contact the Environment and Climate Change Canada Canadian Wildlife Service regional office.

1.1 Regional Context

The Long Point NWA is located in Norfolk County in southwestern Ontario. Agriculture is the most significant land use in the county and the main industry of the local economy (Lake Erie Source Protection Region, 2008). Norfolk County has some of the most fertile soils in Ontario, and is known locally as 'Ontario's Garden' (Norfolk Farms, 2012).

The Long Point area attracts over 100,000 visitors each year and is a popular destination for cottagers and tourists for boating, waterfowl hunting, fishing, beach use, birding, hiking, camping and cycling (S. Burnett and Associates Limited, 2011). The nearby ports, towns, and villages including Port Dover, Port Rowan, Turkey Point, Long Point, Simcoe, Delhi, and Waterford also attract visitors throughout the year.

The Long Point NWA is located on a 40 km sandspit (Davidson-Arnott and Van Heyningen, 2003), extending eastward from the north shore of Lake Erie, Ontario. The peninsula began formation approximately 4,000 years ago with the deposition of sand from eroding cliffs to the west. The continuous occurrence of sediment transport and deposition by wind and waves are responsible for the dynamic nature of the sandspit. In response to these physical forces, Long Point is constantly growing and shrinking at varying rates. Until the turn of this century the Long Point sandspit extended lakeward at a rate of four to seven metres each year (Kreutzwiser and Gabriel, 2000).

Long Point is the world's largest freshwater sandspit (Kreutzwiser and Gabriel, 2000) and is one of three major sandspits on the north shore of Lake Erie along with Point Pelee, Rondeau and Long Point (Stewart and Davidson-Arnott, 1988).

The moderating influence of Lake Erie and the southern location of Long Point place the region in a compact transitional zone exhibiting both boreal and southern plant species (Reznicek and Catling, 1989). The Long Point peninsula is located within the Carolinian life zone at the northern geographic limit of many species typically found to the south in the Carolinas. Many species of plants and animals exist here on the northern limit of their range, and this is one reason that many resident Long Point species are considered rare in Ontario and in Canada. This location and the unique combination of diverse habitats support a wide variety of plant and wildlife communities and numerous rare plants and animals (including species at risk).

Fluctuating lake levels create the characteristic alternating dune and swale landscape. A series of dynamic dune ridges, oriented broadly southwest to northeast, occur parallel to the shoreline and are continually altered by wind and wave action. The dynamic nature of the sand dune ecosystem results in an unstable environment that is highly susceptible to natural and human disturbances. In addition to sand dunes and beaches, wetlands, savannah, and forest habitats dominate the remaining natural environments on the NWA.

As a result, the Long Point peninsula exhibits a complex assemblage of plant communities and is one of the most important natural areas in the Great Lakes region (Reznicek and Catling, 1989). Scattered grasses colonize the sandy beaches of the younger south shore, and further inland dry cottonwood and juniper savannas thrive on the ridges between swales of wet meadows, marshes and ponds. Organic accumulation on Long Point, even on the older ridges, is generally minimal and most of the substrate is unconsolidated sand. Based on land management observations by CWS, the rare sand-based ecosystem found at Long Point is thought to be ecologically fragile, with rare plant communities embedded in often loose unconsolidated sand. This system is subject to erosion from strong winds and short and long-term inundation by Lake Erie due to seasonal or longer lake level changes, storms, and seiches (a temporary oscillation in water level caused by an atmospheric change or wind). Older sites support eastern white pine *(Pinus strobus)* and northern red oak *(Quercus rubra* var*. rubra*) forest, and tamarack (*Larix laricina*) and cedar sloughs.

The Long Point peninsula and the surrounding area is recognized as a conservation priority on a global, continental, and international scale due to the expansive wetlands and large numbers of migratory birds that use the various habitats during spring and fall migration. It is also recognized as a conservation priority on a national scale given the area's importance to species at risk through identification of Long Point-Walsingham Forest as a Priority Place under the Pan-Canadian Approach to Transforming Species at Risk Conservation in Canada.

The coastal wetlands of Lake Erie support the highest diversity of plant and wildlife species in the Great Lakes region (EC-OMNR, 2003; Herdendorf, 1987). Fluctuating water levels in Lake Erie caused by seiches and storm surges promote biodiverse wetland communities such as the rare coastal meadow marsh (EC-OMNR, 2003; Herdendorf, 1992). In addition to ecological values, wetlands are productive and diverse ecosystems that provide economic and social benefits including water filtration and shoreline protection.

In 1982, the Long Point marshes, including the Long Point NWA, were designated as a Wetland of International Importance under the Convention on Wetlands of International Importance especially as Waterfowl Habitat (UNESCO, 1971), also known as the Ramsar Convention. The basis for this recognition is that the Long Point marshes are one of the most important sites for migratory waterfowl in southern Canada and support a number of rare or threatened amphibians and reptiles (Ramsar Convention Secretariat, 2019).

The Long Point NWA is part of the provincially significant Long Point Life Science Area of Natural and Scientific Interest (ANSI), and the provincially significant Long Point Coastal Wetland Complex. This complex encompasses approximately 13,465 ha of coastal wetlands along the Long Point peninsula and Inner Bay, including the marshes at the mouth of Big Creek and the Big Creek NWA (EC-OMNR, 2003). This wetland complex is particularly important to the region because over 80% of pre-European settlement wetlands in Haldimand-Norfolk County have been converted to other uses, primarily agriculture (Ducks Unlimited Canada, 2010; Snell, 1987).

In 1986, the United Nations Environmental, Scientific and Cultural Organization (UNESCO) designated the Long Point region as a World Biosphere Reserve—the third to be created in Canada—as an example of a Great Lakes coastal ecosystem. The core of this reserve includes the Long Point NWA, and part of the buffer zone includes the nearby Big Creek NWA (Parker *et al.,* 2003).

In 1996, the Long Point Peninsula and Marshes Important Bird Area (IBA), including Big Creek NWA and Long Point NWA, was designated by BirdLife International as the first globally significant IBA in Canada due to the large concentration of migratory landbirds, staging waterbird and waterfowl populations (BirdLife International, 2015).

The Long Point NWA is one of three International Monarch Butterfly Reserves designated in southern Ontario as part of an international network under the North American Commission for Environmental Cooperation. The other two Ontario sites are Point Pelee National Park on Lake Erie and Prince Edward Point NWA on Lake Ontario. These sites were designated due to the important and essential stopover and feeding habitat these areas provide for thousands of monarchs (*Danaus plexippus*) as they travel to and from wintering grounds to the south.

The Long Point NWA is located within the North American Bird Conservation Initiative Bird Conservation Region 13 (BCR 13), on the Lower Great Lakes/St. Lawrence Plain, and

within the Mixedwood Plains Ecozone and Lake Erie Lowland Ecoregion (Ontario Partners in Flight, 2008; Wicken, 1986). The Lake Erie Lowland Ecoregion is more generally referred to as the Carolinian Forest or the Carolinian Canada life zone (Johnson, 2007), a region rich in rare species usually not found in other parts of Canada. In addition to Long Point NWA, other properties also protect important coastal habitat within this ecoregion (**Figure 1**).

1.2 Historical Background

It is acknowledged that Long Point NWA is situated within the traditional territory of the Haudenosaunee and Anishinaabe Nations within Treaty 3 lands.

The Long Point region was inhabited by Indigenous peoples at least as early as ~11,000 years before present (BP), followed by the earliest known occupation of Long Point between 1050 and 650 BP (Francis and Whitelaw, 2001). The first residents of Long Point developed seasonal and permanent palisaded villages on the peninsula, and used the land for agriculture, fishing, hunting and foraging (Francis and Whitelaw, 2001). The lake and surrounding marshes and forests provided a transportation corridor and an abundance of fish and wildlife for consumption and clothing for Indigenous Peoples in the area (Raphael, 1987). A chronological study of human history of the Long Point area reported numerous artifacts and evidence of occupation by various Indigenous Peoples on the Long Point peninsula and surrounding area, dating as far back as 9500 BC (Dakin and Skibicki, 1994). The time period between ~1550 and 1795 AD marked a period of extreme change within the Long Point region, including the rapid creation of a commercial fur trade in the mid-late 1500s, the arrival of Jesuit missionaries (1634-1640), and the influx European settlers (beginning in the 1780s) (Dakin and Skibicki, 1994). Warfare, declining resources due to European demand, and the introduction of diseases such as smallpox and cholera decimated resident Indigenous Peoples during this time period (Dakin and Skibicki, 1994). Following continued European colonization, the County of Norfolk was established in 1792.

The consumption of natural resources in the Long Point region intensified in the 1800s due to changes in land use and development of industries such as lumbering, iron smelting, gristmills, distilling, wool dressing, tanning, and the production of lye and potash. Forests, plains, and marshes were cleared for agriculture and the grazing of livestock, intensifying the lumber industry and inducing wildfire (Heffernan, 1978). By 1860, mainland forests were nearly depleted and the lumber industry expanded onto the Long Point peninsula (Barrett, 1977).

Commercial logging commenced on Long Point peninsula again in the early 1920s in the areas around Boucks Pond and Cedar Creek, and later in 1934, Squires Ridge and Courtright Ridge were logged for maple (*Acer* spp.), eastern red cedar (*Juniperus virginiana* var. *virginiana*), and eastern white cedar (*Thuja occidentalis*) and a small mill was established on Squires Ridge (Heffernan, 1978). The J. Pitman Company logged the area between the West Road and Gravelly Bay Road (constructed in 1946/1947 as a logging trail) for eastern white pine, eastern white cedar, white ash (*Fraxinus americana*) and northern red oak (Heffernan, 1978).

The Long Point peninsula is a navigational landmark for ships traveling across Lake Erie. Ships used the protection of the long sandspit and calm waters of the Inner Bay during storms. There are several marine archaeological sites near the NWA, including hundreds of underwater shipwrecks that lay scattered along the coast and Inner Bay.

In 1830, the Government of Upper Canada erected the first lighthouse at the tip of Long Point. A new lighthouse was constructed in 1843 because a large accumulation of sand resulted in extension of the tip east into Lake Erie. The present Long Point lighthouse, located at the tip, was constructed in 1915 and is automated. It remains an aid to navigation and is a local landmark and popular stop for boaters. The lighthouse property (6 ha) is currently owned by Fisheries and Oceans Canada and the facilities are managed by the Canadian Coast Guard.

Natural gas drilling and extraction in the Long Point area began early in the 20th century. Starting in 1918, the Dominion Gas Company drilled on the Long Point peninsula under a lease with the Long Point Company. By 1958, the Long Point Company established its own oil and gas business (Pintail Oil & Gas Development Ltd.) to assert control of Long Point oil and gas resources and to monitor and mediate the effects of the industry on the other natural resources of Long Point (Barrett, 1977).

Commercial seine net fisheries have been operating in Long Point Bay since the late 1800s, followed by hoop nets around 1915 (Gislason *et al.,* 2010). Today commercial fisheries continue to operate in Lake Erie along the north shore of the peninsula.

Modification of the regional land use continued as the demand for cottage development on private lands increased. The construction of the causeway occurred in 1927-1928 and provided better access to the Long Point Provincial Park that was established in 1921 (Hazen,

2000). In 1950, the Long Point Causeway was designated as part of Provincial Highway 59, and was subsequently transferred to Norfolk County.

The importance of the Long Point peninsula to bird migration was recognized during settlement of the region. In 1866, the Government of Upper Canada granted 6,043 ha of lands on the Long Point sandspit to a group of Canadian businessmen. Soon thereafter, this group was incorporated and became known as the Long Point Company (Barrett, 1977). The Long Point Company has managed its properties for waterfowl hunting, protecting and preserving the land for over 150 years by implementing wetland habitat improvements, eliminating illegal logging on Long Point, and introducing the first hunting regulations and daily game bag limits in support of conservation (Patterson, 2014; Wilcox, 1996).

The Provincial Crown retained most of the lands west of Old Cut (at the base of the spit) and east of the Walsingham Swamp (Big Creek Marsh). In 1921, Crown lands were set aside and the Long Point Park was established, but was not designated as a Provincial Park until 1955. Roads and cottages were built in the park in the late 1930s, and by 1961 most of the 450 cottages and leased lots located within the original park were sold to private landowners. The remaining 5 ha of the original park is known today as the Old Provincial Park. The Long Point Company transferred lands to the Province of Ontario for a new park expansion (Long Point Provincial Park), and additional lands to establish a provincially-administered public waterfowl hunting area (Long Point Waterfowl Management Unit) (Patterson, 2014).

Establishment of the Long Point NWA

Following Royal Assent of the *Canada Wildlife Act* in 1973, Environment and Climate Change Canada – Canadian Wildlife Service (ECCC-CWS) was able to acquire lands in order to create NWAs for the purposes of establishing, managing and protecting wildlife areas to enable wildlife research activities and provide for the conservation and interpretation of wildlife. The purpose of the *Canada Wildlife Act* is to preserve habitats that are critical to migratory birds and other wildlife species, particularly those that are at risk.

In 1978, the Long Point Company donated 1,000 ha to Canada (now ECCC-CWS), and 2,200 ha to The Nature Conservancy (USA). In 1979, The Nature Conservancy (USA) transferred its 2,200 ha to ECCC-CWS for the establishment of the Long Point NWA under the authority of the *Canada Wildlife Act*.

Restrictive covenants registered on the property under the terms of the donation from the Long Point Company require that activities must be consistent with a wildlife conservation objective and must not detract from the natural character of Long Point (**Appendix 2**).

ECCC-CWS reviews all tenancies, leases, licences and agreements on a regular basis to ensure compliance with the *Canada Wildlife Act*, *Wildlife Area Regulations*, and restrictive covenants. ECCC-CWS issues permits and formal agreements in some cases (e.g., neighbours, land managers, researchers) to traverse and access the Long Point NWA where consistent with the objectives of this legislation. Except as outlined within the management plan and as designated on the property, use of the NWA by the public is restricted.

A previous management plan was prepared for the Long Point NWA (McKeating, 1983). Further rationale for the management actions taken in the past can be found in this plan. This 2022 Long Point NWA Management Plan updates and replaces the 1983 version.

1.3 Land Ownership

1.3.1 Long Point National Wildlife Area - Government of Canada

The Long Point NWA lands and waters are owned by the Crown in Right of Canada and administered by ECCC-CWS as described in Schedule I of the *Wildlife Area Regulations* of the *Canada Wildlife Act* (see **Appendix 1** for full description). It comprises two parcels of land and water (Long Point and Thoroughfare Units), separated by private land (**Figure 1**). The northern boundaries of the Long Point and Thoroughfare Units extend into the Long Point Inner Bay.

The Crown in Right of Canada does not hold the subsurface mineral rights for the Long Point NWA. The Long Point Company retained the subsurface mineral rights to lands transferred to ECCC-CWS in 1978.

1.3.2 Long Point National Wildlife Area - Private Inholdings and Agreements

The Bluff's Hunting Club

The Bluff's Hunting Club is a private waterfowl hunting and conservation club which seasonally uses NWA lands located on the north shore of the Long Point peninsula under a licence agreement. The Bluff's Hunting Club was established in 1918 (prior to the transfer of

lands to ECCC-CWS), and leased the property from the Long Point Company for hunting and fishing. ECCC-CWS took over the agreement with the Bluff's Hunting Club when the property was deeded to the Government of Canada in 1978.

The current ECCC-CWS licence agreement with the Bluff's Hunting Club authorizes members to seasonally occupy and use a portion of LPNWA in the vicinity of Bluff Marsh until April 2024. Bluff's Hunting Club members must adhere to federal and provincial regulations for waterfowl hunting. As per conditions of the licence agreement, the Bluff's Hunting Club uses three CWS owned buildings and is responsible for day-to-day management and maintenance of these buildings.

Private Cottages

At the time the lands were transferred to ECCC-CWS, there were four tenancy agreements for private cottages on the north shore of Long Point peninsula. Following the transfer, ECCC-CWS assumed the non-transferrable annual tenancy arrangements provided their presence was not harmful to the conservation of the NWA with the condition that the arrangement would terminate upon the death of the original leaseholder. One such cottage remains.

1.4 Long Point Peninsula Land Tenure and Management

1.4.1 Fisheries and Oceans Canada

The Long Point lighthouse and six ha surrounding the lighthouse are owned by the Crown in Right of Canada and administered by the Department of Fisheries and Oceans Canada (DFO).

1.4.2 The Province of Ontario

The Province of Ontario owns and manages three parcels on the Long Point peninsula; the Long Point Provincial Park, the Long Point Waterfowl Management Unit, and lands east of the Long Point Unit that are not administered by DFO.

The Long Point Provincial Park is located at the base of the Long Point peninsula, adjacent to the western boundary of the Thoroughfare Unit (**Figure 1**). The Park consists of two parcels known as the 'Old Park' (5 ha) established in 1921 and the 'New Park' (135 ha)

established in 1961 (OMNR, 1989). The Long Point Provincial Park is open to the public for day use, overnight camping, walking, swimming, sunbathing, boating and fishing.

Since 1961, the Ontario Ministry of Northern Development, Mines, Natural Resources and Forestry (OMNDMNRF) has managed an additional 708 ha of marsh north of the Long Point Provincial Park in the Inner Bay (**Figure 1** and **Figure 3**) known as the Long Point Waterfowl Management Unit (locally known as the Crown Marsh). These wetlands are actively managed for waterfowl conservation and the OMNDMNRF administers permits for limited public waterfowl hunting. ECCC-CWS works closely with the OMNDMNRF to coordinate conservation and management of federal and provincial Crown properties on the peninsula.

Starting in 1956, Transport Canada and later Fisheries and Oceans Canada conveyed a total of 69 ha of land associated with the lighthouse at the tip of Long Point to Ontario for its use and management. The Ontario Ministry of Northern Development, Mines, Natural Resources and Forestry now administers those lands, and are stewarded by Birds Canada – Long Point Bird Observatory (LPBO) through land-use and leases agreements with OMNDMNRF.

1.4.3 Long Point Cottage Community

The Long Point cottage community is restricted to the base of the peninsula along Highway 59. Approximately 450 people live on the peninsula year-round; however, the population increases to about 5,000 when cottagers and campers visit during the summer months (S. Burnett and Associates Limited, 2011).

1.4.4 Long Point Company

The Long Point Company owns approximately 3,210 ha of marsh, terrestrial dunes, and islands (Millionaire's Island, Ryerson's Island, Second Island and Snow Island) located in the central portion of the peninsula which are used by its members primarily for waterfowl hunting. The property is situated between the Thoroughfare and Long Point Units (**Figures 1 to 3**).

Given the long history of fishing in the area, along the south shore of the entire Long Point Peninsula, there is a provincial crown fisheries reserve of two chains (132 feet) in width from the original water's edge to allow fishing vessels to land during storms, etc. For decades, the Long Point Company (LPCO) has leased (under long-term Crown Lease 2223) these lands from the Province of Ontario. In turn, CWS has sub-leased from LPCO the portion of the

fisheries reserve where it is adjacent the Long Point NWA with annual payments. Options to streamline these arrangements will be explored by CWS when Crown Lease 2223 expires.

1.4.5 Anderson Tract

The Anderson Tract is located on Gravelly Bay and bordered on three sides by the Long Point Unit. It is currently a 28 ha tract of land (D. Bernard, personal communication, 2019). This land was purchased privately at the same time as the Long Point Company was acquiring its holdings. In 1890, the landowner, Mr. Anderson, divided his holdings into small blocks and subsequently leased or sold them.

The Nature Conservancy of Canada currently owns a portion of the original Anderson property, while the remaining portions are held by various individuals. All Anderson Tract landholders are permitted access over the entire Anderson Tract.

1.4.6 Private Lands

There are two tracts of private land that border each unit of LPNWA. Firstly, Nature Conservancy of Canada owns property that runs along the southern boundary of the Thoroughfare Unit. Secondly, Birds Canada owns property that runs between the Long Point Company and the western boundary of the Long Point Unit.

1.5 Facilities and Infrastructure

ECCC-CWS owns and maintains infrastructure (e.g., buildings, docks, access trails, gates and fences) within the Long Point NWA (**Table 2**).

The NWA has two field stations named after their locations at Gravelly Bay and Squires Ridge. Both field stations are located within the Long Point Unit along the north shore of Long Point, separated by a distance of approximately 10.6 km (**Figure 2**) and are identified by an ECCC-CWS Long Point NWA sign.

The Gravelly Bay field station consists of two cabins: Gravelly Bay cabin and Curran cabin, as well as a storage shed, an outdoor privy at each cabin, a generator shed, and a seasonal boat dock. The dock is used for offloading and loading boats, and mooring anchors are set into the lakebed to moor boats for longer periods (e.g., overnight). The primary access to the Gravelly Bay field station is by boat.

The Squires Ridge field station consists of a cabin, a storage shed, an outdoor privy and a generator shed. The primary access to the Squires Ridge field station is also by boat. Water access is very shallow and requires annual cutting of the invasive European lineage of common reed (*Phragmites australis* subsp*. australis,* hereafter referred to as *Phragmites*) to maintain access. There is no dock: however, a mooring anchor is installed into the lake bed for authorized usage.

ECCC-CWS also owns three buildings associated with the lands used by the Bluff's Hunting Club at Bluff Point, located within the Long Point Unit. The three buildings consist of a Members' Cabin, a Kitchen and Guides' Cabin, and a Maintenance Building. These buildings are maintained by the Bluff's Hunting Club as per their licence agreement with ECCC-CWS.

There are two trails within the Long Point Unit; one that runs from the south shore to the Gravelly Bay field station; and one that runs from the south shore along Squires Ridge to access the Squires Ridge field station. The entirety of the Squires Ridge trail and portions of the Gravelly Bay trail are owned and maintained by ECCC-CWS and access is restricted to visitors with permission and a valid *Canada Wildlife Act* permit from ECCC-CWS. A portion of the trail that leads to the Gravelly Bay field station crosses private property (Anderson Tract). Anderson Tract landholders use this trail to access their property. There is a locked gate on the Gravelly Bay trail to prevent unauthorized access.

The two solar-powered field stations operate year round and are used for providing accommodations to ECCC-CWS and Environment and Climate Change Canada's Wildlife Enforcement Directorate (ECCC-WED) staff, as well as authorized researchers. Facilities are periodically assessed by Public Services and Procurement Canada following facilities maintenance schedules and standards.

Within the Thoroughfare Unit, ECCC-CWS erected a concrete cairn to commemorate the 1978 property donation from the Long Point Company and The Nature Conservancy (USA). The cairn was relocated to the east end of Long Point Provincial Park in 1998 where it is more visible to the public. ECCC-CWS retains ownership of the cairn and coordinates maintenance of this site with Ontario Parks.

Access points, gates, and trails used by ECCC-CWS for management and operations within the Long Point NWA are collaboratively maintained with neighbouring land managers,

property owners, and organizations, including: Ontario Parks, Nature Conservancy of Canada, the Long Point Company, and Birds Canada - Long Point Bird Observatory.

Maintaining signs and fencing to restrict public access is an ongoing requirement. Signs can be damaged or removed due to inclement weather, ice damage or vandalism. Storm events and wave action can cause erosion and toppling of trees along the shore and access points. Cutting of fallen trees by ECCC-CWS staff along the South Beach is often required following storm events.

Table 2: Facilities and Infrastructure at Long Point National Wildlife Area

Long Point National Wildlife Area			
Type of facility or infrastructure	**Approximate size or number**	**Location**	**Responsibility holder or owner**
Signs			
NWA Identification Signs	1.2 m X 2.4 m (3)	Long Point Unit: North shore at Squires cabin (1) and Gravelly Bay cabin (1) Thoroughfare Unit: South Beach (1)	**ECCC-CWS**
NWA Boundary and Entry Prohibited Signs	~220 signs	NWA boundaries (land and water)	**ECCC-CWS**
Long Point NWA Cairn	1	Long Point Provincial Park	**ECCC-CWS**
Buildings			
Gravelly Bay Field Station			
Gravelly Bay Cabin	59 m²	Long Point Unit: Gravelly Bay	**ECCC-CWS**
Decks	32 m²	Long Point Unit: Gravelly Bay	**ECCC-CWS**
Outdoor Privy	2 m²	Long Point Unit: Gravelly Bay	**ECCC-CWS**
Storage Shed	20 m²	Long Point Unit: Gravelly Bay	**ECCC-CWS**
Generator Shed	1 m²	Long Point Unit: Gravelly Bay	**ECCC-CWS**
Boat Dock	14 m²	Long Point Unit: Gravelly Bay	**ECCC-CWS**
Curran Cabin	54 m²	Long Point Unit: Gravelly Bay	**ECCC-CWS**
Deck	20 m²	Long Point Unit: Gravelly Bay	**ECCC-CWS**

Long Point National Wildlife Area			
Type of facility or infrastructure	**Approximate size or number**	**Location**	**Responsibility holder or owner**
Outdoor Privy	2 m²	Long Point Unit: Gravelly Bay	**ECCC-CWS**
Squires Ridge Field Station			
Squires Cabin	77 m²	Long Point Unit: Squires Ridge	**ECCC-CWS**
Decks	27 m²	Long Point Unit: Squires Ridge	**ECCC-CWS**
Outdoor Privy	2 m²	Long Point Unit: Squires Ridge	**ECCC-CWS**
Storage Shed	23 m²	Long Point Unit: Squires Ridge	**ECCC-CWS**
Generator Shed	1 m²	Long Point Unit: Squires Ridge	**ECCC-CWS**
Bluff's Hunting Club (private)			
Members' Cabin	1	Long Point Unit: Bluff Point	**Bluff's Hunting Club (as per licence)**
Kitchen and Guides' Cabin	1	Long Point Unit: Bluff Point	**Bluff's Hunting Club (as per licence)**
Processing and Maintenance Building	1	Long Point Unit: Bluff Point	**Bluff's Hunting Club (as per licence)**

Other			
Gate	1	Thoroughfare Unit: western boundary adjacent to Long Point Provincial Park	**ECCC-CWS/ Ontario Parks**
Fence	30 m	Thoroughfare Unit: western boundary adjacent to Long Point Provincial Park	**ECCC-CWS**
Gate	1	Long Point Unit: on Gravelly Bay trail, adjacent to Anderson Tract (private)	**ECCC-CWS/ Anderson Tract**
Gate-non-NWA Property	1	Boundary between Long Point Company and Thoroughfare Unit	**Long Point Company**
Fence-non-NWA Property	1	Boundary between Long Point Company and Thoroughfare Unit	**Long Point Company**
Formerly Leased Cottage	1	Northeast of Gravelly Bay Field Station	

Long Point National Wildlife Area			
Type of facility or infrastructure	**Approximate size or number**	**Location**	**Responsibility holder or owner**
Formerly Leased Storage Shed	1	Northeast of Gravelly Bay Field Station	

Public access to the majority of the NWA (including the Squires Ridge and Gravelly Bay field stations) is prohibited, and is marked by “Entry Prohibited” signs visible from the water during the open water season.

There are two designated areas within the NWA where public access is permitted for day use only from May 15th to September 15th of any given year. The Long Point Unit designated day use area is a one-km section of shoreline, located east of the ECCC-CWS Squires Ridge field station: access is via water only (**Figure 2**). Currently this area receives limited visitors due to dense vegetation and encroachment of non-native *Phragmites* and often only portions of the sand beach are exposed due to fluctuating lake levels. The designated day use beach in the Thoroughfare Unit is located within the southern limits of the NWA Unit, between the Long Point Provincial Park and the Long Point Company property. It is occasionally underwater due to fluctuating lake levels (**Figure 3**). The public access is via a footpath leading from Long Point Provincial Park (at the west end of the Thoroughfare Unit), or via Lake Erie directly to the South Beach. These areas are signed and public access inland beyond the beach into the dunes is prohibited.

Public access to land within the Long Point NWA, apart from the designated day use areas (along the South Beach and east of Squires Ridge) is prohibited and otherwise requires a permit under the *Canada Wildlife Act* from ECCC-CWS. In certain areas and times of the year however, the public may use the water portion of the NWA for wildlife viewing, boating, fishing and waterfowl hunting; signs for use of these areas are posted seasonally (see Section 6.2 for more information).

1.6 Cultural Resources

There are documented Indigenous archaeological sites within Long Point NWA including a 1,000-year-old burial site and a campsite likely associated with a seasonal fishing station (Fox and Molto, 1994; MacDonald, 1986). Both these sites are thought to be used by transitional, Middle/Late Woodland hunting and gathering Indigenous Peoples (1300 B.P. to 850 B.P.),

whose summer range included the rich Long Point Bay environment (Fox and Molto, 1994; Still, 1985).

There are several marine archaeological sites near the NWA and pieces of shipwrecks are occasionally found at the NWA after becoming exposed or washed onto the shore by storms (Erie Wrecks, 2015).

2.0 ECOLOGICAL RESOURCES

2.1 Terrestrial and Aquatic Habitats

There is a broad diversity of habitat in the Long Point NWA, both on land and in water. The majority of habitats of Long Point NWA include dunes and beach, forest, savannah, wetland, ponds and waters of Lake Erie. The Long Point Unit differs from the Thoroughfare Unit in that it is uniquely comprised of alternating upland ridges and wetlands with varying habitat and species assemblages. The Long Point and Thoroughfare Units are predominantly wetland (i.e., marsh and swamp) habitat. The remaining upland area is comprised of drier terrestrial habitats: dunes and beach, savannah, and forest. Aquatic habitats within the NWA include marshes and swamps, ponds that occur between dune ridges and at the beach-lake interface, and nearshore waters along the Lake Erie shoreline. The composition and successional stage of vegetation communities of Long Point is influenced by natural disturbances such as wind and water erosion. Given that the peninsula formed from west to east, a successional gradient can be seen in the upland ridges of Long Point Unit, with late successional stages found in the west, and earlier successional stages found to the east. Historically, hyperabundant white-tailed deer (*Odocoileus virginianus*) browse pressure has inhibited regeneration of vegetation and affected community composition and successional stage.

There are over 700 vascular plant species documented within the Long Point NWA, including rare species and species at risk (B. Korol, personal communication, 2021; Reznicek and Catling, 1989).

Few in-depth vegetation studies have been carried out at Long Point NWA in recent decades. More recent vegetation studies have been limited to annual surveys (1991 to present) of a series of standard plots to monitor change over time and the response of vegetation after a reduction in the white-tailed deer population on Long Point NWA (Bowles and Bradstreet, 2008).

Based on the earlier survey results, it appears that the general habitat types (i.e., dunes, beach, forest, wetlands) and general distribution remain.

Aerial photography and satellite imagery have been used to map habitat and land cover to assess change over time at a coarse scale (EC-CWS, 2015a; Wilcox *et al.,* 2003).

Lake Erie coastal wetlands were studied by ECCC-CWS in 2016 using Great Lakes Coastal Habitat Assessment and Monitoring Project (CHAMP) protocols. Three sites were sampled in Long Point NWA: Bluff Marsh, Thoroughfare Unit, and Boucks Pond Marsh (I. Smith, personal communication, 2019). The CHAMP protocol monitors nine water quality attributes known to affect wildlife habitat quality. Among all Lake Erie sites sampled in 2016, Long Point NWA sites had the highest Water Quality Index (WQI) scores and the highest Indices of Biotic Integrity (IBI) for the submerged aquatic vegetation and breeding bird communities. Additionally, the two highest 2016 Lake Erie IBI scores for the aquatic macroinvertebrate community were also found at Long Point NWA sites (ECCC-CWS, 2019).

2.1.1 Wetlands and Ponds

The majority of wetlands found in the Long Point NWA are marsh and swamp. Wetlands make up about 40% of the overall NWA (40% and 55% for Long Point and Thoroughfare Units, respectively).

The coastal wetlands (as well as the peninsula itself) are subject to storms, wind tides and seiches (Bedford, 1992). These natural disturbances are the primary force behind the dynamic nature of the habitats found in the NWA. Shallow marshes are common in depressions between dunes and around many of the aquatic communities. Meadow marsh areas of short, dense ground cover are found on the periphery of some of the ponds and marshes within the NWA and are considered globally imperiled (Bradstreet and Bowles, 1999). Large areas of shallow open water interspersed with marsh vegetation are found in embayments and ponds along the northern shore (**Figure 4**) of the peninsula and numerous ponds are found in depressions between dune ridges (**Figure 5**).

Figure 4: Marsh at Thoroughfare Unit, Long Point National Wildlife Area, 2013. Photo: Daniel Rokitnicki-Wojcik © Environment and Climate Change Canada, Canadian Wildlife Service.

Figure 5: Interdunal ponds at Long Point National Wildlife Area. Photo: © Environment and Climate Change Canada, Canadian Wildlife Service.

The dominant floating species found in marsh habitats (e.g., Cedar Creek and Bluff Bar Marshes) are variegated pond-lily (*Nuphar variegata*) and/or fragrant white water lily (*Nymphaea odorata*). Common submergent species include Canada waterweed (*Elodea canadensis*), sago pondweed (*Stuckenia pectinata*) and American eelgrass (*Vallisneria americana*) (EC-CWS, 2015a; Gilbert and Oldenburg, 2013). In the deeper water sections of the marsh, dominant emergent species include cattail (*Typha* spp.), American reed (North American *Phragmites* Lineage) (*Phragmites australis* subsp. *americanus*) and wild rice (*Zizania aquatica* var. *aquatica*) (Gilbert and Oldenburg, 2013; J. Gilbert, personal communication, 2014; Wilcox *et al.,* 2003). Non-native *Phragmites* is an invasive plant of significant concern occurring in various habitats throughout the NWA. Non-native *Phragmites* has grown near-exponentially in some areas of the NWA from 1999-2013 and formed large patches along shoreline and interior marshes (Bowles and Bradstreet, 2010; EC-CWS, 2013; Jung *et al*., 2017; Pearce *et al.,* 2012; Wilcox *et al.,* 2003).

Figure 6: Shoreline marsh at Long Point National Wildlife Area.

Thicket-swamp habitat can be found in standing water between dunes and is typified by eastern buttonbush (*Cephalanthus occidentalis*) and swamp loosestrife (*Decodon verticillatus*). Small areas of thicket-swamp also occur throughout the savannah and forest communities.

The numerous shallow marshes and ponds located throughout the NWA are essential for the reproduction of fish (Jude and Pappas, 1992) as well as amphibians and invertebrates

(Mitsch and Gosselink, 2007) which in turn are a food source for breeding and migratory marshbirds that pass through Long Point each spring and fall.

A number of rare plant species occur in the marshes and ponds. The most notable species is the endangered horsetail spike-rush (*Eleocharis equisetoides*) which occurs in shallow water and along the pond edges: the stands located at the Long Point NWA are the only known locations for this species in Canada and the original stand is protected as critical habitat in accordance with the federal *Species at Risk Act* (SARA).

2.1.2 Savannahs

Most upland habitat in the NWA is some form of savannah with varying tree and shrub cover, herbaceous species, and open sand. Two distinct types of dune savannahs are found within the NWA: the back-dune ridge savannahs and fore-dune savannahs (**Figure 7**). The back-dune is less exposed to wind and water erosion and is therefore more stable. The canopy is dominated by scattered mature deciduous trees, and the understory is primarily composed of various grass species. The fore-dune is dominated by pioneer species such as eastern cottonwood (*Populus deltoides*) and eastern red cedar. Prairie grasses are scattered or dominant in some open canopy areas. American beachgrass (*Ammophila breviligulata)* and sand dropseed (*Sporobolus cryptandrus*) are important in vegetating bare dunes. Savannahs are maintained by natural disturbances including fire, wind and water erosion, as well as browsing by white-tailed deer.

Common tree species on older ridges include red maple (*Acer rubrum*), paper birch (*Betula papyrifera)*, eastern cottonwood, eastern white pine, eastern red cedar, northern red oak and basswood (*Tilia americana* var. *americana)* (Pearce *et al.,* 2012). Common ground flora include bluejoint reedgrass (*Calamagrostis canadensis*), bracken fern (*Pteridium aquilinum*), Canada bluegrass (*Poa compressa*), Kentucky bluegrass (*Poa pratensis*), North American red raspberry (*Rubus idaeus)*, yellow indiangrass (*Sorghastrum nutans*), eastern marsh fern (*Thelypteris palustris* var. *pubescens*) and riverbank grape (*Vitis riparia*) (Pearce *et al.,* 2012).

Uncommon species found in this habitat include butterfly milkweed (*Asclepias tuberosa*), tulip tree (*Liriodendron tulipifera*), and bur oak (*Quercus macrocarpa*) (Bowles and Bradstreet, 2010; Pearce *et al.,* 2012).

Figure 7: Cottonwood-Red Cedar Savannah at Long Point National Wildlife Area. Photo: © Environment and Climate Change Canada, Canadian Wildlife Service.

The southern location and moderate climate of the Long Point NWA allows several plant species to persist at the northern extremes of their geographic range. The vegetation communities found in the NWA are a unique combination of Boreal, Great Lakes and Carolinian species, several of which are rare in Ontario. These communities, scattered in patches over the Long Point Unit, include: Eastern White Pine-Eastern White Cedar, Paper Birch, Northern Red Oak-White Ash. Each community occupies a specific niche: for example, Eastern White Pine-Eastern White Cedar communities are found on crests and slopes of the older, stabilized, back-dune ridges, while Paper Birch communities are found on low dunes and is often intermixed with aquatic habitat (Heffernan and Ralph, 1978).

Lowland communities are described as tamarack-eastern white pine and red ash (*Fraxinus pennsylvanica*) savannahs for the dominant species in these habitats (Heffernan and Ralph, 1978). Lowland communities are found on the edges of the shallow marsh habitat and have a similar understory to shallow marsh (Heffernan and Ralph, 1978). Broken stretches of lowland in the Long Point Unit extend from south of Boucks Pond towards the tip.

2.1.3 Dunes and Beaches

Long Point NWA is characterized by various habitats supported by a series of dune ridges that, towards the eastern end of Long Point, run parallel to the southern shoreline. The series of exposed and sheltered dunes allows for a diversity of plant communities (**Figure 8**).

Beaches are bare or near bare sandy areas at the lake-land interface. The Long Point NWA has beach habitat on both the south and north shores, although the south shore beach is more extensive due to the higher levels of erosion and deposition. Open dune and beach habitats are highly susceptible to wind and water erosion due to the bare or minimal ground cover, and the change over time of the spit and sediment budget of the Long Point peninsula has been studied (Davidson-Arnott and Van Heyningen, 2003; Stewart and Davidson-Arnott, 1988). The dynamic foredune and beach, located on the south side of the sand spit, is exposed to Lake Erie (**Figure 9** and **Figure 10**) and therefore are more susceptible to erosion from storm events, wave and wind action, white-tailed deer browsing, and human disturbance from walking and motorized vehicles.

Figure 8: Foredune in Long Point Unit, Long Point National Wildlife Area, 2019. Photo: © Environment and Climate Change Canada, Canadian Wildlife Service.

Figure 9: Shoreline beach at Long Point National Wildlife Area. Photo: © Environment and Climate Change Canada, Canadian Wildlife Service.

Figure 10: Beach and Foredune at Long Point National Wildlife Area. Photo: © Environment and Climate Change Canada, Canadian Wildlife Service.

Following white-tailed deer management, conifer stem recruitment has increased on early successional dunes, especially of eastern red cedar and common juniper (*Juniperus communis*). Eastern cottonwood remains the most abundant tree species on the foredune.

There has been a large increase in plants such as chokecherry (*Prunus virginiana* var. *virginiana*), riverbank grape, red raspberry and some dune grasses such as old switch panicgrass (*Panicum virgatum*) and little bluestem (*Schizachyrium scoparium*) (Pearce *et al*., 2012).

A small area of bluegrass grassland (5 ha) characterized by Canada bluegrass, yellow indiangrass, old switch panicgrass and riverbank grape is situated between Boucks Pond and Lake Erie in the Long Point Unit. The broader area where this bluegrass grassland is located was historically disturbed by timber harvesting (Heffernan and Ralph, 1978) and human-caused fire (Pearce *et al*., 2012).

2.1.4 Forest

Close to the western boundary of the Long Point Unit is a northern red oak-sugar maple forest on Squires Ridge, and is technically considered the only true forest in LPNWA on the basis of having >60% canopy cover (Bradstreet *et al*., 1991). In addition to northern red oak and sugar maple, red maple is considered common, with occasional Eastern hop-hornbeam and ash species. The understory and shrub layer can include Allegheny blackberry (*Rubus allegheniensis),* North American red raspberry, common elderberry (*Sambucus canadensis*), Kentucky bluegrass, and bluejoint reedgrass (Bowles and Bradstreet, 2008; Bradstreet *et al*., 1991) .

2.1.5 Conifer Plantations

There are three small, one ha conifer plantations within the Long Point Unit at the following locations: North end of Squires Ridge, North portion of Little Creek Ridge, and on the East shore of Bluff Point. Bluff Point has planted Austrian pine (*Pinus nigra*), while red pine (*Pinus resinosa*) is the dominant tree species on the Squires Ridge plantation, with occasional white spruce (*Picea glauca*). White spruce is abundant in the Little Creek plantation. These stands were planted in the early 1940s (Heffernan and Ralph, 1978).

2.2 Wildlife Species

2.2.1 Birds

The importance of the Long Point peninsula to birds and the study of bird migration has been recognized by naturalists and scientists for many decades. In 1960, the Ontario Bird Banding Association founded the Long Point Bird Observatory (LPBO); the first bird observatory in the Western Hemisphere (Mackenzie and LeClair, 2014). Long Point Bird Observatory, a program of Birds Canada, operates research, education and training programs focussed on ornithology, conservation, and other aspects of natural history at Long Point. Additionally, LPBO operates three bird banding stations on the Long Point peninsula where it seasonally conducts daily bird and wildlife monitoring and research. Banding efforts among these three banding stations have tallied over 1,000,000 birds banded of over 300 species (S. Mackenzie, personal communication, 2019).

More than 400 bird species have been observed in the Long Point area (Norfolk County) including more than 25 species at risk (Bird Studies Canada, 2015; Mackenzie *et al*., 2020; McCracken *et al*., 1981).

A number of factors contribute to the high concentrations of birds that Long Point receives. The physical form of the land causes a natural funneling effect as the Mississippi and Atlantic Flyways converge in the Long Point area. In addition, the variety of habitats (including large wetlands, forest, savannahs, sand beaches and dunes) and the moderate climate provide year-round habitat and essential staging, stopover, and feeding habitat for a large diversity of migratory birds.

Waterfowl

The Long Point NWA is most recognized for the large concentrations of waterfowl (ducks, geese and swans) that use its marshes, ponds and bays. These habitats provide shelter in its undisturbed areas, food from the diversity of aquatic plants and invertebrates, and opportunity for birds to rest and stage during migration (Dennis *et al.,* 1984; Herdendorf, 1992; Petrie, 1998; Planck, 1983; Prince *et al.,* 1992; Wetlands International, 2012). Significant numbers of migrant waterfowl congregate along the Long Point sand spit, the Inner and Long Point Bays, and associated marshes where single-day counts of waterfowl during spring and fall

can often range from 70,000 to over 100,000 individuals (Important Bird Areas Canada, 2014; Planck ,1983; Smith *et al.,* 2013).

Long Point is one of the most important staging areas for American black ducks *(Anas rubripes),* mallard (*A. platyrhynchos),* tundra swans (*Cygnus columbianus*) and other dabbling ducks in Ontario and eastern North America (Petrie, 1998; Petrie *et al.,* 2002; Smith *et al.,* 2013).

Over 25 species of waterfowl have been recorded in the Long Point area on peak days during migration. Common species using shallower marsh habitats in the NWA include wood duck *(Aix sponsa),* American black duck, northern pintail (*A. acuta*), green-winged teal *(A. crecca),* ring-necked duck *(Aythya collaris),* gadwall *(Mareca strepera),* American wigeon *(Mareca americana),* blue-winged teal (*Spatula discors*), and mallard. Most diving ducks and sea ducks use Lake Erie and its larger bays and are only infrequently seen on, or flying over, the smaller, shallow marsh ponds within the NWA (Planck, 1983). The deeper, open waters off the south side of the Long Point sand spit and the Inner and Long Point bays are commonly used by canvasback *(Aythya valisineria),* redhead *(A. americana),* and ruddy duck *(Oxyura jamaicensis).* Deeper waters of Long Point's Inner and Outer Bay are used by large numbers of lesser scaup (*Aythya affinis*), greater scaup (*A. marila)*, common goldeneye (*Bucephala clangula*), bufflehead (*B. albeola*), common merganser (*Mergus merganser*), red-breasted merganser (*M. serrator*) as well as large numbers of long-tailed duck (*Langula hyemalis*) and white-winged scoter (*Melanitta deglandi*) in early spring and late fall.

Significant numbers of eastern population tundra swans use the NWA as they pass through the greater Long Point area during spring and fall migration on their way to or from breeding grounds in the Canadian Arctic and Alaska (Petrie, 1998; Petrie *et al.,* 2002). In both seasons, they utilize the Long Point and Big Creek NWAs for feeding and roosting during their migration.

Long Point's importance as a staging area for waterfowl is one of the major reasons it was protected (Bradstreet, 1977). Long Point is of prime importance as staging habitat, however remains important as a breeding area for waterfowl (Petrie, 1998; Prince *et al*., 1992). Common waterfowl species that breed in the NWA and in the surrounding area at Long Point are blue-winged teal, Canada goose *(Branta canadensis),* hooded merganser (*Lophodytes cucullatus*), mallard, and wood duck. Invasive and non-native species reported nesting in the NWA include mute swan (*Cygnus olor*).

Waterbirds

Waterbirds refer to bird species dependent on aquatic habitats to complete portions of their life cycles (Kushlan *et al.,* 2002).

Marshbirds are predominantly found in the swales and coastal marshes of the NWA where there are areas of emergent vegetation for breeding and shallow open water areas for feeding. Over 20 species of marsh dependent waterbirds have been recorded at Long Point NWA, including green heron (*Butorides virescens*), common gallinule (*Gallinula galeata*), the threatened least bittern (*Ixobrychus exilis*), pied-billed grebe (*Podilymbus podiceps*), sora (*Porzana carolina*) and the endangered king rail (*Rallus elegans*) (Bartok, 2011; EC-CWS, 2015b; Meyer, 2003).

The Long Point marshes provide breeding habitat for common and rare species including American bittern (*Botaurus lentiginosus*), black tern (*Chlidonias niger*), Virginia rail (*Rallus limicola*), forster's tern (*Sterna forsteri*) and least bittern (*Ixobrychus exilis*) (Bartok, 2011; Cadman *et al.,* 2007; Meyer *et al.,* 2010).

Migrating eastern population sandhill cranes (*Antigone canadensis*) started using the area in the late 1990s/early 2000s, and were observed possibly breeding in the area in 2002 (Cadman *et al.,* 2007; Meyer, 2003). There are currently as many as a dozen confirmed breeding pairs in the Long Point area, and both Long Point and Big Creek NWAs act as significant staging and wintering area for eastern population sandhill cranes during their fall migration.

Migrating gulls, terns and double-crested cormorants (*Phalacrocorax auritus*) utilize Long Point's undisturbed beaches for staging areas in the spring, late summer, and fall. In addition, the beaches support large numbers of non-breeding immature gulls during the summer, primarily herring gull (*Larus argentatus*) and ring-billed gull (*L. delawarensis*). Long Point's undisturbed beaches make it a more attractive summering area for birds compared to other sites on Lake Erie (Bradstreet, 1977).

Shorebirds

The Long Point NWA provides important habitat to migrant and breeding shorebirds. Shorebirds migrate through Long Point during spring and fall, feeding along the beach on the south shore (Bradstreet, 1977) and utilize the numerous wetland ponds throughout the Long Point area. Thirty-five shorebird species have been recorded on the Long Point peninsula and include migrants such as semipalmated sandpiper (*Calidris pusilla*), sanderling (*C. alba*), least sandpiper (*C. minutilla*), dunlin (*C. alpina*), semipalmated plover (*Charadrius semipalmatus*), greater yellowlegs (*Tringa melanoleuca*), lesser yellowlegs (*T. flavipes*), and endangered red knot *rufa* subspecies (*Calidris canutus rufa*) (Bradstreet *et al.,* 1977). Several species of shorebirds have bred on Long Point, including spotted sandpiper (*Actitis macularius*), killdeer (*Charadrius vociferus*), Wilson's snipe (*Gallinago delicata*), American woodcock (*Scolopax minor*), wilson's phalarope (*Phalaropus tricolor*) and the endangered piping plover (*Charadrius melodus circumcinctus)* (Cadman *et al.,* 2007).

The Long Point peninsula was historically an important breeding site for piping plover (Cadman *et al.,* 2007; McCracken *et al.,* 1981). By the 1970s piping plovers had disappeared from the Canadian Great Lakes, and in 1985 the species was designated as endangered in Canada (EC-CWS, 2012). By 2001, piping plovers had been extirpated as breeding species from the Canadian Great Lakes (Boyne, 2001). In 2007, a pair of piping plovers nested at Sauble Beach, Lake Huron after a 30 year absence of nesting pairs on the Canadian Great Lakes. Since 2007 several nests and fledglings have been reported, indicating successful breeding on Lake Huron, Lake Ontario, and Georgian Bay (Environment Canada, 2013a). Transient piping plovers are observed almost annually during spring migration on the Long Point peninsula and individual birds have been reported during the breeding season (EC-CWS, 2012); however, there are no confirmed breeding records for Long Point since 1977. There is suitable piping plover breeding habitat available at Long Point and within the NWA. Annual surveys are conducted at the NWA to monitor and detect the presence of piping plovers and assess habitat suitability as they continue to recover in the Canadian Great Lakes region.

Landbirds

Landbirds includes a broad variety of species that rely primarily on terrestrial habitats throughout the year (Ontario Partners in Flight, 2008*).* The Long Point peninsula is well known for the numerous species and large numbers of landbirds (particularly songbirds) that migrate

through the spring and fall. The majority of the over a million birds banded at Long Point since 1960 (Bird Studies Canada, 2015) were landbird species. The variety of habitats found on Long Point provides important food, roosting, staging and breeding habitat for numerous species of landbirds. Swallow species (e.g., the tree swallow (*Tachycineta bicolor*) and the threatened barn swallow (*Hirundo rustica)* and bank swallow (*Riparia riparia*)) feed on flying insects and the marshes are an important roosting site for hundreds of thousands of swallows and martins in late summer. Likewise, the marshes provide roosting habitat for upwards of 10 million Icterids (blackbirds and grackles, including the special concern rusty blackbird (*Euphagus carolinus*) annually) that feed in surrounding wetlands and agriculture fields early October through early December (S. Mackenzie, personal communication, 2021). Raptors such as northern saw-whet owl (*Aegolius acadicus*), sharp-shinned hawk (*Accipiter striatus*), and the special concern peregrine falcon (*Falco peregrinus anatum/tundrius*) use Long Point during migration.

The variety of habitats found at the NWA support a wide range of landbird species that use the area for breeding, including: northern mockingbird (*Mimus polyglottos*), hooded warbler (*Setophaga citrina*), magnolia warbler (*S. magnolia),* Carolina wren (*Thryothorus ludovicianus*), the endangered prothonotary warbler (*Protonotaria citrea*) and the threatened red-headed woodpecker (*Melanerpes erythrocephalus*). Several of Canada's at-risk forest songbird species, including the special concern Louisiana waterthrush (*Parkesia motacilla*), the threatened eastern whip-poor-will (*Antrostomus vociferus*), and the endangered Acadian flycatcher (*Empidonax virescens*) and cerulean warbler (*Setophaga cerulea*) are migrants that share essential breeding habitat in the forests of Ontario's Carolinian Zone. Like many songbirds that nest in Canada, these species winter in Central and South America, and migrate each year to eastern North America for the spring and summer months. All four of these species nest primarily in the forested regions of the eastern United States, but also nest in the forested regions of Ontario's Carolinian Zone. Other non-migratory landbird species reported in the NWA include the ruffed grouse (*Bonasa umbellus*) and wild turkey (*Meleagris gallopavo*) (D. Bernard, personal communication, 2015).

The Long Point NWA's provide nesting habitat for numerous raptors including red-tailed hawk (*Buteo jamaicensis*), northern harrier (*Circus hudsonius*), cooper's hawk (*Accipiter cooperii*), merlin (*Falco columbarius*), American kestrel (*Falco sparverius*), and bald eagle (*Haliaeetus leucocephalus*). Breeding owls include great horned owl (*Bubo virginianus*), eastern screech-owl (*Megascops asio*), northern saw-whet owl, and short-eared owl (*Asio flammeus*). Bald eagles in particular experienced a rapid decline in the early 1900s due to synthetic

chlorinated compounds such as the now banned insecticide dichlorodiphenyltrichloroethane (DDT) which almost led to extirpation of the species from Ontario in the 1960s. Between 1983 and 1987, 32 eaglets were transported from northwestern Ontario to the north shore of Lake Erie as part of the Southern Ontario Bald Eagle Monitoring Project led by OMNDMNRF and ECCC-CWS. The Long Point Unit was the primary location on the Canadian side of Lake Erie where eaglets were released to re-establish a bald eagle population on the Long Point peninsula. Since the late 1980s, the bald eagle population in southern Ontario has steadily increased, including many active bald eagle nests within the NWA and surrounding area (D. Bernard, personal communication, 2015).

2.2.2 Mammals

Over 30 species of mammals have been recorded in the Long Point NWA. American beaver (*Castor canadensis*), American mink (*Neovison vison*), northern raccoons (*Procyon lotor*), and muskrats (*Ondatra zibethicus)* are common mammals in the aquatic habitats. Coyote (*Canis latrans*), Virginia opossum (*Didelphis virginiana*), striped skunk (*Mephitis mephitis*), red fox (*Vulpes vulpes*), white-tailed deer, and small rodents such as deer mouse (*Peromyscus maniculatus*) and eastern chipmunk (*Tamias striatus*) are some of the common mammals found in the terrestrial habitats of the NWA. River otter (*Lontra canadensis*) are occasionally observed in the inner wetlands of Long Point and fisher (*Pekania pennanti*) were observed for the first time in over a century in 2018 and 2020 (S. Mackenzie personal communication, 2021)

Long Point is also an important corridor for migratory bats such as the silver-haired bat (*Lasionycteris noctivagans*), hoary bat (*Lasiurus cinereus*), and eastern red bat (*Lasiurus borealis*). Resident bat species such as the big brown bat (*Eptesicus fuscus*) also depend on Long Point for their life cycle (COSEWIC, 2020; Dzal *et al.,* 2009; McGuire, 2012; **Table 3**). Other small mammals include northern short-tailed shrew (*Blarina brevicauda*), meadow vole (*Microtus pennsylvanicus*), masked shrew (*Sorex cinereus*), the special concern woodland vole (*Microtus pinetorum*) and meadow jumping mouse (*Zapus hudsonius*) (Meyer, 2003).

2.2.3 Reptiles and Amphibians

The variety of aquatic and terrestrial habitats contained within the Long Point NWA support a rich concentration of reptiles and amphibians, including several species at risk.

Snakes are numerous on Long Point. The eastern garter snake (*Thamnophis sirtalis sirtalis*) is the most abundant and widespread reptile at the NWA. Many snakes occur within the NWA, including the smooth greensnake (*Opheodrys vernalis*), dekay's brownsnake (*Storeria dekayi*) and the northern watersnake (*Nerodia sipedon sipedon*). Five of the nine snake species found in the NWA are species at risk, including: the special concern eastern ribbonsnake (*Thamnophis sauritus)* and eastern milksnake (*Lampropeltis triangulum*), the threatened eastern hog-nosed snake (*Heterodon platirhinos*), and the endangered eastern foxsnake (Carolinian population) (*Pantherophis gloydi*) and queensnake (*Regina septemvittata*) (Gillingwater and Piraino, 2005; Government of Canada, 2019; **Table 3**).

Several species of turtles are found at the Long Point NWA, including the snapping turtle (*Chelydra serpentina*) and the Midland painted turtle (*Chrysemys picta marginata)* (Gillingwater and Piraino, 2005).

Several species of frogs and toads have been recorded at the NWA, including: American toad (*Anaxyrus americanus*), American bullfrog (*Lithobates catesbeiana*), northern leopard frog (*Lithobates pipiens*), green frog (*Lithobates clamitans*), western chorus frog (Carolinian population) (*Pseudacris triseriata*), spring peeper (*Pseudacris crucifer*) and the endangered fowler's toad (*Anaxyrus fowleri*) (Gillingwater and Piraino, 2005; Government of Canada, 2019; Green *et al.,* 2011).

Amphibian records are collected through incidental observations, research projects and Great Lakes Marsh Monitoring Program (GLMMP) surveys. The Long Point NWA is an important long-term research and monitoring site for rare species such as the fowler's toad, which is known to occur at Long Point and three other locations in Ontario (Green *et al.,* 2011). GLMMP survey routes and stations located at the Long Point NWA (e.g., Bluff Marsh, South Thoroughfare, Bouck's Pond, Squires Ridge), and at Big Creek NWA provide data on amphibian and marsh bird presence and abundance, as well as habitat descriptions.

Information on salamanders at Long Point NWA is limited to a few surveys and incidental reports. Five salamander species have been recorded within the NWA: blue-spotted salamander (*Ambystoma laterale*), spotted salamander (*A. maculatum*), common mudpuppy (*Necturus maculosus*), red-spotted newt (*Notophthalmus viridescens viridescens*), and the eastern red-backed salamander (*Plethodon cinereus*) (Planck, 1981a; Planck, 1981b).

2.2.4 Invertebrates

Invertebrates have not been thoroughly inventoried or surveyed within the NWA. Nonetheless, the NWA supports a variety of invertebrates, as evidenced by the large swarms of insects that can be seen and providing a diverse food source for the predatory birds, small mammals, reptiles and amphibians found in the NWA at particular times of the year. The wetlands produce numerous flying insects (e.g., midges, mosquitoes, dragonflies, damselflies, etc.) which fuel migration of insectivorous bird species in the spring and fall. ECCC-CWS sampling of aquatic macroinvertebrates in the Long Point NWA indicated the NWA is above-average in the diversity of aquatic species compared to other Lake Erie coastal wetlands assessed in 2010 and 2013 (EC-CWS, 2011; EC-CWS, 2015a). These less noticeable yet biologically important aquatic invertebrates are prey to fish, amphibians, waterfowl, and other wildlife that inhabit the NWA. Long Point serves as a concentration point for hundreds of thousands of migrating dragonflies, butterflies and moths, and notably Monarch Butterflies (S. Mackenzie, personal communication, 2021).

The special concern monarch uses the NWA as a migratory and stopover habitat during late summer and early fall. The Long Point NWA Monarch Butterfly Reserve is one of three International Monarch Butterfly Reserves located in southern Ontario as part of the 1995 Canada–Mexico declaration to create the International Network of Monarch Butterfly Reserves (Comisión Nacional de Áreas Naturales Protegidas, 2007). The north shore of Lake Erie is an important area for roosting and feeding monarchs. During fall migration, monarchs gather on trees to form overnight roosts (COSEWIC, 2010). Long Point acts as a staging area where thousands of individuals will congregate in a single day as they migrate south in late summer and fall to their wintering grounds. In 1990, Birds Canada-Long Point Bird Observatory began a census of migrating monarchs at its Research Stations. Monarch counts at Long Point have been highly variable over time; however, long-term trends show a decline in the number of monarchs counted on fall migration (Crewe and McCracken, 2015). Long Point NWA has been a Mission Monarch monitoring site since the program first launched in June 2016. ECCC supports this initiative, which encourages Canadians to assist in monitoring monarch larvae and habitat. The data supports the re-establishment of monarch populations through the creation of well-informed conservation efforts (Montreal Insectarium, 2016).

The blacklegged (deer) tick (*Ixodes scapularis*), a carrier of lyme disease, is found at Long Point: the peninsula is known as an endemic area for this disease due to the large

reproducing tick population (Ogden *et al.,* 2010). The American dog (wood) tick (*Dermacentor variabilis*) is also common. Numerous biting flies and other biting insects occur here, including deer fly (*Chrysops* spp.), stable fly (*Stomoxys calcitrans*) and mosquito species.

Crustaceans and crayfish are of particular interest on the NWA because they are known to be an important food source for a variety of wildlife (Hamr, 1998; Hamr, 2003) including the endangered king rail and queensnake (Government of Canada, 2019; Government of Ontario, 2019). However, there is limited information on the occurrence and distribution of crustaceans at the Long Point NWA. Most records are limited to incidental observations. Two native species found in the NWA are Red Listed by the International Union for the Conservation of Nature (IUCN): calico (paper shell) crayfish (*Orconectes immunis*) and the meadow (devil) crayfish (*Cambarus diogenes*) (Adams *et al.,* 2010; Barr, 1981; Crocker and Barr, 1968; IUCN, 2014; Taylor *et al.,* 2005).

2.2.5 Fish

Lake Erie's coastal wetlands have one of the highest diversities of fish species in the Great Lakes due to the region's southern location and diversity of habitats (Jude and Pappas, 1992). The wetlands of the Long Point NWA (particularly along the Inner Bay) provide important spawning, feeding, and nursery habitat for several fish species. Greater than forty-five fish species have been reported within the Long Point NWA (Dewey, 1981; Gilbert and Oldenburg, 2013; Mahon and Balon, 1977; Marson *et al.,* 2010; Timmerman, 1992). Common fish species include brook silverside (*Labidesthes sicculus*), pumpkinseed (*Lepomis gibbosus*), largemouth bass (*Micropterus salmoides*) and yellow perch (*Perca flavescens*). Documented species at risk include the special concern grass pickerel (*Esox americanus vermiculatus*), the threatened spotted gar (*Lepisosteus oculatus*), and the endangered lake chubsucker (*Erimyzon sucetta*) and pugnose shiner (*Notropis anogenus*) (Gilbert and Oldenburg, 2013; Mahon and Balon, 1977; Marson *et al.,* 2010; Timmerman, 1992; **Table 3**).

The common carp (*Cyprinus carpio*), which is present in the NWA, is an invasive and non-native fish species that has had a detrimental impact on submerged aquatic vegetation (Gilbert and Oldenburg, 2013; Jude and Pappas, 1992; Marson *et al.,* 2010). The invasive and non-native round goby (*Neogobius melanostomus*) is also found in the NWA and may negatively affect other native fish species (Gilbert and Oldenburg, 2013).

2.2.6 Molluscs

Several native molluscs have been recorded at the NWA, including the fatmucket (*Lampsilis siliquoidea*), the pink heelsplitter (*Potamilus alatus*), the giant floater (*Pyganodon grandis*) and the endangered eastern pondmussel (*Ligumia nasuta*) (COSEWIC, 2011; Government of Canada, 2019; **Table 3**).

Invasive and non-native quagga mussels (*Dreissena bugensis*) and zebra mussels (*D. polymorpha*) are found in Lake Erie coastal waters along Long Point.

2.3 Species At Risk

Fifty federally listed (endangered, threatened, and special concern) species under SARA have been found at Long Point NWA, including: five vascular plants, one mollusc, one invertebrate, five fishes, seven reptiles, one amphibian, twenty-eight birds, and two mammals. Forty-eight species assessed by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) have been recorded at the NWA (**Table 3**) (Government of Canada, 2019). Several species at risk found in the NWA are not listed on Table 3 because these species are vulnerable to illegal collection. The names of these sensitive species have been withheld from this management plan where there are location sensitivities (e.g., s.124 of SARA).

Also observed at the NWA are three *Endangered Species Act, 2007* (ESA) listed species that are not listed under SARA but are of local importance: the special concern bald eagle and black tern, and the endangered golden eagle (*Aqiula chrysaetos)* (Government of Ontario, 2019; **Table 3**).

Critical habitat[1] (under SARA) has been identified for many species within the Long Point NWA, for example: the threatened eastern sand darter (Ontario populations) (*Ammocrypta pellucida*), red-headed woodpecker, and least bittern, and the endangered cucumber tree (*Magnolia acuminata*), lake chubsucker and pugnose shiner (Environment Canada, 2014; Environment Canada, 2015; Fisheries and Oceans Canada, 2012; Fisheries and Oceans Canada, 2017; Fisheries and Oceans Canada, 2018).

[1] *Species at Risk Act* " "critical habitat" means the habitat that is necessary for the survival or recovery of a listed wildlife species and that is identified as the species' critical habitat in the recovery strategy or in an action plan for the species." (Government of Canada, 2002; http://laws-lois.justice.gc.ca/PDF/S-15.3.pdf).

The only known population of the endangered horsetail spike-rush in Canada is found within Long Point NWA, and this location is identified as critical habitat under SARA (Environment Canada, 2016). It is expected that critical habitat will be identified within the NWA for a number of other species at risk (Environment Canada, 2012; Government of Canada, 2019).

Species-specific habitat regulations currently exist under the provincial *Endangered Species Act* for several species at risk reported at Long Point NWA including: bobolink (*Dolichonyx oryzivorus*), eastern sand darter, eastern foxsnake, bent spike-rush (*Eleocharis geniculata*), fowler's toad and queensnake (Bowles, 2010; Eastern Foxsnake Recovery Team, 2010; Gillingwater, 2011; Green *et al.,* 2011; Government of Ontario, 2019; McCracken *et al.,* 2013; OMNR, 2013).

The following list (**Table 3**) was created with an emphasis on resident species in Long Point NWA or species that use the NWA for breeding/a significant part of their life cycle. This list is not comprehensive and vagrant/transitory species are not necessarily considered in management planning.

Appendix 1 provides links to more information on federal and provincial species at risk legislation in Ontario. For more information on SARA, COSEWIC, and the ESA refer to Appendix 1 or visit:

- http://www.registrelep-sararegistry.gc.ca/
- http://cosewic.ca/index.php/en-ca/
- http://www.ontario.ca/laws/regulation/080230

Table 3: Species at Risk at Long Point National Wildlife Area.

Common and Scientific Names of Species	Status		
	Canada		Ontario
	SARA[a]	COSEWIC[b]	ESA, 2007[c]
Vascular Plants			
Spotted Wintergreen *Chimaphila maculata*	Endangered	Threatened	Threatened
Bent Spike-rush (Great Lakes Plains population) *Eleocharis geniculata*	Endangered	Endangered	Endangered
Common Hoptree *Ptelea trifoliata*	Threatened	Special Concern	Special Concern
Cucumber Tree *Magnolia acuminata*	Endangered	Endangered	Endangered
Horsetail Spike-rush *Eleocharis equisetoides*	Endangered	Endangered	Endangered
Molluscs			
Eastern Pondmussel *Ligumia nasuta*	Endangered	Special Concern	Special Concern
Invertebrates			
Monarch *Danaus plexippus*	Special Concern	Endangered	Special Concern
Fishes			
Eastern Sand Darter (Ontario populations) *Ammocrypta pellucida*	Threatened	Threatened	Endangered
Grass Pickerel *Esox americanus vermiculatus*	Special Concern	Special Concern	Special Concern
Lake Chubsucker *Erimyzon sucetta*	Endangered	Endangered	Threatened
Pugnose Shiner *Notropis anogenus*	Endangered	Threatened	Threatened
Spotted Gar *Lepisosteus oculatus*	Threatened	Endangered	Endangered
Reptiles			
Eastern Foxsnake (Carolinian population) *Pantherophis gloydi*	Endangered	Endangered	Endangered
Eastern Hog-nosed Snake *Heterodon platirhinos*	Threatened	Threatened	Threatened
Eastern Milksnake *Lampropeltis triangulum*	Special Concern	Special Concern	Not Classified
Eastern Ribbonsnake (Great Lakes population) *Thamnophis sauritus*	Special Concern	Special Concern	Special Concern
Midland Painted Turtle *Chrysemys picta marginata*	Special Concern	Special Concern	Not Classified
Queensnake *Regina septemvittata*	Endangered	Endangered	Endangered

Common and Scientific Names of Species	Status		
	Canada		Ontario
	SARA[a]	COSEWIC[b]	ESA, 2007[c]
Snapping Turtle *Chelydra serpentina*	Special Concern	Special Concern	Special Concern
Amphibians			
Fowler's Toad *Anaxyrus fowleri*	Endangered	Endangered	Endangered
Birds			
Acadian Flycatcher *Empidonax virescens*	Endangered	Endangered	Endangered
American White Pelican *Pelecanus erythrorhynchos*	No Status	Not at Risk	Threatened
Bald Eagle *Haliaeetus leucocephalus*	No Status	Not at Risk	Special Concern
Bank Swallow *Riparia riparia*	Threatened	Threatened	Threatened
Barn Swallow *Hirundo rustica*	Threatened	Threatened	Threatened
Black Tern *Chlidonias niger*	No Status	Not at Risk	Special Concern
Bobolink *Dolichonyx oryzivorus*	Threatened	Threatened	Threatened
Buff-breasted Sandpiper *Tryngites subruficollis*	Special Concern	Special Concern	Not Classified
Canada Warbler *Cardellina canadensis*	Threatened	Threatened	Special Concern
Cerulean Warbler *Setophaga cerulean*	Endangered	Endangered	Threatened
Chimney Swift *Chaetura pelagica*	Threatened	Threatened	Threatened
Common Nighthawk *Chordeiles minor*	Threatened	Special Concern	Special Concern
Eastern Meadowlark *Sturnella magna*	Threatened	Threatened	Threatened
Eastern Whip-poor-will *Antrostomus vociferus*	Threatened	Threatened	Threatened
Eastern Wood-pewee *Contopus virens*	Special Concern	Special Concern	Special Concern
Golden Eagle *Aquila chrysaetos*	No Status	Not at Risk	Endangered
Golden-winged Warbler *Vermivora chrysoptera*	Threatened	Threatened	Special Concern
Horned Grebe (Western population) *Podiceps auritus*	Special Concern	Special Concern	Special Concern
King Rail *Rallus elegans*	Endangered	Endangered	Endangered
Least Bittern *Ixobrychus exilis*	Threatened	Threatened	Threatened

Common and Scientific Names of Species	Status		
	Canada		Ontario
	SARA[a]	COSEWIC[b]	ESA, 2007[c]
Louisiana Waterthrush *Parkesia motacilla*	Special Concern	Threatened	Threatened
Olive-sided Flycatcher *Contopus cooperi*	Threatened	Special Concern	Special Concern
Peregrine Falcon *anatum/tundrius* subspecies *Falco peregrinus anatum/tundrius*	Special Concern	Not at Risk	Special Concern
Piping Plover *circumcinctus* subspecies *Charadrius melodus circumcinctus*	Endangered	Endangered	Endangered
Prothonotary Warbler *Protonotaria citrea*	Endangered	Endangered	Endangered
Red-headed Woodpecker *Melanerpes erythrocephalus*	Threatened	Endangered	Special Concern
Red Knot *rufa* subspecies *Calidris canutus rufa*	Endangered	Endangered	Endangered
Red-shouldered Hawk *Buteo lineatus*	Special Concern	Not at Risk	Not Classified
Rusty Blackbird *Euphagus carolinus*	Special Concern	Special Concern	Special Concern
Short-eared Owl *Asio flammeus*	Special Concern	Special Concern	Special Concern
Wood Thrush *Hylocichla mustelina*	Threatened	Threatened	Special Concern
Yellow-breasted Chat *virens* subspecies (Eastern population) *Icteria virens virens*	Endangered	Endangered	Endangered
Mammals			
Woodland Vole *Microtus pinetorum*	Special Concern	Special Concern	Special Concern
Little Brown Myotis *Myotis lucifugus*	Endangered	Endangered	Endangered

a. SARA *(Species at Risk Act)*: Extinct, Extirpated, Endangered, Threatened, Special Concern, Not at Risk (assessed and deemed not at risk of extinction), or No Status (not rated).
b. COSEWIC (Committee on the Status of Endangered Wildlife in Canada): Extinct, Extirpated, Endangered, Threatened, Special Concern, Not at Risk (assessed not at risk), Data Deficient (available information is insufficient to resolve eligibility for assessment or permit an assessment of the wildlife species' risk of extinction).
c. ESA (*Endangered Species Act, 2007*), Species at Risk in Ontario List: Extirpated, Endangered, Threatened, Special Concern, or not classified.

3.0 MANAGEMENT CHALLENGES AND THREATS

3.1 Multi-Species Conservation and Species at Risk

Multi-species conservation and recovery is an ongoing challenge in the Long Point NWA and requires active management to maintain ecosystem functions, species diversity and abundance. Control and removal of non-native *Phragmites*, management of the white-tailed deer population, and restrictions and conditions on public access are imperative to sustain wildlife habitat and overall biodiversity. Many species have complex habitat requirements that are not well understood, and small and/or widely distributed populations are often under-represented in general research studies.

Critical habitat has been identified for a number of species under SARA within the NWA (e.g., horsetail spike-rush, cucumber tree, least bittern, and lake chubsucker) with species-specific habitat protection needs that may require active management to improve or maintain their habitats. It is anticipated that critical habitat will be identified within the foreseeable future for a number of other species within the NWA; highlighting the challenges with managing the varying habitat needs of multiple species, including both common species and species at risk.

3.2 Invasive and Non Native Plants

Numerous non-native plant species occur within the NWA however, some have become well-established over decades and in essence are integrated into existing habitats. Problems arise with aggressive species that have the ability to rapidly spread and subsequently displace native species and decrease biodiversity.

Within the Long Point NWA, and Long Point peninsula more broadly, the expansion and invasive characteristics of non-native *Phragmites* is of particular concern.

Several studies have tracked the distribution and abundance of non-native *Phragmites* over time and found non-native *Phragmites* has grown near-exponentially in some areas of the Long Point peninsula and NWA (e.g., from 1995 to 2013) (Jung *et al.*, 2017). This rapid expansion is expected to continue (Badzinski *et al.,* 2008; Bowles and Bradstreet, 2010; EC-CWS, 2013; Pearce *et al.,* 2012; Wilcox *et al.,* 2003) at Long Point aided by variable water levels and increased ambient air temperatures (Wilcox *et al.,* 2003).

A study of historical distribution and abundance of non-native *Phragmites* at Long Point showed that monotypic stands of non-native *Phragmites* have predominantly replaced native

wetland habitat including open water, meadow marsh, cattail, and grass and sedge hummocks. Non-native *Phragmites* monocultures have been observed to cause changes to chemical and physical soil properties, nutrient cycling, and a localized decrease in plant and animal diversity (Tagliavia and Hayes, 2009; Wilcox *et al.,* 2003).

In addition, non-native *Phragmites* negatively impacts the breeding and feeding habitat available for wetland birds such as waterfowl, marshbirds and other wading birds (Chambers *et al.,* 1999; Robichaud and Rooney, 2017). The stands of *Phragmites* are often dense and can prevent movement of turtles and amphibians that attempt to cross the dunes or beaches to breed or forage.

Non-native *Phragmites* grows in both dry and wet substrates, and thus dense monotypic stands become established in areas of shallow water and damp soil along edges of ponds and shorelines and expand from there into dry and upland environments. The density, paired with high evapotranspiration rates, reduces the amount of open water available for staging waterfowl to land and for birds such as the great blue heron (*Ardea herodias*) and least bittern to forage and rest. Wetland habitat loss is then magnified by the effect of other invasive species such as mute swans and common carp which reduce the amount and quality of submerged aquatic vegetation beds (Tagliavia and Hayes, 2009).

3.3 Invasive and Non Native Animals

Numerous invasive animal species can be found in the Long Point NWA (see **Table 1** for a more detailed list). Management actions involving invasive animals are unique to each species, and several notable species are described below.

Emerald Ash Borer

The emerald ash borer (*Agrilus planipennis*) is an invasive and non-native insect pest that targets and feeds on ash trees (i.e., *Fraxinus* spp.) and eventually causes tree death. The emerald ash borer is present in Norfolk County (B. Hamilton, personal communication, 2015) and although it has not yet been professionally identified, anecdotal evidence of dying trees suggest that emerald ash borer may be present in the NWA (D. Bernard, personal communication, 2019). If found on Long Point, the emerald ash borer poses a significant threat to ash species and forest habitat on the Long Point peninsula and within the NWA, particularly within the red ash/northern red oak savannah found in the Long Point Unit (Pearce *et al.,* 2012).

Rusty Crayfish

The rusty crayfish (*Orconectes rusticus*) is an invasive and non-native species that poses a significant threat to native crayfish. As of writing, this species has been found in many watersheds and rivers bordering all of the Great Lakes, and eDNA sampling detected this species in Ontario coastal lake water samples from Lake Erie, Lake Ontario, Lake Michigan and Lake Huron (Larson *et al.,* 2017; OMNR, 2012). It should be noted that at the time of writing, no confirmed individuals have been found in the Great Lakes, and there are no known populations of rusty crayfish close to the NWA (Larson *et al*., 2017). The large size, aggressive eating habits, and rapid spread of this crayfish could have serious impacts upon native species of crayfish should it arrive in Lake Erie. Among other impacts, invasion of the rusty crayfish into the Long Point region could negatively impact the endangered queensnake as this snake species relies on native crayfish as a food source (Gillingwater, 2011; Reid and Nocera, 2015). There is currently no practical way to eradicate them (OMNR, 2012). To reduce the threat and prevent the spread of rusty crayfish, Ontario prohibits the overland transport of all species of crayfish, both alive and dead, and crayfish can only be used for bait in the waterbody in which they are caught (OMNR, 2012).

Common Carp

Common carp have been shown to have a detrimental effect on wetland habitat (Jude and Pappas, 1992). Common carp have extended spawning periods, spawn more than once, and spawn during high water temperatures and high water levels (Jude and Pappas, 1992). Spawning results in increased levels of turbidity within the wetlands, and can be a concern to native fish species. Four species at risk fish found in the NWA require a dense mixture of submergent and emergent vegetation, and very low water turbidity (Marson *et al.,* 2010). Similar to the spread of non-native *Phragmites*, common carp can reduce the habitat foraging value of wetlands for migrating waterfowl (Bookhout *et al.,* 1989; Petrie, 1998). Common carp are present in both units of the NWA and are difficult to manage given the marshes are open to Lake Erie (Gilbert and Oldenburgh, 2013).

Mute Swan

The mute swan is an invasive and non-native bird from Eurasia that has rapidly expanded into the Lake Erie region since they first began colonizing the lower Great Lakes in the mid-1960s and 1970s (Meyer *et al.,* 2012; Petrie and Francis, 2003). Breeding and wintering

populations of mute swans have formed by utilizing the emergent marsh habitat, shallow water and abundant food supply found in Lake Erie. The mute swan population at the Long Point marsh complex has increased significantly in recent years and this increase is expected to continue (Barney and Badzinski, 2015).

Mute swans are a growing concern because they compete for habitat and food with other native waterfowl species and have very few natural predators (Petrie and Francis, 2003). As such, the mute swan population is closely monitored within the NWA. Reducing the impacts of mute swans on native birds and habitat requires active management to prevent mute swans from nesting and establishing territories in the NWA.

Along the Lake Erie shoreline, marshes are actively managed to discourage mute swans and marsh managers can request a Damage or Danger Permit under the *Migratory Birds Regulations* to remove problem birds. At Long Point NWA, the mute swan population is monitored regularly and swans are discouraged from establishing nests, or removed to reduce competition with or displacement of native waterfowl and other waterbirds. Survey numbers at the Long Point peninsula are low relative to other areas within the Great Lakes which indicate efforts to reduce numbers in the NWA and surrounding area have been generally successful (S. Badzinski, personal communication, 2015; Meyer *et al.*, 2012). Continued monitoring and removal are necessary to limit the population and its detrimental effects on marsh habitats and wildlife.

3.4 Hyperabundant Wildlife

A wildlife species may be considered hyperabundant or a problematic native species if the species is a threat or causing damage to; wildlife habitat, species at risk, NWA infrastructure, or public health and safety.

Resident Species

There exists the potential for resident bird species or mesopredators (such as double-crested cormorants, striped skunk, northern raccoon, Virginia opossum, or red fox) to be considered problematic native species, and exert unsustainable stress and damage on priority species at risk. This is currently unsubstantiated by research, but may become a threat in the future.

White-tailed Deer

Vegetation at Long Point NWA was historically altered by timber harvesting and fire. More recently, over-browsing by hyperabundant white-tailed deer has contributed to limited understory growth and forest regeneration (Pearce *et al.,* 2012). As a result, a loss of plant biodiversity reduced the amount and quality of habitat available for resident wildlife, as well as nesting and staging for birds (Pearce *et al.,* 2012).

ECCC-CWS initiated monitoring and management actions in 1989 to manage the white-tailed deer population in the NWA with the intent of restoring and maintaining an understory, leading to healthy native habitats and increased biodiversity (Ashley *et al*., 1998; McCullough and Robinson, 1988). The management objective for the Long Point NWA white-tailed deer herd is to maintain approximately five deer per 1 km^2 (Ashley and Robinson, 2007; Pearce *et al.,* 2012; Sadler, 2013).

American Beaver

American beaver populations are informally surveyed in the NWA. In recent years, American beavers have felled significant numbers of trees and shrubs in the NWA, which could potentially result in destabilization of dunes and shorelines or flooding and disturbance to fragile habitats (D. Bernard, personal communication, 2014). This is of particular concern for endangered horsetail spike-rush critical habitat (D. Bernard, personal communication, 2014) where American beavers have altered water levels and caused flooding where horsetail spike-rush occurred. It may become necessary to take action to discourage American beaver activity or manage the local American beaver population (e.g., installation of beaver baffles etc.) in priority habitats. Regular monitoring and assessment of water levels and the American beaver population is needed to determine if the species is a threat or significant damage is occurring to wildlife habitat or species at risk.

3.5 Feral and Domestic Animals and Release of Unwanted Pets and Wildlife

Feral and domestic animals (e.g., cats and dogs) have been documented within the NWA. These animals are typically strays and in some cases are unwanted pets (e.g., non-native turtle and fish species) that have been released illegally in the NWA. The actual number of feral cats, dogs, and domestic animals in the NWA is currently not documented; however, these animals can exert significant predatory pressure on native wildlife through nest destruction, the

transfer of disease and pathogens to wild animals, and disruption to wildlife and habitat. They therefore require ongoing consideration in development of future management actions.

3.6 Emergency Planning and Response

The large size of the Long Point peninsula and the fact that the natural habitats are contiguous across land holdings make it essential for land managers to act in close cooperation with each other to ensure the conservation of the Long Point peninsula.

There is a need to develop a co-ordinated response to issues and threats that affect the Long Point NWA and broader landscape of the peninsula. These issues and threats include the spread of invasive species, fuel and/or chemical spills, fire, human disturbance to wildlife and habitats, and the potential effects of climate variability and projected climate change. There is a need to develop an emergency response plan to respond to spills, and fires within the Long Point NWA and the broader Long Point peninsula. Chemical and fuel spills and uncontrolled fires pose a significant threat to wildlife and natural habitat, particularly at certain times of the year (e.g., during spring and fall waterfowl staging).

The Long Point *Phragmites* Action Alliance is a good example of a strategic and collaborative approach to reduce and control non-native *Phragmites* on the Long Point peninsula.

3.7 Other Management Challenges

3.7.1 Demand for Public Access and Services

The sand beaches, warm water, and extensive marshes along Lake Erie and the Long Point peninsula are popular destinations for tourism, recreation and the cottage industry. Since the NWA was established, population growth in nearby urban centres and increased public interest in outdoor recreation and tourism has resulted in a rise in the number of visitors to the NWA . While the effects of the current level of visitation and public recreational activities (e.g., hiking, beach use, boating, sport fishing, and waterfowl hunting) on wildlife and habitat have not been fully assessed, increased visitation may have negative effects on wildlife and habitat and may put more demands on infrastructure and ECCC-CWS and ECCC-WED staff to promote and ensure compliance with rules and regulations.

There is an ongoing need to communicate health and safety risks to visitors. The NWA is remote and visitors must be self-sufficient and take precautions to deal with extreme heat, inclement weather, wind, and biting insects including ticks carrying lyme disease.

ECCC-CWS staff reports of damage to habitat and infrastructure indicate unauthorized access and prohibited activities occur frequently (i.e., off-road ATV use, open fires, garbage dumping, vandalism, wildlife trapping, illegal beach access, fishing and hunting outside of designated areas, and unauthorized tourist operations). Other concerns include low flying and landing of unauthorized aircraft (including remotely piloted aircraft systems) and trespassing in restricted areas of the NWA. Prevention and enforcement of prohibited activities are ongoing challenges due to the remote location and large area of the Long Point NWA, making detection and enforcement of illegal activities difficult.

3.7.2 Commercial Activities and Increased Development

Licenced commercial fishing, including bait harvesting, occurs outside the NWA in Long Point Inner Bay and Long Point Bay. This activity has historically occurred to a limited extent within the NWA itself, often without a CWA permit. Requirements are in place for commercial fishers to live-release incidentally caught species at risk (e.g., turtles, fishes), to take actions to minimize impact, and to ensure that commercial fishing and bait harvesting will not jeopardize the survival or recovery of species at risk (Gislason *et al.,* 2010).

In recent decades, the human population has been increasing within the Lake Erie Basin, and associated shoreline development may increase (ECCC and US EPA, 2017). With future population increases, tourism and the development of private sections of the Long Point peninsula may continue to increase. Development activities along shorelines are known to have negative impacts on the Great Lakes (ECCC and US EPA, 2017), and development of the Lake Erie shoreline north of the NWA could have adverse effects on the habitats and wildlife (e.g., loss of diversity along species rich shorelines, impacts on species that utilize shoreline corridor habitat during migration, habitat loss and fragmentation, etc.).

3.7.3 Legacy Arrangements and Issues

There are several formal and informal land use arrangements in the form of leases, licences, agreements, permits and verbal agreements or long-standing practices to authorize partners, neighbours, stakeholders, or the public to access and use certain portions of the Long

Point NWA. These arrangements will be reviewed closely in coming years as they come up for renewal or are no longer compliant with the current regulatory and policy regime in order to regularize and properly document and authorize uses and end unauthorized uses. Some arrangements pre-date certain changes to relevant federal legislation, regulations, directives, policies, and criteria for permit issuance or situations/uses have evolved over time. To ensure compliance with all current federal legislation and policies, each arrangement will be reviewed, modified, or may not be renewed as appropriate at the time. Each situation will be evaluated on its merits and for consistency with current policies and directives and decision-making criteria.

3.7.4 Climate Variability and Projected Climate Change

Current models predict that climate change will affect the Ontario Region by causing warmer air temperatures, increased evaporation, increased annual precipitation (Cohen *et al.*, 2019; review by Derksen *et al.* 2019), and will affect the Great Lakes Basin by causing a decrease in winter ice cover (Gula and Peltier, 2012; review by Zhang *et al*., 2019), and increased variability in lake levels (review by Bonsal *et al*., 2019; Music *et al*., 2015).

Coastal habitat may be damaged by climate change, and could decrease in area if water levels were to drop (Expert Panel on Climate Change for Ontario, 2009). In contrast, the recent period of sustained high water caused substantial erosion of certain portions of the Long Point peninsula. It is expected there could be changes in the distribution, range and breeding behaviours of migratory birds due to climate change (National Audubon Society, 2009). Although the exact impacts of climate change on the habitats and wildlife on the NWA are unknown, wildlife use of areas such as Long Point is likely to shift from historical norms (Expert Panel on Climate Change for Ontario, 2009). In particular, some wetland wildlife species that are sensitive to fluctuating hydrology may be impacted greater than other species (Environment Canada, 2013b). It is anticipated that climate change and the variable Lake Erie water levels could exacerbate the spread and expansion of invasive and non-native plants (i.e., non-native *Phragmites*) and could contribute to an eventual reduction of diversity (Expert Panel on Climate Change for Ontario, 2009).

There is also a concern that the effects of climate change combined with existing off-site human induced changes to the nearshore zone of Lake Erie, such as changed sediment circulation patterns, will affect the physical configuration and extent of Long Point. This may in turn effect the extent and integrity of habitats found on the point. This represents a threat both to wildlife habitat and to geo-diversity.

In the face of projected climate change and resulting likely increased lake level variability and increased severe weather events, as well as overall uncertainty in terms of long-term local and regional impacts, there will be a need to dedicate increased resources in order to conserve existing habitats and manage invasive and non-native plant species. Additionally, variable water levels could lead to costs associated with adapting infrastructure, access to sites, as well as the normal maintenance of facilities and the signage of boundaries.

There is a need to develop adaptive management strategies to consider changes over time and other potential effects of climate change and variability on habitat and wildlife (including species at risk), and to identify if additional habitat management practices to restore and protect habitats are needed.

3.7.5 Lakewide Threats and Challenges

Lakewide threats and challenges shown to have significant impacts on migratory birds (and may directly/indirectly affect species at risk populations and their habitat) include changes in food resources, increased incidence of botulism, disease, contaminant/toxin assimilation, invasive and non-native species and incompatible development (Evers *et al*., 2011; Ewert *et al.,* 2006; Fields, 2005; Hamilton *et al.,* 2011; Knapton and Petrie, 1999; Poos *et al.,* 2009). Although these threats are in most cases beyond the influence of localized management actions outlined in this plan, they are and will continue to be considered in the development of management actions both within the NWA and in partnership with other governments and non-government conservation organizations.

4.0 GOALS AND OBJECTIVES

4.1 Vision

Long Point NWA will be protected and maintained as one of the most biodiverse protected areas in Canada. Coastal and interior wetland, pond, grassland, savannah, dune, and beach habitats will be protected, restored, and improved to reflect Long Point's status as a continentally significant staging and breeding area for migratory birds, nationally significant habitat supporting a concentrated diversity and abundance of migratory birds, and one of the richest areas in Canada for species risk.

4.2 Goals and Objectives

The goals and objectives for the Long Point NWA will be attained through active and passive management to sustain habitats, improve biodiversity and to allow limited human uses of the NWA, consistent with IUCN classification as a Category IV protected area (habitat/species management area) (Dudley, 2008).

The approaches in section 5.6 and research in section 5.7 provide additional information on how the overall goals will be achieved.

Goal 1: Terrestrial and aquatic habitats will be protected and managed so that populations of migratory birds, species at risk and resident flora and fauna are sustained.

Objective:

a) Upland and wetland habitats will be managed to maintain and/or enhance native and historic vegetation diversity so that populations of native migratory species and resident flora and fauna are sustained.

b) Maintain and/or enhance stopover and breeding habitat for migratory species.

c) Identify and implement habitat management actions to maintain or improve habitat for species at risk, in accordance with recovery strategies for species at risk and seek to integrate these actions into a greater ecosystem-based context.

d) Identify, prioritize, and implement measures where needed for active habitat restoration in order to sustain or recreate historic and native biodiversity

e) Continue implementation of the white-tailed deer management program to maintain the deer population at or below the carrying capacity to safeguard native habitat and encourage high floral and faunal biodiversity, improved undergrowth, and the promotion of a diverse bird community.

f) Assess risk and mitigate potential impacts of climate variability and projected climate change on the NWA. Develop and implement a management strategy, within the next

three years, which will include adaptations to mitigate potential impacts of climate variability and projected climate change.

Goal 2: Control and eliminate (to the extent practicable) non-native plant species so that the size and number of habitat patches known to be dominated by these species will decrease or be eliminated over time, or where the presence of such species presents a threat to habitat.

Objective:

a) Develop and implement a plan to detect, prioritize, and reduce the extent and/or rate of expansion of invasive and non-native plant species, and prevent new invasive and non-native plant species from establishing to the extent possible.

b) Work in partnership with major Long Point landholders, other stakeholders, and invasive species experts to plan for and manage non-native *Phragmites* on Long Point, with bi-annual status reports regarding control of *Phragmites* within LPNWA.

c) Reduce the area dominated by non-native *Phragmites* in the NWA to less than 10% of its 2018 extent, by 2025.

d) Encourage best management practices for invasive and non-native species control on natural habitats contiguous and adjacent (and beyond when possible) to the NWA.

e) Control and remove new invasive and non-native plant species (where practicable), within two years of being detected.

Goal 3: Human activities within the NWA are compliant with the *Canada Wildlife Act* and relevant *Wildlife Area Regulations*, are focused on education and research, and do not pose a reasonable threat to wildlife populations or their habitat.

Objective:

a) Manage and monitor human activities and infrastructure within the NWA to ensure a safe environment and to maintain and/or enhance the ecological integrity of the Long Point NWA

b) Aim to increase compliance with the *Canada Wildlife Act, Wildlife Area Regulations* and other relevant federal legislation, regulations, directives, policies, and programs prior to all agreement or permit expiry dates and when reviewing and considering when and whether to renew, update, amend or cancel all leases, licences, permits and agreements with all agencies, visitors, partners, and stakeholders that pertain to the NWA.

c) Work in coordination with Federal and Provincial wildlife enforcement personnel to promote compliance with the *Canada Wildlife Act, Wildlife Area Regulations, Species at Risk Act* and other relevant policies and regulations, and reduce the rate of incidents of prohibited activities within the NWA

d) Work with neighbouring and nearby public land managers, private land managers, stakeholders, and partners to delineate private and public lands and communicate permitted and prohibited uses within Long Point NWA.

Goal 4: Maintain and increase habitat connectivity on the Long Point peninsula and support regional landscape-level conservation efforts and partnerships.

Objective:

a) Increase the connectivity of habitats and migration corridors by consolidating and, where possible, expanding the protected area land base, directly and through partnerships.

b) Increase ECCC-CWS capacity to participate in community and stakeholder meetings and initiatives to identify shared issues and management approaches for the Long Point peninsula.

c) Accumulate and share knowledge and implement monitoring and research initiatives to address information gaps about the wildlife and habitat associated with the Long Point NWA and peninsula.

d) Collaborate with Long Point peninsula land managers and organizations to promote research to address information gaps, evaluate management actions and establish best practices.

e) Develop a Long Point NWA emergency response plan to assess risk and mitigate potential impacts of spills and fire, and integrate into a broad peninsula-wide plan by engaging partner land managers.

4.3 Evaluation

Annual monitoring will be performed within the limits imposed by the availability of financial and human resources. The management plan will be reviewed 5 years after its initial approval to assess progress and allow for minimal revisions stemming from adaptive management findings and any emerging issues that stand to substantially affect NWA management actions, and updated every 10 years thereafter. The evaluation will take the form of an annual review of monitoring data obtained from the monitoring and research projects outlined below. This monitoring will be used to establish priorities for action and to allocate resources.

5.0 MANAGEMENT APPROACHES

Both passive and active management are required to maintain wetland, aquatic and terrestrial habitats and the presence and health of associated species. Species habitat use, habitat occupancy timing windows, critical habitats and other constraints will be considered within all management actions.

In order of priority, management of native habitats and wildlife within the NWA will aim to:

1. Maintain what currently exists.

2. Restore and enhance what could be improved.
3. Re-create what has been lost or may be lost in the future.

Table 4 describes specific actions and approaches that could be used in the management of the Long Point NWA. These actions will be used to identify resource needs over the projected 10 year lifespan of this management plan and beyond. These actions and approaches will be used for annual work planning and be implemented based on their relative priority and as human and financial resources allow. This section (Section 5) provides general information on management and additional references and context to accompany the approaches and actions listed in Table 4.

Management will vary from intensive manipulation to non-interference with natural processes. Dynamic natural processes (e.g., shoreline erosion, fluctuating water levels, climate change and variability) will continue with minimal interference. Active management may be undertaken to supress fire, manage species, or respond to an emergency. Management actions that are implemented for a particular species will be implemented in such a manner as to minimize stress upon other wildlife and habitats.

Species at risk will be managed in an integrated approach (as guided by recovery documents) with other species at risk and other wildlife. Overlapping and competing habitat needs will be evaluated, and habitat management will be based on providing the greatest amount of benefit to the greatest number of species at risk, while considering high-priority species (those at greatest risk).

Table 4: Management Approaches for Long Point National Wildlife Area

Management Challenges and Threats	Goals and Objectives	Management Approaches (actions, including level of priority[1])
• Reduction in biodiversity due to expansion of invasive and/or non-native plant species • Data deficiencies about site-specific habitat requirements for species at risk • Managing for varying species' habitat needs • Predation pressures and habitat disruption by overabundant wildlife • Climate variability and projected climate change	**Goal 1: Terrestrial and aquatic habitats will be protected and managed so that populations of migratory birds, species at risk and resident flora and fauna are sustained.** a) Objective: Upland and wetland habitats will be managed to maintain and/or enhance native and historic vegetation diversity so that populations of native migratory species and resident flora and fauna are sustained.	• Ecological assessments of interior and coastal wetlands, meadow marsh, and panne communities will be used, and where necessary augmented or updated, to establish baseline information on vegetation community structure, invasive and non-native species, and wildlife use. **(1)** • Establish a baseline inventory and assess habitat quality, extent, and community structure (including the extent of invasive species) of natural areas (dunes and beach, upland and lowland forest, savannah, wetlands and ponds) and ground truth Ecological Land Classification (ELC) mapping using established protocols, aerial imagery and site visits in order to determine wildlife use and inform habitat management. **(1)** • Continue to monitor and survey marshbirds, amphibians and wetland habitat using established protocols (e.g., Great Lakes Marsh Monitoring Program, Coastal Habitat Assessment Monitoring Program (CHAMP)) to asses the integrity of coastal marsh communities. **(1)** • Monitor and actively manage, where applicable/feasible, species such as, but not necessarily limited to American beaver and double-crested cormorant populations whose abundance or other attributes may negatively affect native habitats and species within the NWA. **(1)** • Non-native mute swans will be monitored and managed. Birds will be discouraged from nesting and/or removed to reduce habitat damage or displacement of native waterfowl and other waterbirds. **(1)** • Proactively survey LPNWA to detect alien and invasive alien species, pests, and diseases **(1)** • Monitor alien and invasive alien species, pests, and diseases **(1)**

Management Challenges and Threats	Goals and Objectives	Management Approaches (actions, including level of priority[1])
		• Continually assess the risk invasive alien species, pests, and diseases pose to native habitats and species, and; if necessary, undertake targeted control to reduce the spread of invasive alien species where feasible. Consider best management practices and guidance documents, where available, and for invasive plant species the need to take actions as per Goal Two of this plan. **(1)** • Complete regular site inspections to monitor facilities and infrastructure, invasive and non-native species, unauthorized access, visitor use, water chemistry and habitat and wildlife responses to management activities. **(1)** • Inventory and assess plant, vertebrate and invertebrate species and taxa of conservation concern either in themselves or as indicators of NWA habitat or ecosystem integrity. **(1)**
	b) Objective: Maintain and/or enhance stopover and breeding habitat for migratory species.	• Continue to support established bird and amphibian population survey programs (e.g., Decadal Migrant Waterfowl Survey, Annual Mid-winter Waterfowl Survey, Annual Marsh Monitoring Program, Coastal Habitat Assessment and Monitoring Project) that occur at Long Point NWA. **(1)** • Monitor bat populations and habitat use. **(1)** • Monitor the populations and habitats of breeding and migratory monarchs, as well as other pollinators, at-risk, or otherwise key insect populations. **(1)**
	c) Objective: Identify and implement habitat management actions to maintain or improve habitat for species at risk, in accordance with recovery strategies for species at risk and seek to integrate these actions into a greater ecosystem-based context.	• Implement recommendations from species at risk recovery documents (i.e., recovery strategies, action plan statements, management plans, etc.). **(2)** • Establish and implement protocols to monitor and evaluate species at risk habitat protection and recovery actions (e.g., experimental fowlers toad breeding ponds). **(2)**

Management Challenges and Threats	Goals and Objectives	Management Approaches (actions, including level of priority[1])
		• Monitor American beaver population and influence on water levels and implement measures to reduce and prevent flooding of horsetail spike-rush stands. **(1)** • Initiate targeted monitoring for species at risk and designated critical habitat where information gaps exist. **(2)** • Survey and monitor species at risk populations to evaluate effectiveness of management activities to protect and enhance critical habitats. **(1)** • Monitor and survey species at risk and designated critical habitat using established protocols where information gaps exist and potential impacts may arise to inform habitat protection and recovery actions. **(1)**
	d) Objective: Identify, prioritize, and implement measures where needed for active habitat restoration in order to sustain or recreate historic and native biodiversity	• Identify and prioritize areas and habitats based upon risk (likelihood, severity and irreplaceability of loss of a habitat), endemism, ecological function, needs of key dependent species, where active restoration, creation, or improvement would have the greatest effect, and would be viable and successful. **(2)** • Identify areas and habitats where passive restoration would be most appropriate as per the method to identify active restoration sites. **(2)** • Undertake planting of native species to naturalize existing plantations and restore disturbed sites and replace invasive and non-native vegetation. **(2)** • Remove or reduce invasive and non-native plant species and plant native species or otherwise take actions to prevent re-invasion and restore native and historic communities. **(1)** • Remove or control (where possible) other non-native taxa compromising or inhibiting the presence and integrity of native plant communities. **(2)** • Monitor effectiveness of restoration actions and adapt management as needed. **(2)**

Management Challenges and Threats	Goals and Objectives	Management Approaches (actions, including level of priority[1])
	e) Objective: Continue implementation of the white-tailed deer management program to maintain the deer population at or below the carrying capacity to safeguard native habitat and encourage high floral and faunal biodiversity, improved undergrowth, and the promotion of a diverse bird community.	• Complete annual aerial white-tailed deer herd population monitoring in mid-winter to inform as required white-tailed deer herd management activities. **(1)** • Complete annual vegetation and breeding bird monitoring to support white-tailed deer management program and analyze bird and vegetation data on a five-year interval to guide management. **(1)** • Conduct a white-tailed deer management program, including completion of periodic vegetation and breeding bird censuses, completion of an annual white-tailed deer population census, and completion of coyote population, abundance and distribution monitoring. **(1)**
	f) Objective: Assess risk and mitigate potential impacts of climate variability and projected climate change on the NWA. Develop and implement a management strategy, within the next three years, which will include adaptations to mitigate potential impacts of climate variability and projected climate change.	• Establish a baseline inventory and monitor habitat change (i.e., extent and quality) of wetland and upland vegetation communities using aerial photography and site visits. **(1)** • Encourage and support monitoring and research projects that support NWA management objectives, and address data and knowledge gaps. **(1)** • Conduct biological inventory for the NWA every ten years to report on biological diversity and threats. **(2)** • Develop a study that models short and long term geological processes, shoreline erosion/accreditation trends, and geoconservation given impacts of projected climate change on the Long Point peninsula. **(2)** • Develop and implement field methods to monitor rates of erosion, accretion and site-specific change of beaches and foredunes along Lake Erie shoreline in order to identify management actions required to address human induced disturbances. **(2)**
• Reduction in biodiversity due to expansion of	**Goal 2: Control and eliminate (to the extent practicable) non-native plant species so that the size and number of**	• Identify and prioritize immediate active control of invasive plant species based upon their threat to resident species, ability to transform

Management Challenges and Threats	Goals and Objectives	Management Approaches (actions, including level of priority[1])
invasive and/or non-native plant species • Managing for varying species' habitat needs • Expansive wetland and upland habitats and remote access limits ability to respond to emergencies (e.g., control or remove invasives) • Climate variability and projected climate change	**habitat patches known to be dominated by these species will decrease or be eliminated over time, or where the presence of such species presents a threat to habitat.** a) Objective: Develop and implement a plan to detect, prioritize, and reduce the extent and/or rate of expansion of invasive and non-native plant species, and prevent new invasive and non-native plant species from establishing to the extent possible.	habitats, or alter ecological functions (likelihood, severity and irreplaceability of loss of a habitat), and where control measures would be viable and successful. **(1)** • Identify strategies and measures for control of lower priority or more difficult to control invasive species. **(2)** • Identify potential strategies and protocols for the detection and prevention of re-invasion and future invasions by existing, new, and emerging invasive species. **(1)** • Establish and implement monitoring to assess control methods and use results to revise continued management where necessary. **(2)** • Continue annual control and removal of invasive silver poplar (*Populus alba*), garlic mustard (*Alliaria petiolata*), and Japanese Barberry (*Berberis thunbergii*) using best management practices. **(1)**
	b) Objective: Work in partnership with major Long Point landholders, other stakeholders, and invasive species experts to plan for and manage non-native *Phragmites* on Long Point, with bi-annual status reports regarding control of *Phragmites* within LPNWA.	• Develop and maintain a work plan based on priority place direction for implementing ongoing *Phragmites* management within the Long Point peninsula and LPNWA that identifies priorities actions and includes resource requirements, timelines, and secures resources for implementation. **(1)**
	c) Objective: Reduce the area dominated by non-native *Phragmites* in the NWA to less than 10% of its 2018 extent, by 2025.	• Reduce or prevent the expansion of non-native *Phragmites* in the NWA by applying herbicide using targeted approaches in sensitive areas, and use a combination of wicking, backpack spraying, ground-vehicle application, and aircraft application using experienced contractors across the NWA. **(1)** • Promote recovery of areas treated to remove non-native *Phragmites* to return to functional habitat by flattening dead stalks, conducting prescribed burns, and/or controlling re-colonizing plants as needed. **(2)**

Management Challenges and Threats	Goals and Objectives	Management Approaches (actions, including level of priority[1])
		• When and where herbicide application, flattening, or prescribed burns are not effective or where equipment is unavailable or logistics do not allow these methods to be used, other methods such as manual removal or biological control may be used if deemed effective. **(1)**
	d) Objective: Encourage best management practices for invasive and non-native species control on natural habitats contiguous and adjacent (and beyond when possible) to the NWA.	• Work in partnership and coordination with other Long Point land managers to seek and implement viable regulated best management practices to accomplish shared management goals for the control of priority invasive and non-native plants. **(1)**
	e) Objective: Control and remove new invasive and non-native plant species (where practicable), within two years of being detected.	• Where best management practices do not yet exist, experimental control methods for invasive species may be used, subject to proper screening and approvals. **(3)** • Monitor and survey invasive/non-native plant species of concern using established protocols, where information gaps exist. **(1)**
• Increased demand for public access and use • Human disturbance to wildlife and habitat • Illegal access and occurrence of prohibited activities at NWA • Fragile beach and dune habitat loss of biodiversity due to invasion of non-native plant and wildlife species • Declines in availability and quality of habitats for wildlife • Multi-species conservation • Invasive and non-native species	**Goal 3: Human activities within the NWA are compliant with the *Canada Wildlife Act* and relevant *Wildlife Area Regulations*, are focused on education and research, and do not pose a reasonable threat to wildlife populations or their habitat.** a) Objective: Manage and monitor human activities and infrastructure within the NWA to ensure a safe environment and to maintain and/or enhance the ecological integrity of the Long Point NWA	• Regularly confirm researchers' compliance with research and monitoring permit conditions, and ensure they meet NWA data and management needs, fill information gaps, and address both cumulative effects and adaptive management. **(1)** • Schedule periodic formal assessments of all facilities and infrastructure and identify Health and Safety risks; risks to wildlife, water, soil, habitats and other natural features such as contaminants; unstable structures such as dykes; or other risks and complete Building Condition Reports as required. **(2)** • Regularly inspect, maintain and repair all facilities, infrastructure and all other NWA assets. **(1)** • Monitor visitor use and human impacts (including prohibited activities) and modify activities and infrastructure as needed to: maintain or enhance wildlife benefits; improve

Management Challenges and Threats	Goals and Objectives	Management Approaches (actions, including level of priority[1])
• Coordination of best practices for conservation of the Long Point peninsula • Climate change and variability		visitors' educational experience; and protect habitat (e.g., survey visitors engaged in beach use, waterfowl hunting, sport fishing, boating etc.). **(1)** • Explore and develop onsite and virtual infrastructure, activities, and products to allow Canadians to better connect with nature at LPNWA. **(2)**
	b) Objective: Aim to increase compliance with the *Canada Wildlife Act, Wildlife Area Regulations* and other relevant federal legislation, regulations, directives, policies, and programs prior to all agreement or permit expiry dates and when reviewing and considering when and whether to renew, update, amend or cancel all leases, licences, permits and agreements with all agencies, visitors, partners, and stakeholders that pertain to the NWA.	• Where necessary, formalize collaborative agreements, revise, renew, update, or cancel as appropriate. **(1)** • Review existing collaborative arrangements, agreements and permits; revise, renew, update, or cancel as appropriate with the aim of increasing compliance with federal legislation and other relevant policies, and coordinate with Federal and Provincial wildlife enforcement personnel when necessary. **(2)**
	c) Objective: Work in coordination with Federal and Provincial wildlife enforcement personnel to promote compliance with the *Canada Wildlife Act*, *Wildlife Area Regulations*, *Species at Risk Act* and other relevant policies and regulations, and reduce the rate of incidents of prohibited activities within the NWA.	• Conduct regular site visits to monitor and maintain facilities and infrastructure, identify and assess human impacts on wildlife and habitat, and evaluate management actions. Results will be documented and reported on a regular basis to ECCC-CWS and ECCC-WED. **(1)** • Track prohibited activities and prepare an annual report on public access (authorized and unauthorized visits), and incidents of illegal activities (number, nature, mitigation). **(1)** • Coordinate with ECCC-WED to conduct regular site visits. **(1)** • Post notices, install signs and maintain ECCC-CWS website to promote compliance with the *Wildlife Area Regulations* and reduce unauthorized access and occurrence of prohibited activities to avoid and

Management Challenges and Threats	Goals and Objectives	Management Approaches (actions, including level of priority[1])
		reduce disturbance to wildlife and habitat. **(1)**
	d) Objective: Work with neighbouring and nearby public land managers, private land managers, stakeholders, and partners to delineate private and public lands and communicate permitted and prohibited uses within Long Point NWA.	• Assign staff support and ensure participation in community land managers' meetings to the extent practicable. **(1)** • Communicate with visitors on the ecological values and protected status of the Long Point NWA and safe practices through the use of signage, and provide outreach materials, as required. **(1)** • Proactively address and resolve current outstanding boundary, access and ownership issues with neighboring property owners. **(2)**
• Expansive wetland and upland habitats and remote access limits ability to respond to emergencies (e.g., spills in Lake Erie, fire) • Need for co-ordination management and conservation of contiguous habitat on Long Point peninsula • Coordination of best practices for short and long-term wildlife and habitat conservation of Long Point peninsula	**Goal 4: Maintain and increase habitat connectivity on the Long Point peninsula and support regional landscape-level conservation efforts and partnerships.** a) Objective: Increase the connectivity of habitats and migration corridors by consolidating and, where possible, expanding the protected area land base, directly and through partnerships.	• Identify priority lands adjacent or important to the NWA for conservation; contribute to regional landscape-level conservation initiatives. **(2)** • Encourage conservation of priority adjacent lands through expansion of the NWA or other securement options such as conservation easements, best management practices, partnerships with the private sector, land managers and non-governmental organizations. **(2)** • Monitor opportunities to increase habitat connectivity, migration corridors, and the size of the protected area through partner land managers. **(3)** • Develop a long-term vision for conservation of the Long Point peninsula. **(2)**
	b) Objective: Increase ECCC-CWS capacity to participate in community and stakeholder meetings and initiatives to identify shared issues and management approaches for the Long Point peninsula.	• Engage Long Point land managers to implement and coordinate actions for conservation of natural areas on the Long Point peninsula. **(2)** • Communicate with and engage Indigenous communities in the management of LPNWA. **(2)** • Communicate with partners, neighbours, stakeholders and the local community regarding the management of LPNWA and

Management Challenges and Threats	Goals and Objectives	Management Approaches (actions, including level of priority[1])
		stewardship of the Long Point peninsula. **(2)**
	c) Objective: Accumulate and share knowledge and implement monitoring and research initiatives to address information gaps about the wildlife and habitat associated with the Long Point NWA and peninsula.	• Complete outreach and education initiatives within neighbouring communities. **(2)**
	d) Objective: Collaborate with Long Point peninsula land managers and organizations to promote research to address information gaps, evaluate management actions and establish best practices.	• Pool expertise to determine what co-operative activities are needed and possible. **(3)** • Participate in partnerships and collaborations to address conservation of Long Point peninsula and regional conservation initiatives. **(1)**
	e) Objective: Develop a Long Point NWA emergency response plan to assess risk and mitigate potential impacts of spills and fire, and integrate into a broad peninsula-wide plan by engaging partner land managers.	• Prepare an emergency response strategy to respond to spills in Lake Erie and the NWA, as well as fire within the NWA. **(1)**

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

5.1 Habitat Management

Conservation and protection of habitat for migratory birds, species at risk, and other wildlife will be mainly achieved through the management of human activities or through no action beyond allowing select systems to continue in their current state. In addition to managing human activities, monitoring and research to improve and inform conservation and management decisions, as well as habitat management will be carried out to increase and improve native biodiversity and support wildlife and species at risk.

5.1.1 Wetlands and Ponds

The Long Point NWA will be managed as a staging area and resting site for migratory waterfowl and for rare wetland plant species (e.g. horsetail spike-rush) and other species at risk that rely upon them. The management approaches will place emphasis on those species of waterfowl that require a marsh environment for refuge from disturbance, particularly during fall migration. Efforts to maintain open water and pond areas through the control of non-native *Phragmites* will be the primary habitat management technique applied.

Mechanical methods to control invasive and non-native plants like *Phragmites* (e.g., by cutting) are often labour-intensive, require specialized machinery, and/or have limited success if not applied in the appropriate manner. In recent years, an Emergency Use exception from the Pest Management Regulatory Agency of Health Canada was used throughout the Long Point area to control non-native *Phragmites,* and this included initial control actions within Big Creek and Long Point NWAs. Recently, Habitat® Aqua herbicide was approved in Canada for application to non-native *Phragmites* growing in standing water. This product will be considered for use in Long Point NWA within existing integrated pest management strategies.

Lake Erie water levels are one of the main factors affecting the extent and condition of wetlands within Long Point NWA, and are beyond the control of specific NWA management actions without significantly altering the dynamics of the system (e.g. diking).

An ecological assessment of interior and coastal wetlands, meadow marsh, and panne communities has been conducted by ECCC-CWS in order to establish baseline information on vegetation community structure, distribution and abundance of invasive and non-native species, and wildlife use. The results will be used to track change over time, identify management practices to protect and improve these habitats, and identify emerging issues that may require a

management response. Targeted monitoring for species at risk and designated critical habitat that occur within these communities will also be undertaken where information gaps exist.

Public access and use of the marshes and ponds for fishing, boating and waterfowl hunting will be monitored on a regular basis.

5.1.2 Terrestrial Habitat

All other habitat types within the NWA–dunes and beaches, savannah, and upland and lowland communities–require little active management except for invasive species management. These habitats will be monitored routinely to identify emerging issues (e.g., new invasive or non-native species, erosion, disease) that may require a management response (such as emerald ash borer, Japanese barberry, and garlic mustard). Surveys or monitoring for species at risk that occur within these communities may also be undertaken.

Vegetation may be planted to restore or enhance habitat; any plantings will be for the optimum benefit of wildlife and only those species native to the Long Point area will be used. For example, native trees and shrubs may be planted to provide wildlife corridors/ visual barriers to minimize disturbance to staging birds, establish wind breaks, or to provide the necessary habitat components for songbirds or other wildlife. Efforts will be made to remove existing non-native trees and shrubs within the NWA and replant with native species where appropriate. Conifer plantations may be thinned or removed to release desired understory and/or under planted/replanted with desired tree species, as appropriate.

Effective strategies to manage invasive plants include prevention, monitoring, eradication, and control (Tagliavia and Hayes, 2009). However, determining effective management options to reduce the impacts of these species is often hampered the ability of many of these species to adapt to Ontario growing conditions. Early detection is key to the control and management of invasive plants before these species become established and adapted to local conditions. Invasive and non-native plants may be controlled using a combination of cutting, pulling, herbicides, and other best management practices.

Other non-native taxa compromising or inhibiting the presence and integrity of native plant communities may be removed or controlled (where possible) including, but not limited to, non-native Annelids, Molluscs, Anthropods, Nematodes, and Chordates, including those native to Ontario but not historically native to the Long Point peninsula.

5.1.3 Regional Habitat Connections

Since Long Point is of particular importance to migrating wildlife, the maintenance of effective ecological connections to other habitats that provide connections for migrants is especially important. These connections include the marshes and upland habitats at the base of the Long Point peninsula, Inner Bay, land across Lake Erie to the south and east, as well as habitat patches on the land base of Norfolk County that assist birds and other wildlife on their passage. Therefore, the NWA has a direct interest in broader landscape conservation initiatives.

In addition, future opportunities may arise to consider conservation of lands adjacent to the NWA or peninsula when private owners are seeking to dispose of their lands or willing to consider other options such as conservation easements.

ECCC-CWS will work with partners to promote best management practices for fish and wildlife habitat conservation and land management along NWA boundaries and the broader Long Point peninsula.

5.2 Wildlife Management

As per the *Canada Wildlife Act*, all wildlife species are protected within the NWA. Migratory birds, species at risk, and other wildlife will be monitored and surveyed as part of broader efforts (e.g., waterfowl surveys, marshbird and amphibian monitoring), and threats will be assessed (refer to sections 5.6 and 5.7).

5.2.1 Bird Management

The Long Point NWA habitats are predominantly managed as a staging area and resting site for migratory waterfowl and breeding water and land bird populations. Protection and conservation of habitat for migratory birds, species at risk, and other wildlife will be mainly achieved through limitation of human disturbance. Migratory waterfowl, breeding water and land birds, and species at risk will be monitored and surveyed and threats will be assessed (sections 5.6 and 5.7). Active management may be undertaken when the need arises. However, certain threats to birds (e.g. changes in food resources, weather events, increased incidence of botulism, toxics, disease, and bird mortality) are considered beyond the influence of the management approaches outlined in this plan.

5.2.2 White-tailed Deer

A diverse woodland community is expected to persist at Long Point NWA as long as a structurally diverse understory is maintained. In order to sustain improvements in understory and ground cover recovery, and maintain a sustainable white-tailed deer population in the NWA, an ongoing deer management program will be continued (Pearce *et al.,* 2012; Sadler, 2013).

White-tailed deer management targets will continue to be based on vegetation objectives, annual white-tailed deer population census, and annual vegetation and breeding bird censuses (Pearce *et al.,* 2012). In order to better understand the potential effects of white-tailed deer management on avian species at risk, species-specific targeted surveys will be used to assess population trends. The analysis of bird data will be updated on a five-year interval to obtain 'trend' information to guide management.

5.2.3 Management of Hyperabundant Wildlife, Feral and Domestic Animals

The need for non-native, invasive, or overabundant wildlife management will be assessed upon completing regular site visits and survey work. Activities to control non-native, invasive or overabundant wildlife may be considered if the species is a threat or damage is occurring to wildlife habitat or species at risk.

For example, monitoring and assessment of the American beaver population and their impacts (e.g., vegetation removal, static high water levels) will be undertaken to determine if/when management actions are warranted. The removal of American beavers may be undertaken to reduce excessive damage to vegetation on dunes and shorelines, thereby reducing the potential for dune destabilization, shoreline erosion, and to prevent flooding. Other ways to discourage American beavers and protect vulnerable woody plants or flood prone plants may need to be implemented (e.g., use of a beaver baffle to prevent flooding of the horsetail spike-rush and tree protection for plantings).

Trapping of furbearers may be undertaken and monitored closely to reduce adverse impacts upon resident wildlife populations, minimize disturbance to habitat, and document contributions to the local economy.

Mute swans will be monitored and discouraged from nesting within the NWA. Mute swans will be removed by permit under the *Migratory Birds Convention Act, 1994* when

necessary to avoid habitat damage and competition with native waterfowl and other waterbirds for nesting territories.

Double-crested cormorants will be monitored for nesting activity, and may be prevented from establishment as a nesting species in the NWA, in coordination with neighbouring landowners/managers where necessary. Appropriate management actions will be taken if required. Where routine monitoring of the NWA identifies particular problems with feral animals, removal of problem animals may be undertaken by ECCC-CWS. Outreach to promote compliance with *Wildlife Area Regulations* will be undertaken and people releasing unwanted pets or wildlife, or feeding wild or feral animals will be reported to ECCC-WED.

5.3 Species At Risk

Species at risk and habitat requirements for species' persistence, breeding, stopover and recovery within the NWA will be identified and protected. ECCC-CWS works closely with DFO and the OMNDMNRF to identify and monitor aquatic species (e.g., fish, mussels, crustaceans, benthic invertebrates) in the Long Point NWA and adjacent waters of Lake Erie, with an emphasis on species at risk.

Species and habitats will be monitored to evaluate the effectiveness of management activities to protect and enhance critical habitat. Recommendations from species at risk recovery documents (recovery strategies, action plans, management plans, etc.) will be implemented where practicable, and in consultation with responsible jurisdictions and species experts.

Priorities for management and recovery actions will be developed for species for which critical habitat has been identified and those species that occur in few locations such as horsetail spike-rush and cucumber tree. Stands of horsetail spike-rush and both pre-existing and planted cucumber trees will continue to be monitored and actions taken to mitigate threats and increase these populations in accordance with respective recovery strategies. For example, planting of additional plots of cucumber tree may be undertaken and temporary enclosures erected and maintained for five to ten years to protect plantings from mammal damage (e.g., American beaver, white-tailed deer, and rabbit).

5.4 Multi-Agency Land Management Partnership

Efforts to maintain or increase capacity of ECCC-CWS staff to establish and maintain relationships will facilitate a holistic and coordinated approach for the management and conservation of the Long Point peninsula (e.g. neighbours, local planning authorities, conservation organizations, government and non-government organizations, Indigenous communities, the Long Point community, other stakeholders and enforcement personnel).

The maintenance of habitats (e.g., wetland, ponds, channels, forest, and beach), fences and gates and trails bordering the NWA is shared between ECCC-CWS and adjacent land managers and owners. Land management on the NWA is also a collaborative effort, carried out using a number of agreements, permits and collaborative arrangements in compliance with the *Canada Wildlife Act* and *Wildlife Area Regulations*. Where additional cooperative management occurs or is desired, formal agreements may be needed to clarify roles and responsibilities, sharing of equipment and dispute resolution.

Environment and Climate Change Canada-Canadian Wildlife Service will review existing agreements, leases, licences and permits for the Long Point NWA, and renew, revise or cancel as appropriate to address current and future management challenges and threats, including; upland and wetland conservation, waterfowl conservation, multi-species conservation, control of invasive and non-native species, adaptations to climate change and variability, and species at risk conservation. Proactive steps will be taken to resolve outstanding boundary, access and ownership issues with neighboring property owners within the next five years. All leases, licenses, permits, and agreements within the Long Point NWA will be reviewed and considered for renewal, revision, or cancellation in order to remain consistent with the management goals and objectives of the NWA, and to ensure the management of the NWA for the benefit of wildlife and habitats.

Environment and Climate Change Canada-Canadian Wildlife Service will implement a periodic review of compliance and reporting arrangements with the Long Point Company, Bluff's Hunting Club, Birds Canada, Anderson tract landholders, The Province of Ontario, and the Nature Conservancy of Canada to ensure their activities meet the conditions and restrictive covenants set out under the terms of the property donation by the Long Point Company and The Nature Conservancy (USA) to ECCC-CWS (**Appendix 2**). Environment and Climate Change Canada-Canadian Wildlife Service will also be reviewing existing arrangements to ensure

compliance with the *Canada Wildlife Act* and the *Wildlife Area Regulations*, other federal legislation, regulations and policies of existing permits, licenses, leases, and agreements.

A project to improve compliance with the *Canada Wildlife Act* and the *Wildlife Area Regulations* will include a review of communications materials currently provided to *Canada Wildlife Act* permit holders, neighbouring land managers, lease holders, and visitor groups (e.g., waterfowl hunters, boaters, Long Point Provincial Park visitors) about the NWA, authorized activities and prohibited activities. As a first priority, ECCC-CWS will deliver information sessions to all research permit (*Canada Wildlife Act*) holders and their field staff in advance of the field season. At these sessions, ECCC-CWS staff will promote compliance with permit conditions and inform visitors of any known or anticipated hazards or risks.

5.5 Management of Facilities and Infrastructure and Emergency Response Strategy

The strategy will describe the maintenance requirements of the facilities and infrastructure at the NWA over the long term, and access to the NWA under high and low lake level scenarios and extreme weather events. Long term monitoring of vegetation communities on the NWA (using aerial photography) will retain a historical record of site changes and document significant climatic events. The strategy will also outline mitigation options to reduce the impacts of climate variability and projected climate change. An emergency response plan will be developed as part of the strategy to reduce risk and outline steps and resources required to respond to potential chemical and fuel spills (in Lake Erie) and fire events within the NWA.

5.6 Monitoring and Surveys

Monitoring and survey activities will be directed largely toward obtaining information on plants and animals and their habitats to inform habitat management and species conservation actions. Monitoring and survey methods and priorities will be in accordance with species at risk recovery strategies, action plans, management plans and other relevant legislation and policies.

Monitoring and surveys of wildlife and plant populations and habitat conditions will include:

- Monitor and survey species at risk and designated critical habitat using established protocols where information gaps exist and potential impacts may arise to inform habitat protection and recovery actions.
- Monitor and survey invasive/non-native plant species of concern using established protocols, where information gaps exist.
- Monitor for invasive species, pests, and disease (including emerald ash borer and mute swans) and take actions such as the removal of invasive, nuisance (American beaver), hyperabundant (double crested cormorants), and problem species.
- Conduct a white-tailed deer management program, including completion of periodic vegetation and breeding bird censuses, completion of an annual white-tailed deer population census, and completion of coyote population, abundance and distribution monitoring.
- Monitor and survey marshbirds, amphibians and wetland habitat using established protocols (e.g., Great Lakes Marsh Monitoring Program, Coastal Habitat Assessment Monitoring Program (CHAMP)) to asses the integrity of coastal marsh communities.
- Complete biological surveys of migratory bird use (waterfowl, waterbirds, landbirds and shorebirds) using established protocols including implement ECCC-CWS Decadal Migrant Waterfowl Surveys-Lake Erie.
- Annually monitor and assess the impacts of the American beaver population around the horsetail spike-rush stands.
- Monitor bat populations and habitat use.
- Establish a baseline inventory and assess habitat quality, extent, and community structure (including the extent of invasive species) of natural areas (dunes and beach, upland and lowland forest, savannah, wetlands and ponds) and ground truth Ecological Land Classification (ELC) mapping using established protocols, aerial imagery and site visits in order to inform habitat management.

- Monitor opportunities to increase habitat connectivity, migration corridors, and the size of the protected area through partner land managers.
- Inland wetland and water quality monitoring.
- Develop and implement field methods to monitor rates of erosion, accretion and site-specific change of beaches and foredunes along Lake Erie shoreline in order to identify management actions required to address human and natural caused changes/disturbance.
- Inventory and assess invertebrates, with a concentration on butterflies and moths (*Lepidoptera*), dragonflies and damselflies (*Odanta*), beetles (*Coleoptera*), and bees and wasps (*Hymenoptera*).
- Complete regular site inspections to monitor facilities and infrastructure, threats, invasive and non-native species, unauthorized access, visitor use, water chemistry and habitat and wildlife responses to management activities.
- Monitor prohibited activities and prepare an annual report on public access (authorized and unauthorized visits), and incidents of illegal activities (number, nature, mitigation).
- Review collaborative arrangements, agreements and permits; revise and renew as appropriate with the aim of increasing compliance with federal legislation and other relevant policies, and coordinate with Federal and Provincial wildlife enforcement personnel when necessary.
- Monitor visitor use and human impacts (including prohibited activities), modify activities as needed to maintain or enhance wildlife benefits and protect habitat (e.g., survey visitors engaged in beach use, waterfowl hunting, sport fishing, boating etc.).

5.7 Research

Research activities related to Long Point NWA will be considered for permitting when the results obtained through research have the potential for the following:

- Increase knowledge and meet data and management needs;
- Fill information gaps;
- Assess and mitigate cumulative effects; and/or
- Assess management actions.

Research priorities related to Long Point NWA include the following:

- Waterfowl and migratory bird populations;
- Species at risk;
- Habitat succession and species use;
- Assess the potential effects of climate change and variability, and water level change on wildlife and habitats;
- Assess the potential effects of significant spills and fire on wildlife and habitats;
- Management actions to reduce and mitigate the effects of invasive and non-native species;
- Management actions to improve habitats (e.g., wetlands, ponds, upland forest and lowland communities, savannah, dunes, and beaches);
- Effects of visitor use and human disturbance on wildlife and habitat; or
- Public engagement to support *Canada Wildlife Act* compliance.

ECCC-CWS *Canada Wildlife Act* permits are required under the *Wildlife Area Regulations* to conduct research and monitoring in the Long Point NWA. All research requests must be made in writing. Refer to Appendix 3: Canadian Wildlife Service (Ontario) Environment and Climate Change Canada Conditions for Conducting Research in National Wildlife Areas. To obtain a permit to conduct research or monitoring in the Long Point NWA and to receive instructions concerning guidelines for a research proposal, please contact:

Environment and Climate Change Canada - Canadian Wildlife Service
Ontario Region Permit Office
335 River Road
Ottawa, Ontario, K1V 1H2
Telephone: 613-990-8355
Fax: 613-990-8400
Email: ec.wildlife.ontario.ec@canada.ca

Upon completion of the activity, permit holders are required to submit all data/information collected as a condition of their permit to ECCC-CWS.

5.8 Public Access, Information and Outreach

Certain wildlife-oriented visitor activities compatible with this management plan will be undertaken at the Long Point NWA if the activity does not have an undesirable impact upon habitats and wildlife populations. Such activities can include wildlife viewing, walking, beach use, swimming, boating, sport fishing, and waterfowl hunting (See Section 6.2 Authorized Activities for more details). Unless specifically authorized by permit, public activities are limited to the daylight hours. Visitor activities may be further limited in certain locations or seasonally, should activities interfere with the habitat and wildlife objectives. Refer to Section 6 for authorized activities, restrictions and prohibitions.

Public access and use in the Thoroughfare and Long Point Units will be reviewed and assessed on a regular basis for compliance with restrictions and prohibitions, and the effects of public access and use on wildlife and habitats. The review will identify actions required to maintain public health and safety, mitigate the negative effects of public activities, and maintain a high quality visitor experience.

Requests to conduct activities that are restricted or prohibited require a *Canada Wildlife Act* permit or formal agreement and will be addressed on a case-by-case basis. For example, access to areas posted ‘entry prohibited’ requires a *Canada Wildlife Act* permit.

Limited visitor access and outreach activities are designed to enhance public understanding and appreciation of the important conservation role of the Long Point NWA in the protection of migratory birds, wildlife and species at risk, and to encourage public cooperation in wildlife and habitat conservation.

Goals for public information and outreach include maintaining or enhancing wildlife benefits; improving visitors’ educational experience; and protecting habitat.

To help meet these goals, ECCC-CWS has established a public website and printed material, available at: https://www.canada.ca/en/environment-climate-change/services/national-wildlife-areas/locations/long-point.html. In addition, ECCC-CWS staff deliver presentations profiling the NWA to local groups and organizations.

Because the NWA’s main purpose is both the conservation of migratory birds and the protection of habitat for species at risk, public access is limited to portions of the Long Point NWA, and on-site awareness programs are not planned. Two designated day use

areas along the shoreline provide opportunities for walking, beach use, swimming, and wildlife viewing (see **Figure 2** and **Figure 3**). Boating, fishing, and waterfowl hunting are allowed in posted areas, following provincial and federal seasons and legislation.

Signage at the Long Point NWA and communications and outreach materials will be reviewed and updated periodically to provide clear direction to visitors, neighbours, partners, and visitors on permitted and prohibited activities, health and safety hazards, and conservation goals for the NWA.

5.9 Conservation of the Long Point Peninsula

Environment and Climate Change Canada-Canadian Wildlife Service will seek opportunities and increase capacity for ECCC-CWS to collaborate with Long Point land managers to identify shared issues and management approaches and provide recommendations and advice on goals and priorities for management, research and monitoring on the Long Point peninsula.

The goals will be to:

1. Pool expertise to determine what co-operative activities are needed and possible;
2. Engage Long Point land managers to implement and coordinate actions for conservation of natural areas on the Long Point peninsula;
3. Communicate with and engage Indigenous communities, partners, neighbours, stakeholders and the local community in stewardship of the Long Point peninsula; and
4. Develop a long-term vision for conservation of the Long Point peninsula.

6.0 AUTHORIZATIONS AND PROHIBITIONS

In the interest of wildlife and wildlife habitat, 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 NWA, and provide mechanisms for the Minister of Environment and Climate Change Canada to authorize certain activities to take place in NWAs that are otherwise prohibited. The regulations also provide the Minister with the authority to prohibit entry into NWAs.

Activities within an 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 within an NWA are prohibited unless a notice has been posted or published authorizing the activity to take place. However, in addition to notices, certain activities may be authorized through the issuance of a permit, lease, licence, or agreement from the Minister of Environment and Climate Change Canada.

The Minister has the legislative authority to permit activities in the NWA according to the following acts and regulations:

- *Canada Wildlife Act* (section 12 (g)) and *Wildlife Area Regulations* (sections 3(2), 4 and 8)
- *Species at Risk Act* (sections 73 and 74)

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. 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 and therefore be in contravention of the goals and objectives of the NWA.

Entry is prohibited to the majority of the Long Point NWA. Authorized activities and those activities that may be considered for permitting are described in the following sections.

6.2 Authorized Activities

To protect wildlife and their habitats and limit human disturbance, most of the Long Point NWA, particularly the interior, is closed to the public. The two public day use areas are closed between September 16th and May 14th during spring and fall waterfowl migration (See Figures 2 and 3). Public access may be granted following the issuance of a permit for purposes of research, conservation and interpretation, where it does not compromise wildlife and habitat management goals.

For the Long Point NWA, notices and/or signs authorizing certain activities will be posted at the designated NWA access points, designated day use areas, and published in various public information and outreach materials (e.g., Environment and Climate Change Canada website at: https://www.canada.ca/en/environment-climate-change/services/national-wildlife-areas/locations/long-point.html. Authorized activities in designated areas are for day use only,

from sunrise to sunset (see below for exceptions related to waterfowl hunting), unless posted otherwise. Signs will be posted along NWA boundaries and to mark areas where access is prohibited.

Authorized Activities without special restrictions:

- none

Authorized Activities with special restrictions:

- Wildlife viewing on designated beaches up to the dunes during the period beginning on May 15 in any year and ending on September 15 in the same year.
- Hiking at the locations listed in item 1 during the period referred to in item 1
- Swimming at designated beaches
- Motorized boating in designated areas at a maximum speed of 8 km per hour.
- Non-motorized boating in designated areas.
- Sport hunting of waterfowl, except with toxic shot, in designated areas from half an hour before sunrise to half an hour after sunset.
    a) Under and in accordance with any applicable federal permit and any authorization required by the laws of Ontario for sport hunting in that province, and
    b) With dogs permitted off-leash, when hunting.
- Sport fishing, under and in accordance with any applicable federal permit and any authorization required by the laws of Ontario for sport fishing in that province

Research, monitoring, surveys, wildlife and habitat management activities, all commercial activities, and groups of more than 20 people require a *Canada Wildlife Act* permit from Environment and Climate Change Canada.

For greater certainty, overnight camping, open fires and charcoal barbecues, use of motorized vehicles, overnight boat mooring, dogs off-leash (except for waterfowl hunting), and walking in the dunes are prohibited at all times in accordance with the *Canada Wildlife Act* and *Wildlife Area Regulations*. Periodic visits by ECCC staff (particularly during periods of high use) will occur, and enforcement actions will be taken when required.

Note:

Federal and provincial licences, seasons and legislation apply for use of aircraft, boating, fishing and waterfowl hunting within the NWA unless posted.

If there is a discrepancy between the information presented in this document and the 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 related to information needs, 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 to protect and minimize the effects of an activity on wildlife and wildlife habitat. A permit request may be denied or a permit may be revoked if the terms and conditions are not met.

All requests to ECCC-CWS for *Canada Wildlife Act* permits for Long Point NWA must be made in writing at least 40 days prior to the commencement of proposed activities to the following address. Refer to Appendix 3 for conditions of research permits in Long Point NWA.

Environment and Climate Change Canada - Canadian Wildlife Service
Ontario Region Permit Office
335 River Road
Ottawa, Ontario, K1V 1H2
Telephone: 613-990-8355
Fax: 613-990-8400 Email: ec.wildlife.ontario.ec@canada.ca

For further information, please consult the Environment and Climate Change Canada document entitled “Policy when Considering Permitting or Authorizing Prohibited Activities in Protected Areas Designated Under the *Canada Wildlife Act* and *Migratory Birds Convention Act, 1994”* (Environment Canada, 2011). This policy document is available on the Environment and Climate Change Canada Protected Areas website at https://www.canada.ca/en/environment-climate-change/services/national-wildlife-areas/protected-area-reference-documents/policy-guidelines.html

_6.4 Exceptions

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

- Activities related to public safety, public 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/or the *Plant Protection Act* to protect the health of animals and plants;
- Activities related to routine maintenance of NWAs, to the implementation of management plans in accordance with all other relevant legislation (see following section) and enforcement activities conducted by an ECCC officer or employee.

6.5 Other Federal and Provincial Authorizations

Depending on the type of activity, other federal or provincial permits or authorizations may be required to undertake an activity in the Long Point NWA, or adjacent lands and waters. It is the responsibility of permit applicants to obtain all additional permits, authorizations and protocols as required by federal legislation (e.g., *Migratory Birds Convention Act, 1994*, *Migratory Birds Regulations*, *Species at Risk Act*, *Fisheries Act*), provincial legislation (e.g., *Fish and Wildlife Conservation Act*, *Endangered Species Act, 2007*), Animal Care Committee protocols and landowners (e.g., permission to access private land) prior to commencement of the activity (refer to **Appendix 1** for a partial list of legislation).

For example, *Species at Risk Act* permits may be required for activities affecting species at risk, their residences and/or any part of its critical habitat.

Contact federal and provincial permitting offices for more information.

Federal:

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

Environment and Climate Change Canada - Canadian Wildlife Service
Ontario Region Permit Office
335 River Road
Ottawa, Ontario, K1V 1H2
Telephone: 613-990-8355
Fax: 613-990-8400

Email: ec.wildlife.ontario.ec@canada.ca

Fisheries Act and Species at Risk Act:

Fisheries and Oceans Canada
Central and Arctic Region
501 University Cr
Winnipeg, MB R3T 2N6
Telephone: 519-383-1813 or
Toll-Free: 1-866-290-3731
Fax: 519-464-5128
Email (research permits): fwisar@dfo-mpo.gc.ca
Email (Construction/ development species at risk permit): fisheriesprotection@dfo-mpo.gc.ca

Provincial:

Fish and Wildlife Conservation Act; Endangered Species Act

Ontario Ministry of Northern Development, Mines, Natural Resources and Forestry
Natural Resources Information Centre
300 Water St
Peterborough ON K9J 8M5
Telephone: 1-800-667-1940 (toll-free)
TTY: 1-866-686-6072
Email: nrisc@ontario.ca

7.0 HEALTH AND SAFETY

All reasonable efforts will be made to protect the health and safety of the public, including adequately informing visitors of any known or anticipated hazards or risks. Furthermore, ECCC-CWS 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 and must be prepared and self-sufficient. Natural areas contain some inherent dangers and proper precautions must be taken by visitors, recognising that ECCC-CWS staff neither regularly patrol nor offer services in remote locations for visitor safety in NWAs.

Visitors to the Long Point NWA may encounter severe weather (e.g., wind, heat, storms), dense vegetation, uneven ground, poison ivy (*Toxicodendron radicans*), mosquito species that can transmit the West Nile virus, the blacklegged tick that carry bacterium that can cause lyme disease, other biting insects, and access to the marshes and open water areas can be difficult. Most areas of the NWA are isolated from emergency services. All visitors to the NWA should be aware that use of the area and surrounding waters is at their own risk.

In general, all visitors as well as ECCC employees or officers, must seek and heed expertise to operate in these environments and demonstrate they have required training and certification or means to access the site safely. Any proposed work within the NWA is subject to the *Canada Labour Code*, Part II, subject to the strictest safety certification, training, operational experience and mandatory use of appropriate safety equipment and Personal Protective Equipment (PPE).

Any emergency should be reported immediately to the appropriate responding authorities. Reports should include the date, time, and nature of the incident; contact names and information of the reporting party (for follow up information) and other relevant details. Multiple authorities should be advised, if the situation warrants, as soon as possible. Refer to Appendix 4 for a list of contacts.

In case of any life-threatening emergency at Long Point NWA, call 911 immediately.

In the case of environmental emergencies, contact will be made with the Canadian Environmental Emergencies Notification System by calling the following 24-hour telephone:

Ontario Spills Action Centre
Ontario Ministry of the Environment and Climate Change
Telephone: 416-325-3000 or 1-800-268-6060
Refer to: https://www.canada.ca/en/environment-climate-change/services/environmental-emergencies-program/report-emergency.html

Non-emergency issues related to security or health and safety issues for Long Point NWA should be reported to:

Environment and Climate Change Canada – Canadian Wildlife Service
Ontario Region
4905 Dufferin Street
Toronto ON M3H 5T4
Telephone: 416-739-4826
Toll Free: 1-800-668-6767 (in Canada only)
Email: enviroinfo@ec.gc.ca

All waste materials (organic, recyclable, or non-recyclable) must be removed at the end of each day by those who generate the waste.

Management activities directed at improving health and safety and reducing the risk of a hazardous occurrence may include:

- Installation of signs identifying authorized and prohibited activities and safety precautions for visitors;
- Posting of public notices at entrance and boundaries of the NWA, within the community and local media;
- Contaminated site assessment and remediation;
- Removal of debris; and
- Preparation of an NWA emergency response plan for fire and spill response.

Periodic site visits (e.g., bi-weekly during field season) will be conducted to monitor facilities and infrastructure (e.g., signs, fences), general site and habitat conditions, human use,

and prohibited activities. Periodic formal assessments of all facilities and infrastructure will be performed by federal agencies.

ECCC-CWS works with Environment and Climate Change Canada's Contaminated Sites Program to conduct site audits to identify contaminants, assess risks, and remediate contaminants on federal lands. Phase I, II and III environmental site assessments of the Long Point NWA were completed in 2009 and 2015 to assess and delineate legacy issues (e.g., vacant structures, waste, and debris) and make recommendations for remediation and further testing of contaminants (DTS Consulting Engineers Inc., 2009; Exp Services Inc., 2016; Franz Environmental Inc., 2009). Remedial actions identified in the 2016 Phase III report will be implemented on a priority basis (Exp Services Inc., 2016).

In 2018, Stantec Consulting Ltd. (Stantec) was contracted by ECCC-CWS to conduct an asbestos survey at all cabins and workshops in the NWA. A single occurrence of asbestos was detected in a small cement board behind the woodstove in the Gravelly Bay cabin. Following the recommendations of the Stantec report, ECCC-CWS will assess the condition of the cement board on a yearly basis or if conditions change, and if eventual removal is necessary it will be done so by a trained professional (Stantec, 2018).

8.0 ENFORCEMENT

The management of NWAs is based on three pieces of federal legislation and the associated regulations:

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

To promote compliance with the *Canada Wildlife Act, Wildlife Area Regulations*, *Migratory Birds Convention Act, 1994,* and *Migratory Birds Regulations* (refer to **Appendix 1**), ECCC-CWS posts signs along the NWA boundaries and at main access points to identify authorized activities and restrictions on those activities. Environment and Climate Change Canada-Canadian Wildlife Service also posts signs to mark areas where entry is prohibited. Boundary sign locations may change with environmental changes of property (e.g., development of sand bars or change in vegetation communities).

Environment and Climate Change Canada's Wildlife Enforcement Directorate is responsible for enforcement of the *Migratory Birds Convention Act, 1994*, *Canada Wildlife A*ct and *Wildlife Area Regulations*, and the *Species at Risk Act*, as well as provincial wildlife laws. Environment and Climate Change Canada's Wildlife Enforcement Directorate will perform on-site inspections and investigations, patrol the NWA to promote compliance and prevent access and prohibited activities within the NWA. Environment and Climate Change Canada's Wildlife Enforcement Directorate officers monitor compliance with the acts listed above as well the provincial *Fish and Wildlife Conservation Act, 1997* and *Trespass to Property Act* and initiate investigations when required. Environment and Climate Change Canada's Wildlife Enforcement Directorate officers are responsible for response to violations and appropriate enforcement actions.

The following are examples of activities that, if carried out on the NWA without authorization, may constitute an offence:

- Accessing the site outside of designated day use areas;
- Destroying or disturbing migratory birds, their nests or their eggs;
- Damage, destruction or removal of a plant;
- Introduction of a living organism likely to result in harm to wildlife or wildlife habitat;

- Destruction or molestation of animals or carcasses, nests or eggs;
- Disturbance or removal of any soil, sand, gravel or other material;
- Hunting, fishing, or trapping;
- Operation of a conveyance or motorized vehicle (e.g., truck, all-terrain vehicle, snowmobile);
- Take-off or landing of an aircraft, including a remotely piloted aircraft;
- Possession of carcass, nest or eggs;
- Possession of instrument for purpose of hunting;
- Possession of lead sinkers or jigs while fishing;
- Camping;
- Lighting a fire;
- Removing or damaging any natural artifact, building, fence, poster, sign or other structure;
- Dumping or depositing any waste material or substance likely to reduce the quality of the natural environment;
- Allowing any domestic animal to run at large or kept on a leash longer than 3 m.

9.0 PLAN IMPLEMENTATION

This 2022 management plan will be implemented over a 10-year period and will be based on an adaptive management approach. Details of management plan implementation and work plans will be based on priorities and the budgetary framework of ECCC-CWS. The implementation of the plan will be evaluated five years after it is published, on the basis of the actions identified in Table 5.

Table 5: Implementation Strategy timeline for Long Point National Wildlife Area (2022-2031)

Activity	Ongoing	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Establish a baseline inventory and assess habitat quality, extent, and community structure of natural areas (decadal)		X									
Monitor and survey marshbirds, amphibians and wetland habitat using established protocols (periodic)		X		X		X		X		X	
Ecological assessments and water quality monitoring of interior and coastal wetlands, meadow marsh, and panne communities (periodic)		X		X		X		X		X	
Conduct and support surveys and monitoring of migratory taxa using established protocols (annual but on rotating schedule by taxa and/or protocols)		X	X	X	X	X	X	X	X	X	X
Survey and monitor species at risk populations and designated critical habitat to evaluate effectiveness of management activities and recovery actions (varies with species, annual or as required)		X	X	X	X	X	X	X	X	X	X
Undertake planting of native plant species where needed, and monitor results (annual, as required)		X	X	X	X	X	X	X	X	X	X
Conduct white-tailed deer census (annual) and manage population (as required)		X	X	X	X	X	X	X	X	X	X
Conduct vegetation survey (periodic), breeding bird census (annual), and coyote monitoring in support of white-tailed deer management (ongoing)	X	X	X	X	X	X	X	X	X	X	X
Contribute to the development of a geoconservation study of the Long Point peninsula		X	X	X							
Monitor rates of erosion and accretion of beaches and dunes (bi-annual)		X		X		X		X		X	
Monitor, survey and manage priority invasive and non-native, nuisance, hyperabundant species (annual, ongoing, as required)	X	X	X	X	X	X	X	X	X	X	X

Activity	Ongoing	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Manage non-native *Phragmites* (annual, ongoing) and monitor management actions in LPNWA (annual, periodic)	X	X	X	X	X	X	X	X	X	X	X
Work in partnership with major Long Point landholders, other stakeholders, and invasive species experts to manage *Phragmites* on Long Point, with bi-annual status reports regarding control of *Phragmites* within LPNWA.			X		X		X		X		X
Monitor compliance with applicable legislation and permit requirements (annual, ongoing)	X	X	X	X	X	X	X	X	X	X	X
Track public and visitor activities, visitor numbers, prohibited activities, and known impacts on wildlife and habitat, coordinate with ECCC-WED as needed (annual, ongoing)	X	X	X	X	X	X	X	X	X	X	X
Review collaborative arrangements, leases, licences, permits, and other agreements; revise and renew as appropriate (annual, ongoing, as required)	X	X	X	X	X	X	X	X	X	X	X
Monitor, inspect, and maintain facilities and site infrastructure (ongoing)	X										
Maintain and improve signs and public notices (annual, ongoing)	X	X	X	X	X	X	X	X	X	X	X
Prioritize meetings with collaborators, partners, and regional land managers (ongoing, periodic)	X										
Encourage conservation of priority adjacent lands and contribute to regional conservation and outreach initiatives (ongoing)	X										
Create and/or support local land management partnerships for invasive species control, emergency response to spills, fire, and climate change (ongoing, as required)	X										

9.1 Management Authorities and Mandates

Environment and Climate Change Canada's - Canadian Wildlife Service (Ontario) is responsible for the site management of Long Point NWA. This management includes biological monitoring and surveys, research, habitat and land use management, permits and licensing, public information and outreach, site maintenance, boundary and information signs.

9.2 Management Plan Review

Evaluation will take the form of a review of data obtained from the monitoring, surveys, and research projects and collaborative agreements outlined below. Monitoring, surveys, and research at the Long Point NWA will be performed within the limits imposed by financial and human resources. The data collected will be reviewed annually and used to inform future management and planning at the NWA. Furthermore, these data will be used to evaluate federal contributions towards accomplishing the mandates specific to ECCC-CWS for which the protected area was established.

This management plan will be reviewed 5 years after its initial approval, and updated every 10 years thereafter. Information may be appended to the document as required to aid site management and decision-making.

10.0 COLLABORATORS

Environment and Climate Change Canada –Canadian Wildlife Service works with local landowners and communities, government and non-government agencies, and organizations to protect and conserve wildlife species and their habitats in the Long Point NWA and to contribute to conservation of the broader Long Point peninsula and Long Point region.

Formal collaboration on matters of management authorities and mandates will continue with the Environment and Climate Change Canada -Wildlife Enforcement Directorate, Fisheries and Oceans Canada, the Province of Ontario and Norfolk County.

Collaboration with agencies and organizations to contribute to the protection and conservation of wildlife species and their habitats in the NWA will be favoured. For instance, 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), or with Long Point land managers, non-government organizations and municipal authorities to increase public awareness of the objectives of the NWA.

ECCC-CWS is open to collaborations with universities and research centres to fill scientific knowledge gaps. These institutions include (but are not limited to) McGill University, University of Guelph, University of Waterloo, and Western University.

Other collaborators in the management of the Long Point NWA may include (but are not limited to) Anderson Tract property owners, Birds Canada– Long Point Bird Observatory, Bluff's Hunting Club, Carolinian Canada Coalition, Delta Waterfowl, Ducks Unlimited Canada, Fisheries and Oceans Canada, Long Point Basin Land Trust, Long Point Bay Anglers` Association, Long Point Company, Long Point Country Chamber of Commerce, Long Point Foundation for Conservation, Long Point Phragmites Action Alliance, Long Point Ratepayers Association, Long Point Region Conservation Authority, Long Point Waterfowl, Long Point Waterfowlers' Association, Long Point World Biosphere Reserve Foundation, Nature Conservancy of Canada, Norfolk County, Norfolk County Tourism, Norfolk Field Naturalists, Norfolk Land Stewardship Council, Ontario Federation of Anglers and Hunters, Ontario provincial ministries, Tallgrass Ontario, The Nature Conservancy, Upper Thames River Conservation Authority.

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Wren, L. S., and A. R. Couturier. 2009. Canada. Pp. 113-124 in: C. Devenish, D. F. Díaz Fernández, R. P. Clay, I. Davidson, and I. Yépez Zabala (Editors). *Important Bird Areas Americas - Priority sites for biodiversity conservation.* Quito, Ecuador: BirdLife International (BirdLife Conservation Series No. 16).

APPENDIX 1: LEGISLATION

Federal Legislation

Canada Wildlife Act (R.S.C., 1985, c. W-9)
http://laws-lois.justice.gc.ca/eng/acts/W-9/index.html

Fisheries Act (R.S.C., 1985, c. F-14)
http://laws.justice.gc.ca/eng/acts/F-14/

Migratory Birds Convention Act, 1994 (S.C. 1994, c. 22)
http://laws-lois.justice.gc.ca/eng/acts/M-7.01/

Species at Risk Act (S.C. 2002, c. 29)
http://laws-lois.justice.gc.ca/eng/acts/S-15.3/page-1.html

Species at Risk Act – Listing
http://www.registrelep-sararegistry.gc.ca/default.asp?lang=En&n=CA7DCECA-1

Species at Risk Public Registry
http://www.sararegistry.gc.ca/default.asp?lang=En&n=24F7211B-1

Wildlife Area Regulations (C.R.C., c. 1609)
http://laws-lois.justice.gc.ca/eng/regulations/C.R.C.,_c._1609/index.html

Provincial Legislation – Ontario

Endangered Species Act, 2007, S.O. 2007, c. 6
http://www.ontario.ca/laws/statute/07e06
O. Reg. 230/08: SPECIES AT RISK IN ONTARIO LIST
http://www.ontario.ca/laws/regulation/080230

Fish and Wildlife Conservation Act, 1997, S.O. 1997, c. 41
http://www.ontario.ca/laws/statute/97f41

Trespass to Property Act, R.S.O. 1990, c. T.21
http://www.ontario.ca/laws/statute/90t21

Legal Description of Lands from Schedule 1 of the *Wildlife Area Regulations*

Long Point National Wildlife Area

Being all those parcels of land, in the geographic township
of South Walsingham, county of Norfolk,
formerly in the regional municipality of Haldimand-Norfolk,
described as all of Long Point Block Number One;
the part of Block Number two and part of Block Number three
being designated as Part 1 on Plan 37R-11160 as registered
in the Land Registry Office of Norfolk County;
Block Number Four; Lots One, Two and Three in Block Number Five;
Block Number Six; Lots One to Eleven in Block Number Seven;
Block Number Eight; Block Number Nine;
Block Number Ten; Block Number Eleven;
Block Number Twelve, save and except that part of
Block Number Twelve designated as Part 1 on Plan No. 37R-1354
as registered in the Land Registry Office of Norfolk County;
part of Block Number Sixteen, being designated as
Part 1 on Plan 37R-1303 in the Land Registry Office of Norfolk County,
and whole of Part 1, Part 2 and Part 3 of Plan 37R-2507
at said Land Registry Office, as said parts are patented by
said instrument No. 390158 and identified therein as Parcels “B” and “BB”.

Together with all the lands adjacent to the said Lots and Blocks on
Long Point that on the 4th day of May, 1866 lay outside the traverse
lines of survey of the outline of Long Point, shown on a plan of survey
by James Black, Provincial Land Surveyor dated the 24th day of April, 1856;

Saving and excepting from the above described Lots, Blocks and Parts,
a strip of land along the water’s edge of Lake Erie and Long Point Bay,
having a depth of 132 feet from said water’s edge;
said strip being excepted for fishing purposes,
but reserving always free access across the same in the rear thereof
as set out in the original grant from the Crown for the said Lots and Blocks;

Said remainder containing 3162 hectares (7815 acres) more or less.

APPENDIX 2: REGISTERED RESTRICTIVE COVENANTS UNDER THE TERMS OF THE DONATION

The Grantee shall not suffer or permit the said lands to be used in a manner inconsistent with the management of a wildlife area pursuant to the provisions of the *Canada Wildlife Act* and no activity shall be permitted thereon which may alter or adversely affect the physical features of the said lands or which may detract from its natural, wild and primitive state except as may be useful for wildlife research, conservation or interpretation purposes, hereafter referred to as 'wildlife purposes', or as may be necessary to erect or maintain boundary fences and trails.

Without limiting the generality of Paragraph 1 of this Schedule, the Grantee shall not suffer or permit:

The use of the said lands for a trade, business or commercial project or undertaking of any description, except such projects or undertakings as, in the opinion of the Minister of Environment, may be necessary or desirable for wildlife purposes;

The construction or erection of structures or buildings on the said lands except such as may be suitable for wildlife purposes;

Camping accommodations to be erected or provided on or in respect of the said lands, save as may be necessary for housing employees, contractors, or licensees engaged upon wildlife purposes;

Mobile homes, trailers or structures to be brought onto, erected or remain upon the said lands, save as may be necessary for housing employees, contractors or licensees engaged upon wildlife purposes, or for emergency shelter;

The cutting, mutilation, damage, destruction or removal of trees, vegetation or other forms of plant life on or within the said lands, save to the extent that may be necessary to lay out, construct or maintain trails or to protect persons against death or bodily injury or for wildlife purposes;

The building of roads or ways designed for the passage of vehicles or machinery except to the extent necessary for the maintenance of trails or for wildlife purposes;

The deposit of any substance on the said lands nor the excavation, dredging or removing of top soil, sand, gravel, rocks, or other materials therefrom, save as may be necessary for wildlife purposes;

Any vehicles or machinery to be brought onto the said lands except as may be necessary for wildlife purposes;

Any activity on or about the said lands which may substantially alter or damage the physical features of said lands.

(Indenture 390158)

APPENDIX 3: CANADIAN WILDLIFE SERVICE (ONTARIO) ENVIRONMENT AND CLIMATE CHANGE CANADA CONDITIONS FOR CONDUCTING RESEARCH IN NATIONAL WILDLIFE AREAS

Permission under the *Wildlife Area Regulations* of the *Canada Wildlife Act* to undertake research at National Wildlife Areas may be given subject to the following conditions:

1. All requests for research must be accompanied by a written proposal outlining the objectives; project duration; collection of data and specimens and measurements if any, number of participants, funding sources, location where work is to be undertaken, benefits to the National Wildlife Area (NWA), potential detractors and proposed mitigation measures. All proposals may be subject to a review by the Animal Care Committee of either Environment and Climate Change Canada or the submitting institution.
2. No research shall be undertaken without a permit issued under the *Canada Wildlife Act - Wildlife Area Regulations*, and the research must be consistent with the NWA management plan for the site and other relevant legislation (e.g., *Species at Risk Act, Migratory Birds Convention Act, 1994*).
3. All researchers must conform to regulations in effect regarding the NWA.
4. All researchers are responsible for obtaining all permits (e.g., *Species at Risk Act*, *Fisheries Act*), approvals, and permissions (e.g., land managers, landowners), prior to commencement of the research project.
5. Copies of raw data (field books and maps), preliminary reports of the research activities and a copy of the final manuscript must be provided to Environment and Climate Change Canada, Canadian Wildlife Service (ECCC-CWS) Ontario at the end of each field season.
6. Priority will be given to researchers whose work has direct management implications for the NWA and species at risk.
7. Applications to undertake a minor research study must be submitted to the ECCC-CWS Ontario office, in writing, prior to commencement of the project. **Minor proposals without problems or issues require at least forty days for review, processing and issuance of a permit**. Major proposals (that may require expert review, are multi-year, etc.) require a longer review period (minimum six months).
8. A statement must be provided to ECCC-CWS Ontario on why the research project cannot be undertaken elsewhere.

9. Any proposed work is subject to the *Canada Labour Code*, Part II (subject to the strictest safety certification, training, operational experience and mandatory use of appropriate safety equipment).

Note:

The Minister may add terms and conditions governing the activity in order to protect and minimize the effects of the authorized activity on wildlife and their habitats.

All projects and activities in the NWA are subject to environmental screening and, if necessary, to further steps in the Environmental Assessment and Review Process (Environment and Climate Change Canada).

APPENDIX 4: CONTACTS FOR LONG POINT NATIONAL WILDLIFE AREA

Contacts for LONG POINT NATIONAL WILDLIFE AREA, Ontario Administered by Environment and Climate Change Canada-Canadian Wildlife Service (Ontario) Latitude 42°55' N / Longitude 80°17' W	
Emergency Contacts	
In case of emergency, dial 911. General inquiries should be directed to local telephone numbers, not 911. **NOTE:** There is no assigned civic address for Long Point NWA. The closest contact point (and boat launch) is Long Point Provincial Park (New Park), civic address: **350 ERIE BOULEVARD (HIGHWAY 59), NORFOLK COUNTY**.	
Any life threatening emergency	911
Police-fire-ambulance	911
Ontario Provincial Police	1-888-310-1122
Ontario Provincial Police – Norfolk County Detachment 548 Queensway West, Simcoe, N3Y 4T2	519-426-3434
Ambulance	519-426-4115
Norfolk County Fire Department	519-426-4115
To report air and marine emergencies, contact Ontario Provincial Police	911 1-888-310-1122
Marine and Air Search and Rescue (Emergency Only)	1-800-267-7270
Royal Ontario Mounted Police (RCMP) Ontario Division	519-640-7267
To report a spill to air, land, or water, call Ontario Spills Action Centre, 24/7	1-800-268-6060 or 416-325-3000
Poison Control Centers (Emergencies)	1-800-268-9017
Norfolk General Hospital 365 West Street, Simcoe, N3Y 1T7	Main Hospital number: 519-426-0130
Environment and Climate Change Canada - Ontario	
Canadian Wildlife Service (National)	1-800-668-6767
Canadian Wildlife Service (Ontario) Region and Permit Office	1-613-990-8355
Wildlife Enforcement Directorate (Ontario)	905-336-6410
General Contacts	
Ontario Ministry of Northern Development, Mines, Natural Resources and Forestry (Conservation Officer)	1-877-847-7667
Ontario Ministry of Northern Development, Mines, Natural Resources and Forestry (General Inquiry)	1-800-667-1940
Ontario Ministry of Northern Development, Mines, Natural Resources and Forestry , Aylmer District	519-773-9241
Long Point Provincial Park, Ontario Parks (Assistant Park Superintendent and Park Superintendent)	519-586-2133 519-426-3249
Norfolk County	519-426-5870
Long Point Region Conservation Authority	519-842-4242
Environment and Climate Change Canada, Eastern Lake Erie Marine Forecast https://meteo.gc.ca/marine/forecast_f.html?mapID=11&siteID=07503https://meteo.gc.ca/marine/forecast_f.html?mapID=11&siteID=07503 (French) https://weather.gc.ca/marine/forecast_e.html?mapID=11&siteID=07503https://meteo.gc.ca/marine/forecast_f.html?mapID=11&siteID=07503 (English) Environment and Climate Change Canada, Norfolk Weather Conditions and Forecast https://weather.gc.ca/city/pages/on-50_metric_e.html (English) https://meteo.gc.ca/city/pages/on-50_metric_f.html (French)	

Canadian Coast Guard, Great Lakes Marine Weather Forecast (Continuous Marine Broadcast)	VHF Channel 21B & 83B (English), 23B (French)