

The background of the cover is a photograph of a large flock of swans in a wetland. In the foreground, many swans are gathered in a shallow body of water, surrounded by tall, dry grass. In the background, more swans are flying against a clear sky, and a line of trees is visible on the horizon. A large white semi-circular shape is overlaid on the left side of the image, containing the title and subtitle text.

# Stalwart National Wildlife Area

Management Plan  
2020



Environment and  
Climate Change Canada

Environnement et  
Changement climatique Canada

Canada

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

## What are Environment and Climate Change Canada Protected Areas?

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

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

The Nature Legacy represents a historic investment over five years of \$1.3 billion dollars that will 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, notably with respect to permitting. Management is undertaken in order to maintain the ecological integrity of the protected area and to maintain the attributes for which the protected area was established. Environment and Climate Change Canada prepares a management plan

for each protected area in consultation with 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 not be inconsistent with any law respecting wildlife in the province in which the protected area is situated.

### **What is Protected Area Management?**

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

### **The series**

All of the National Wildlife Areas are to have a management plan. 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 in Ottawa.

# STALWART NATIONAL WILDLIFE AREA

The Stalwart National Wildlife Area (NWA) was designated in 1975 to protect 1,250 hectares of wetland and upland habitats that support nearly 180 species of birds, including a significant concentration of breeding and staging migratory water birds. Canada's Prairies Ecozone is one of the most important habitats for migratory water birds in North America, but it is also one of the most modified ecozones in Canada. Of particular concern are large wetland complexes that support multiple functions as breeding habitat for a variety of water birds in spring and summer, as well as critical spring and fall staging habitats for flocks of geese, ducks, sandhill cranes, and shorebirds. Large wetlands, like those at Stalwart NWA, become even more concentrated with water birds during drought years when smaller surrounding wetlands dry up completely. Regionally, much of this habitat has been drastically altered by agriculture over the last 100 years, with many wetlands drained and most uplands cultivated to produce annual crops.

Habitats at Stalwart NWA include freshwater and saline wetlands and upland grasslands representative of the Moist Mixed Grassland Ecoregion of the Prairie Ecozone. Approximately half of the 925 hectares of upland habitat were cultivated for crop production in the past, but those lands have been reseeded to perennial grasses. In the absence of disturbance, alien invasive species and native shrubs have invaded much of the remaining native grassland. Wetlands occupy 600 hectares and have been modified by Ducks Unlimited Canada (DUC) with several water control structures that increase the area, depth, and permanence of the wetlands through periods of drought. DUC began this work in 1938 and continues to maintain and operate the structures in partnership with the Canadian Wildlife Service (CWS). DUC had also constructed artificial nesting islands in the wetlands to increase water bird nesting opportunities and reduce nest predation. Vegetation within the marshes and wet meadows exhibits considerable diversity because of the variable salinity and fluctuating water levels across the NWA.

In the future, Stalwart National Wildlife Area will continue to conserve a significant concentration of migratory water birds and species at risk. CWS will use methods such as livestock grazing, prescribed fire, invasive species control and water flow controls to manage upland and wetland habitats.

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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## **1. DESCRIPTION OF THE PROTECTED AREA**

Stalwart National Wildlife Area (NWA) was initially acquired by Environment Canada in 1969 and was designated under the *Canada Wildlife Act* in 1975. Conservation work began at Stalwart much earlier, when Ducks Unlimited Canada (DUC) began installing water control structures in 1938, making it one of the first DUC projects in Canada. The 600 hectare wetland complex at Stalwart NWA is functionally divided into three units (North, Centre, and South) by two municipal roads that run east-west through the NWA (Figure 1). However, DUC still refers to two units (Stalwart Marsh to the north, and Stalwart Flats to the south) distinguished by the location of the water control structures installed by DUC. Stalwart is the third largest NWA in Saskatchewan and one of the largest partnership projects between DUC and CWS in the province.

The large, continuous wetland complex at Stalwart NWA is a unique feature amidst a landscape dominated by agricultural croplands. An outstanding feature of this NWA is the variety of wetlands, including three relatively fresh, large, shallow marshes; two extremely saline, shallow, smaller basins; two artificial “dugouts”; three intermittent streams; and several temporary ponds (Caldwell 1984a). These habitats produce thousands of water birds in summer, and stage tens of thousands of ducks, geese, sandhill cranes (*Grus canadensis*), and shorebirds during fall migration.

**Table 1: Protected Area Summary**

<b>Protected Area Designation</b>	National Wildlife Area
<b>Province/territory</b>	Saskatchewan
<b>Latitude/longitude</b>	51° 13' N 105° 25' W
<b>Size (ha)</b>	1,250 ha
<b>PA designation criteria</b>	<u>Historic</u> : Area represents a regionally unique wetland habitat supporting large numbers of migrating waterfowl and other birds. <u>Current</u> : 1(a)-Area supports a group of species that is concentrated during the breeding and migration seas.
<b>PA Classification System</b>	<u>Category</u> : A <u>Conservation Value</u> : High <u>Management Goal</u> : Species Habitat Conservation
<b>IUCN Classification</b>	Category IV—Habitat/Species Management Area
<b>Order in Council Number</b>	PC 1969-1833
<b>DFRP number</b>	14073
<b>Gazetted</b>	1969
<b>Additional designations</b>	None
<b>Faunistic and floristic importance</b>	Migratory Bird Concentration Site - S3 Provincial Rank The endangered whooping crane ( <i>Grus americana</i> ) is occasionally observed during spring and fall migration.
<b>Alien and Invasive species</b>	36 (see Table 4)
<b>Species at Risk</b>	23 (see Table 3)
<b>Management Agency</b>	Canadian Wildlife Service; collaboration with Ducks Unlimited Canada
<b>Public Access &amp; Use</b>	Hunting, wildlife viewing and berry picking are permitted. Two municipal gravel grid roads run east-west through the NWA, and a public parking area, entry and information sign are located along the northernmost road.

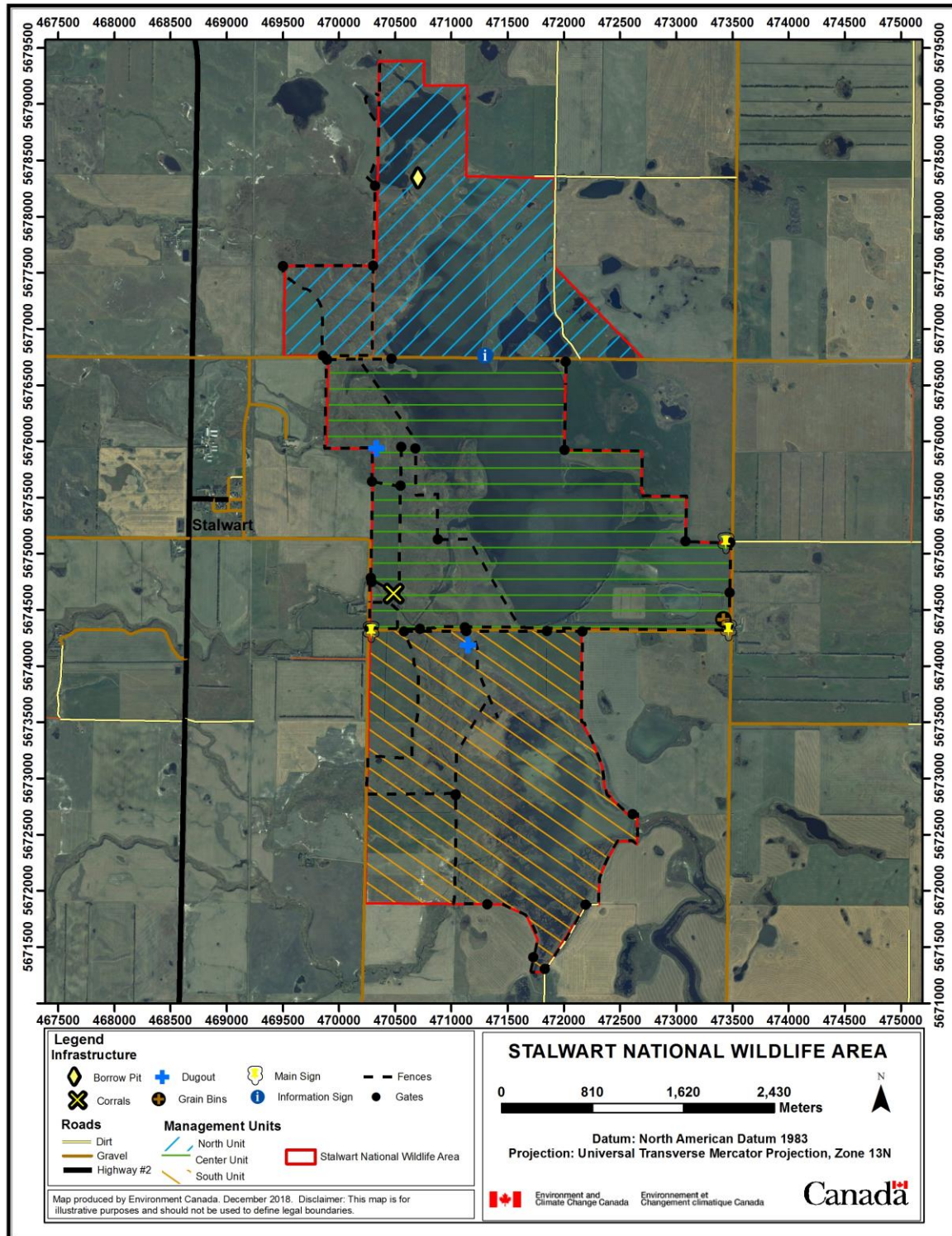


Figure 1. Stalwart National Wildlife Area

## **1.1 Regional Context**

Stalwart NWA is 1,250 ha of land and water situated in the Moist Mixed Grassland ecoregion of the Prairie Ecozone (Wiken 1986). This region is characterised by a semi-arid, continental climate (Ecological Stratification Working Group 1995). The mean annual temperature is 2.6°C at the Last Mountain Lake (Sanctuary) climate station, which is located within the National Wildlife Area. The mean January low is - 21°C and mean July high is 26°C. Annual precipitation averages 382 mm, with the majority of precipitation falling in spring and summer (Environment Canada 2011).

The dominant landscape feature at Stalwart NWA is a glacio-fluvial outwash plain with undulating upland ridges and hills on the east and west sides, and a flat lowland depression through the center and across the south end. Water inflow arrives from local drainage and several intermittent creeks that start in the morainal uplands of Allan Hills to the west. The total watershed area draining into Stalwart NWA is ~5,000 km<sup>2</sup>. Water outflow is entirely through a single creek at the south-east corner, which flows into Big Arm Bay of Last Mountain Lake (Figure 2).

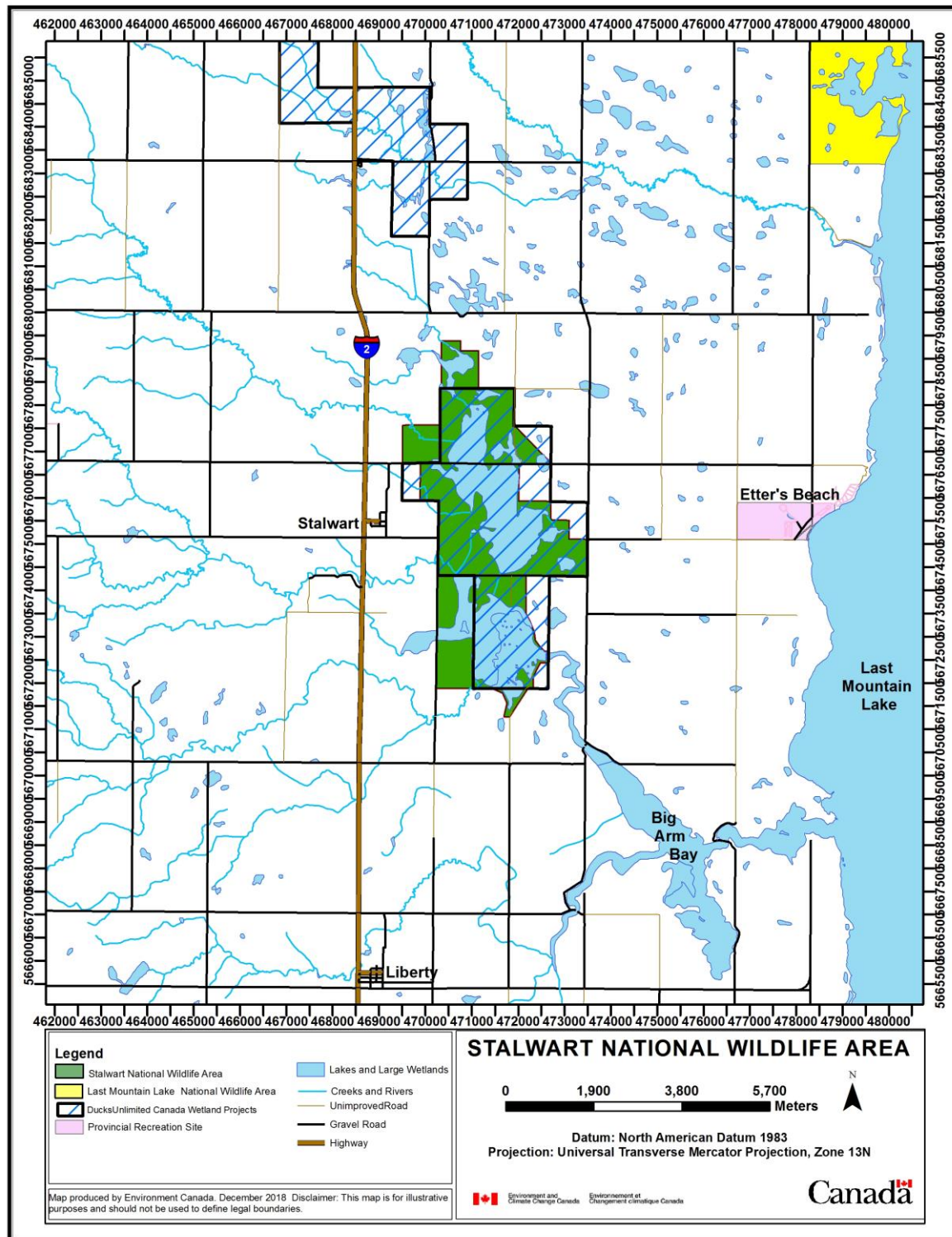
Agricultural land use and private land ownership dominate the region, leading to frequent changes in land cover and land use driven by changes in global demand and prices for commodities. As a result, many native species and natural processes that depend upon large and stable expanses of natural land cover (i.e., migratory bison herds or wild fire) are now missing from the ecosystem. Prior to cultivation, upland vegetation was comprised of mixed grass and fescue prairie (Coupland 1950, Coupland and Brayshaw 1953). Over the last century, most of that vegetation and underlying dark-brown chernozemic soil was plowed and converted to cropland. Many wetlands were also drained or filled to further increase the area of cropland (Millar 1976, Bartzen et al. 2010).

The region is now fragmented by a grid road network that follows north-south and east-west road allowances every 1.6 to 3.2 km (McKercher and Wolfe 1978). This road network can interfere with wildlife and water movements, as well as facilitate movement of invasive alien species, pollutants, and native predators and parasites of wildlife (Forman et al. 2003). Surrounding agricultural activities include annual crop production (grains, pulses, and oilseeds), perennial forage crop haying, and livestock grazing. Use of pesticides, fertilizers and tillage have degraded local water and soil quality (Donald et al. 2007, Papiernik et al. 2005). As the

recipient wetland complex downstream of a 228 km<sup>2</sup> watershed, water quality and quantity can be significantly impacted by regional land use.

Despite regional and landscape changes in land cover and land use, the wetland habitats of Stalwart NWA continue to attract a diversity of wildlife. There are 23 species considered at risk as designated under the Species At Risk Act known to occupy or breed in Stalwart NWA, and nearly 180 species of migratory birds.





**Figure 2. Regional Context of Stalwart National Wildlife Area**

## 1.2 Historical Background

Prior to European settlement, the Plains Cree (Nahathaway), Assiniboine (Nakota), and Saulteaux (Anishnabe) occupied the surrounding region. Through most of the 1700s and 1800s, the primary land uses were trapping for the fur trade, or hunting and gathering for subsistence. Métis hunters also utilized bison and other game in the region. During this period, the fur trade directly or indirectly caused great depletions in the populations of some wildlife, including beaver (*Castor canadensis*), muskrat (*Ondatra zibethicus*), bison (*Bison bison*), and elk (*Cervus elaphus*). Wetland complexes with concentrations of waterfowl like those at Stalwart NWA would have attracted hunting and gathering activities by First Nations. Evidence of hunting activities includes the many arrowheads found in nearby cultivated fields by local residents (Caldwell 1984b).

Representatives of the Crown and leaders of the Cree, Saulteaux and Assiniboine signed treaty 4 in 1874. Treaty 4 provided the First Nations the “right to pursue their avocations of hunting, trapping and fishing throughout the tract ... excepting such tracts as may be required or taken up from time to time for settlement, mining or other purposes, under grant or other right given by Her Majesty's said Government” (AANDC, 2013). Treaty 4 led to the establishment of several reserves in the region including Poorman Indian Reserve, Gordon Indian Reserve and Piapot Indian Reserve.

During the late 1800s and early 1900s settlers homesteaded throughout the surrounding region. Over this period, First Nations people battled disease and hunger on their reserves. The pass system confined them within reserve boundaries, restricted their access to wildlife and severely constrained their economic prospects (Daschuk 2013).

From the early 1900s through to the 1970s settlers increased the area under cultivation for annual crops leading to a rapid decline in natural land cover. Wetlands in low relief landscapes were sometimes drained, or filled during droughts, to increase the area of cropland (Bartzen et al. 2010). Where the soil was too saline, sandy, or saturated, native grasslands and wetlands persisted, or attempts to cultivate them for crop production were short-lived. Domestic livestock have grazed nearly all remnant grasslands in the region continuously since the time of settlement.

DUC was created in 1938 by recreational and subsistence hunters to conserve wetland habitats and waterfowl populations in response to threats resulting from market hunting, rapid

settlement and conversion of natural areas to cropland, and loss of wetland habitat during the drought of the 1930s. In 1938, DUC constructed a 30.5 x 2 m earthen dam across the southern outflow end of Stalwart Marsh in an attempt to increase wetland permanency in the Center Unit. However, the area still dried up in years of poor runoff. In 1965, DUC further increased the permanency of wetlands by placing a structure across an intermittent creek that naturally drained into the Stalwart Flats (South Unit) to divert water into the Center Unit first, and then allow back-flow through the diversion into the natural channel that drains into the South Unit. In 1977, DUC constructed a new dam across the southern outflow creek of Stalwart Flats (South Unit), and extended the dam with berms onto the surrounding uplands to enlarge and deepen the ephemeral wetland located there. By the end of the 1970s, 50 nesting islands had also been constructed across all three units to provide additional safe nesting and loafing sites for waterfowl (Figure 3). Now, only a handful of islands remain due to erosion caused by wave action and recent high water level events.

In 1969, CWS acquired privately-owned wetland and upland habitats surrounding the Stalwart Marsh and Flats to create Stalwart National Wildlife Area. The purposes were to collaborate with and secure the infrastructure investments made by DUC, and to provide the associated upland habitats needed for nesting and staging water birds. CWS implemented a lure crop program at the Stalwart Marsh and Flats (Caldwell 1984b). Lure crops were intended to provide swathed crops of barley, wheat or rye upon which migratory flocks of ducks, geese, and sandhill cranes could feed in the fall. This would thereby reduce crop depredation problems on adjacent private lands. The program was somewhat successful in the 1960s, 70s and 80s, but changes over time in dominant crop types, crop harvesting technologies, and migratory bird populations and distributions has made the program ineffective over the last two decades. Croplands not used in the lure crop program were reseeded to perennial tame forages like smooth brome (*Bromus inermis*) and alfalfa (*Medicago sativa*). The lure crop program ended in 2009 and remaining cultivated fields are in the process of being returned to permanent cover (Figures 3 and 4).

Acquisition by Environment Canada of lands that are now the Stalwart NWA pre-dated the *Canada Wildlife Act* (1975) and *Wildlife Area Regulations* (1978). Hunting of waterfowl has always been permitted by public notice, in part because the infrastructure to increase water permanency for waterfowl was constructed by DUC.

Active management of perennial vegetation with permitted haying and domestic livestock grazing at Stalwart NWA began in 1969. Agricultural activity has been beneficial to Stalwart



NWA for three reasons. First, CWS benefits from having the eyes and ears of an agricultural permit holder to report any problems they may see in the NWA. Second, it provides revenue (Caldwell 1984b) for reinvestment in fencing and signage that protects the property from prohibited activities. Third, disturbances such as grazing, haying and fire reduce woody encroachment and provide habitat heterogeneity.

### **1.3 Land Ownership**

Treaty 4 Territory encompasses the drainage area of the Qu'Appelle River including the Stalwart National Wildlife Area and surrounding lands. The treaties “are ‘living,’ foundational agreements based on the synthesis of two world views: the oral traditions (values and common laws) of the First Nation peoples and the written traditions (laws) of the Crown.” (Office of the Treaty Commissioner 2008).

Land ownership from the latter perspective can be summarized as follows. Surface title to Stalwart NWA belongs to the Crown in Right of Canada. Road allowances running every 1.6 km east-west and every 3.2 km north-south are owned by Her Majesty in Right of Saskatchewan, but are managed by the local Rural Municipality of Big Arm #251. Her Majesty in Right of Saskatchewan retains subsurface mineral rights.

Habitat management activities such as cutting hay and grazing livestock are allowed through permits under the Wildlife Area Regulations.

No utility rights of way occur on the land base or on legal land titles.

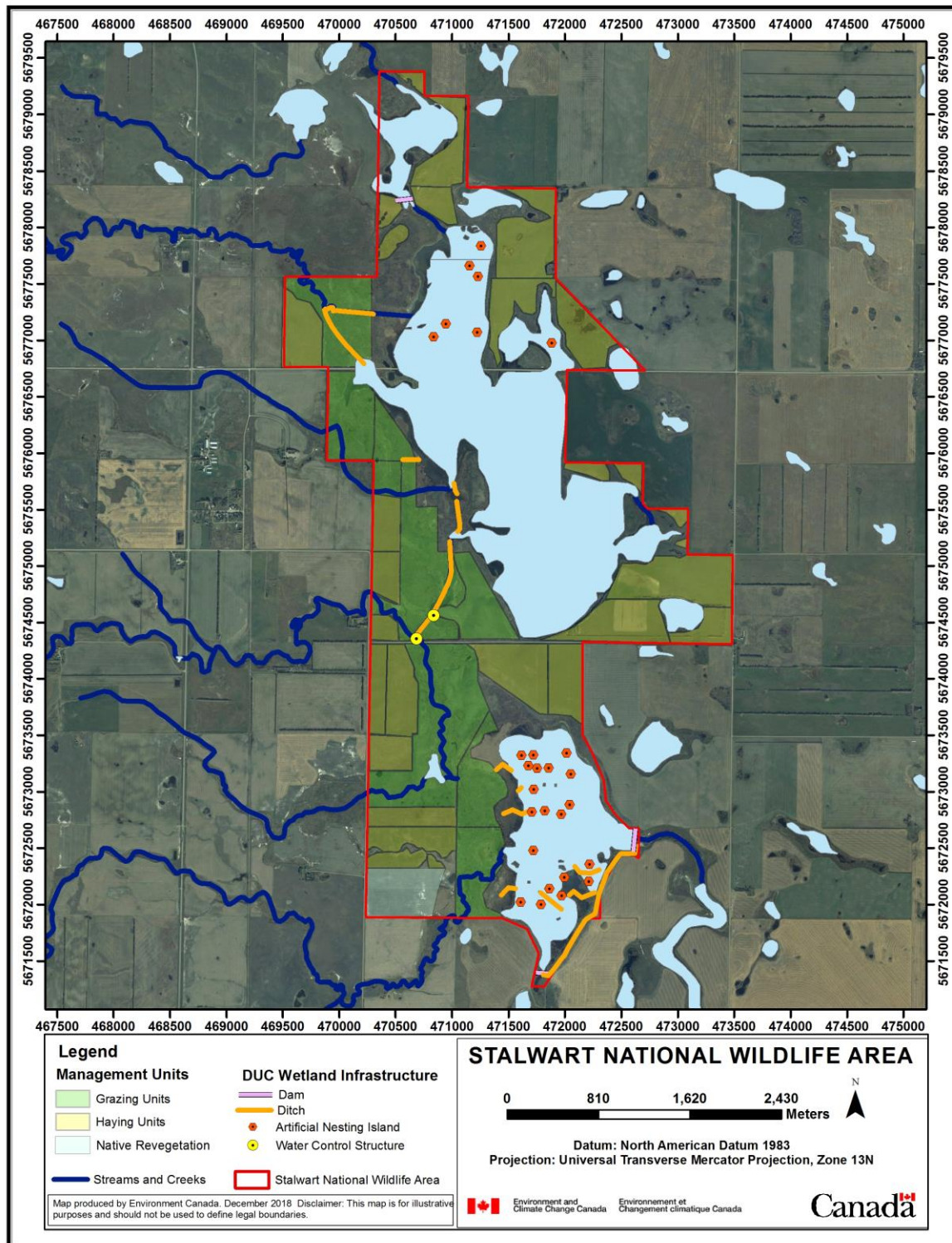


Figure 3. Land Use Units and Wetland Infrastructure at Stalwart NWA.

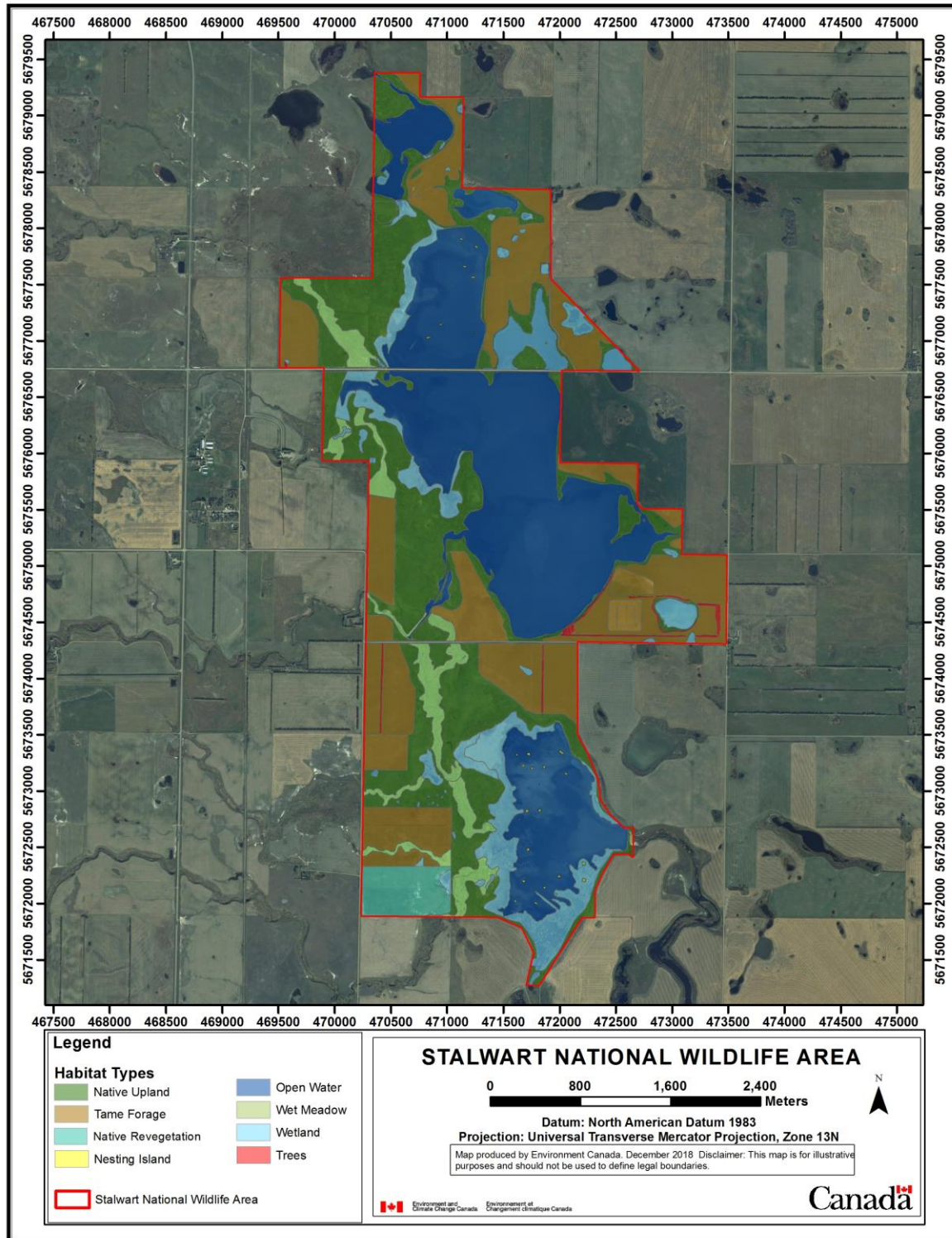


Figure 4. Habitat Types at Stalwart NWA



#### **1.4 Facilities & Infrastructure**

Two municipal gravel roads run east-west through Stalwart NWA, dividing it into North, Centre, and South Units (Figure 1). Specifically, there are 4 km of gravel road bisecting the NWA, and an additional 6.4 km of gravel road running along property boundaries. The northernmost road is frequently used to access the Etter's Beach resort community east of the NWA, from Provincial Highway #2 west of the NWA (Figure 2). The other road is used infrequently by local farmers, but overall road maintenance is the responsibility of the Rural Municipality of Big Arm #251. There is also an unimproved two-track vehicle trail running approximately north-south through 800 m of the North Unit, and an additional 800 m trail on a road allowance that follows the NWA boundary. This 800 m trail is impassable most of the year and maintained by the municipality by blading the road surface once every few years.

CWS maintains a small mowed public parking area with an entry and information sign adjacent to the east-west road between the North and Center Units (Figure 1, Table 2). The parking lot is used a few days each year by bird watchers in spring and summer, and for a few weeks by hunters in the fall. A wood post and 4-strand barbed wire fence surrounds the 25.7 km perimeter of Stalwart NWA to protect the boundary from encroachment by agriculture in summer, and recreational snowmobiling in winter. An additional 15.4 km of cross fencing supports livestock grazing as a habitat management tool in the South and Center Units. In summer 2003 approximately 10.4 km of the fence was replaced, but the remainder of the fencing is old and requires repair. Approximately 65 boundary signs are posted along the boundary fence at 400 m intervals. Two grain bins on a concrete pad are located in the SE corner of the NWA.

DUC maintains and operates the water control structures through a long-term agreement with CWS. In addition to the earthen berms, the actual water flow controls consist of two structures; the first is found at the southernmost end of the Center Unit, and the second is found at west-most point of the South Unit. Each structure consists of a concrete headwall with stop log bays; two bays on the Center Unit structure (Stalwart Marsh) and 3 on the South Unit structure (Stalwart Flats). A metal frame on the upstream side permits the manual addition or removal of 15x15 cm wide "stop logs" over which water will flow once the basin upstream fills to that level. Water then flows through the structure into a large pool and thence downstream through the natural channel.

**Table 2: Facilities and infrastructure in Stalwart National Wildlife Area**

Type of facility or infrastructure	Approximate Size	Responsibility holder or owner
Unimproved trail	800m	RM of Big Arm (No. 251)
Gravel road	10,400m	RM of Big Arm (No. 251)
Parking lot	400m <sup>2</sup>	CWS
Perimeter & cross fence	41,100m (15,400m cross)	CWS
Entry/information sign (3)		CWS
Boundary signs (~65)		CWS
Grain bins (2)	25m <sup>2</sup>	CWS
Water control structures (2)	50m <sup>2</sup>	DUC

## 2. ECOLOGICAL RESOURCES

### 2.1 Terrestrial and Aquatic Habitats

Stalwart NWA contains modified elements of the Moist Mixed Grassland Ecoregion, within the Prairie Ecozone. Upland habitats make up 60% or 925 ha of the NWA, and are underlain by sandy to gravelly loam, dark-brown chernozemic soils with patches of saline dry meadows and overflow sites where the water table comes near the surface. Originally, the upland vegetation would have been dominated by communities of western porcupine grass, northern wheatgrass, and needle & thread grass (*Hesperostipa curtiseta*, *Elymus lanceolatus*, and *Hesperostipa comata*) on the sandy ridges and hills. Communities of northern wheatgrass, desert salt grass, foxtail barley, and red samphire (*Elymus lanceolatus*, *Distichlis spicata*, *Hordeum jubatum*, and *Salicornia rubra*) would dominate moister and more saline swales and flats (Thorpe 2007).

Upland ecosites have been modified by both deliberate and unintended human activity over the last century. Approximately 450 ha of the upland vegetation was plowed for crop production at one time, but most was reseeded to perennial forages like smooth brome and alfalfa (Figure 4). Approximately 331 ha of the perennial forage is regularly cut for hay (Figure 3). Lure crops of barley were grown to feed water birds on 65 ha of cultivated uplands from the late 1960s until 2009. Rows of trees and shrubs were also planted between 1968 and 1978 in portions of the South Unit to supplement nesting cover for songbirds and provide winter habitat for upland game birds (Caldwell 1984b). These mature rows of Siberian pea shrub (*Caragana*

*arborescens*), hybrid poplar (*Populus X spp.*), Russian olive (*Elaeagnus angustifolia*), and Manitoba maple (*Acer negundo*) contrast substantially in structure from the surrounding native and tame grasslands. Much of the remaining 475 ha of upland habitats have become invaded by smooth brome (*Bromus inermis*), Kentucky bluegrass (*Poa pratensis*), crested wheatgrass (*Agropyron cristatum*), and quack grass (*Elymus repens*). Patches of the native shrubs, specifically western snowberry (*Symphoricarpos occidentalis*), have also increased in density and size over time, due to the absence of regular fire.

Lowland habitats occupy 600 ha of the NWA and differ markedly between the Units. The South Unit receives more freshwater inflow from three creeks, and is the location of the outflow creek that connects to Last Mountain Lake. These characteristics result in water that is relatively fresh with potential to support fish populations. The Center and North Units receive less freshwater inflow from two smaller creeks, and drain into the South Unit only during high water years when basins reach full supply level. As a result, the water contains more dissolved salts and supports shoreline vegetation and aquatic life that differs from the South Unit. Passage of water from the Center to South Unit is concentrated through culverts beneath the municipal gravel roads.

Wetland vegetation characteristic of stream banks and freshwater wetlands includes a wet meadow zone dominated by sedge (*Carex spp.*), fowl bluegrass (*Poa palustris*) and northern reedgrass (*Calamagrostis stricta ssp. inexpansa*), an emergent zone of common cattail (*Typha latifolia*), bulrush (*Scirpus sp.*), common rivergrass (*Scolochloa festuacea*), giant reedgrass (*Phragmites australis*), submergent or floating plants like pondweed (*Potamogeton sp.*), duckweed (*Lemna sp.*), and water lily (*Nymphaea sp.*). Saline wetlands support a wet meadow zone of red samphire (*Salicornia rubra*), Baltic rush (*Juncus balticus*), and foxtail barley (*Hordeum jubatum*), an emergent zone of salt marsh bulrush (*Scirpus paludosus*), and few or no submergent and floating plants save for some algae.

## **2.2 Wildlife Species**

Nearly 180 species of birds have been recorded at Stalwart NWA, with over 50% considered marsh birds (see Caldwell 1984a for a partial list). Spring and fall migration are when the largest flocks and numbers of species may be observed. It is possible to observe tens of thousands of ducks and geese and hundreds of shorebirds in a single day. The North and Centre Units are excellent breeding marshes for Canada geese (*Branta canadensis*) and diving

ducks like redhead (*Aythya americana*), canvasback (*Aythya valisineria*), and lesser scaup (*Aythya affinis*). Common (*Sterna hirundo*) and black (*Chlidonias niger*) terns, sora (*Porzana carolina*), Virginia (*Rallus limicola*), and yellow (*Coturnicops noveboracensis*) rails, black-crowned night-heron (*Nycticorax nycticorax*), American bittern (*Botaurus lentiginosus*), four species of grebes (*Podicipedidae* sp.), American coot (*Fulica americana*), red-winged (*Agelaius phoeniceus*) and yellow-headed (*Xanthocephalus xanthocephalus*) blackbirds, and marsh wren (*Cistothorus palustris*) are also common nesting species within the marshes. In the uplands, a number of ground-nesting songbirds and raptors are present seasonally. There are few resident birds, including the great horned owl (*Bubo virginianus*), black-billed magpie (*Pica hudsonia*), sharp-tailed grouse (*Tympanuchus phasianellus*), and gray partridge (*Perdix perdix*). Winter migrants include snow buntings (*Plectrophenax nivalis*) and redpolls (*Acanthis flammea*).

Muskrats (*Ondatra zibethicus*) are the most conspicuous mammals at Stalwart NWA, because they construct dozens of domed lodges from reeds and mud, which are easily observed dotting the frozen surface of deep-water marshes in winter (Dickson 2007). Many other small mammals inhabit the wetland margins and uplands, including meadow voles (*Microtus pennsylvanicus*), northern pocket gophers (*Thomomys talpoides*), ground squirrels (*Spermophilus* sp.), weasels (*Mustela* sp.), skunks (*Mephitis mephitis*), and coyotes (*Canis latrans*). White-tailed deer (*Odocoileus virginiana*) make frequent summer use of the tall cover along streambanks and wetland margins, and pronghorn antelope (*Antilocapra americana*) are occasionally observed in upland grasslands.

No inventories of reptiles or amphibians have been formally conducted, however, wetlands in Stalwart NWA are known to support breeding tiger salamanders (*Ambystoma tigrinum*), northern leopard frogs (*Lithobates pipiens*), and boreal chorus frogs (*Pseudacris triseriata maculata*).

No inventories of fish or invertebrates have been formally conducted at Stalwart NWA.

## **2.3 Species at Risk**

Twenty-three listed Species at Risk (2 amphibians, 19 birds and 2 mammals, see Table 3) have been observed at Stalwart NWA during recent decades. Whooping cranes have been periodically observed using the NWA during migration. Burrowing owls (*Athene cunicularia*) were suspected of nesting in the area historically, but the last known active burrow at the NWA

was recorded in 1980 and the last known sighting was in 2005. No endangered birds are known to nest at Stalwart NWA. Both short-eared owls (*Asio flammeus*) and loggerhead shrikes (*Lanius ludovicianus*) have successfully bred in the NWA in recent years. Plains bison, elk, and wolf (*Canis lupus*) were locally extirpated from the region before 1900, and the last greater prairie-chicken (*Tympanuchus cupido*) was observed in the area in 1932.

**Table 3: Species at Risk in in Stalwart NWA or in the Surrounding Landscape**

Common and scientific names of species	Status			Presence or Potential of Presence <sup>4</sup>
	Canada		Saskatchewan	
	SARA <sup>1</sup>	COSEWIC <sup>2</sup>	Provincial ranking <sup>3</sup>	
Amphibians				
Western tiger salamander ( <i>Ambystoma mavortium</i> )	Special Concern	Special Concern	S4	Confirmed
Northern leopard frog ( <i>Lithobates pipiens</i> )	Special Concern	Special Concern	S3	Confirmed
Birds				
Baird's sparrow (Ammodramus bairdii)	Special Concern	Special Concern	S4B	Confirmed
Bobolink ( <i>Dolichonyx oryzivorus</i> )	Threatened	Threatened	S4B,S4M	Confirmed
Buff-breasted sandpiper ( <i>Tryngites subruficollis</i> )	Special Concern	Special Concern	S4M	Confirmed
Burrowing owl ( <i>Athene cunicularia</i> )	Endangered	Endangered	S2B,S2M	Confirmed
Canada warbler ( <i>Cardellina canadensis</i> )	Threatened	Threatened	S4B,S3M	
Chestnut-collared longspur ( <i>Calcarius ornatus</i> )	Threatened	Threatened	S3B	Confirmed
Common nighthawk ( <i>Chordeiles minor</i> )	Threatened	Special Concern	S4B,S4M	Confirmed
Ferruginous hawk ( <i>Buteo regalis</i> )	Threatened	Threatened	S3	Confirmed
Horned grebe ( <i>Podiceps auritus</i> )	Special Concern	Special Concern	S5B,S5M	Confirmed
Loggerhead shrike ( <i>Lanius ludovicianus excubitorides</i> )	Threatened	Threatened	S2B,S2M	Confirmed
Peregrine falcon ( <i>Falco peregrinus anatum</i> )	Special Concern	Not at Risk	S1B, SNRM	Confirmed
Piping plover ( <i>Charadrius melodus</i> )	Endangered	Endangered	S3B	



Common and scientific names of species	Status			Presence or Potential of Presence <sup>4</sup>
	Canada		Saskatchewan	
	SARA <sup>1</sup>	COSEWIC <sup>2</sup>	Provincial ranking <sup>3</sup>	
Red knot ( <i>Calidris canutus rufa</i> )	Endangered	Endangered	S2M	Confirmed
Rusty blackbird ( <i>Euphagus carolinus</i> )	Special Concern	Special Concern	S3B, SUN, S3M	Confirmed
Short-eared owl ( <i>Asio flammeus</i> )	Special Concern	Special Concern	S3B, S2N, S3M	Confirmed
Sprague's pipit ( <i>Anthus spragueii</i> )	Threatened	Threatened	S3B,S3M	Potential
Western grebe ( <i>Aechmophorus occidentalis</i> )	Special Concern	Special Concern	S3B,S3M	Confirmed
Whooping crane ( <i>Grus americana</i> )	Endangered	Endangered	SXB, S1M	Confirmed
Yellow rail ( <i>Coturnicops noveboracensis</i> )	Special Concern	Special Concern	S3B, S3M	Confirmed
<b>Mammals</b>				
Little brown myotis ( <i>Myotis lucifugus</i> )	Endangered	Endangered	S4	Potential
American badger ( <i>Taxidea taxus</i> )	Special Concern	Special Concern	S3	Confirmed

1. *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)
2. Committee on the Status of Endangered Wildlife in Canada
3. Saskatchewan Conservation Data Centre (SKCDC) Provincial S-Ranks: S1 Critically Imperiled, S2 Imperiled, S3 Vulnerable, S4 Apparently Secure, S5 Secure, SU Unrankable, B Breeding Population, M Migrant Population, N Non-breeding Population, X Extirpated (<http://www.biodiversity.sk.ca/ranking.htm>)
4. Categories are 'confirmed', 'probable', or 'potential'

## 2.4 Invasive Species

The tame forage communities in Stalwart NWA (Figure 4) are dominated by non-native agronomic forage species of Kentucky bluegrass (*Poa pratensis*), smooth brome, crested wheatgrass (*Agropyron cristatum*) and alfalfa which were intentionally planted for nesting cover and have invaded the native upland communities. Canada thistle (*Cirsium arvense*), perennial sow-thistle (*Sonchus arvensis*), and dandelion (*Taraxacum officinale*) are also common throughout. Baby's breath (*Gypsophila paniculata*) is found along the road ditch in the northwest corner of the South Management Unit and the southwest corner of the Center Management Unit

(Figure 1) and has invaded adjacent hay fields and pastures. Other invasive or alien species found within Stalwart NWA are listed in Table 4.

**Table 4: Alien & Invasive Plants Recorded at Stalwart NWA**

Common Name	Scientific Name
<b>Noxious*</b>	
Absinthe	<i>Artemisia absinthium</i>
Baby's-breath	<i>Gypsophila paniculata</i>
Bull thistle	<i>Cirsium vulgare</i>
Canada thistle	<i>Cirsium arvense</i>
Downy brome	<i>Bromus tectorum</i>
Nodding thistle	<i>Carduus nutans</i>
Narrow-leaved hawk's-beard	<i>Crepis tectorum</i>
Perennial sow-thistle	<i>Sonchus arvensis</i>
Prickly lettuce	<i>Lactuca serriola</i>
Kochia	<i>Kochia scoparia</i>
Stork's bill	<i>Erodium cicutarium</i>
Yellow toadflax	<i>Linaria vulgaris</i>
<b>Nuisance*</b>	
Dandelion	<i>Taraxacum officinale</i>
Foxtail barley*	<i>Hordeum jubatum</i>
Goat's-beard	<i>Tragopogon dubius</i>
Povertyweed	<i>Iva axillaris</i>
Quackgrass	<i>Elymus repens</i>
Russian thistle	<i>Salsola kali</i>
<b>Non-Native Species</b>	
Alfalfa	<i>Medicago sativa</i>
Blue lettuce	<i>Lactuca tatarica</i> var. <i>pulchella</i>
Crested wheatgrass	<i>Agropyron cristatum</i>
Field dock	<i>Rumex pseudonatronatus</i>
Green foxtail	<i>Setaria viridis</i>
Kentucky bluegrass	<i>Poa pratensis</i>
Lamb's quarters	<i>Chenopodium album</i>
Manitoba maple	<i>Acer negundo</i>
Poplar (Hybrid)	<i>Populus X.</i>
Russian olive	<i>Elaeagnus angustifolia</i>
Smooth brome	<i>Bromus inermis</i>
Siberian pea shrub (Caragana)	<i>Caragana arborescens</i>
Stinkweed	<i>Thlaspi arvense</i>
Tansy mustard (Flixweed)	<i>Descurainia sophia</i>
Western blue-bur	<i>Lappula echinata</i>
Wild buckwheat	<i>Polygonum convolvulus</i>
Wild oat	<i>Avena fatua</i>
White sweet clover	<i>Melilotus albus</i>
Yellow sweet clover	<i>Melilotus officinalis</i>

\*Designations correspond to Schedules II-III of the *Weed Control Act*, 2010

\*Native species, but listed as a nuisance weed.

### **3. MANAGEMENT CHALLENGE AND THREATS**

Many bird species exhibit continued use of Stalwart NWA for nesting and migration stopovers. Four management challenges and threats have been identified despite high wildlife utilization.

#### **3.1 Water Control Structures and Bisecting Roadways**

Artificially high water levels created by engineered water control structures can cause upstream flooding on adjacent lands, or roadbed failures, both of which are on-going concerns. Most of the water retention remains within Stalwart NWA, but during extended periods of extremely high runoff and precipitation the water will rise and saturate gravel roadbeds, causing sinkholes and frost boils that the local municipality has to repair. DUC has contributed to some roadway repair efforts in an attempt to appease local concerns about the cost of repairs. Culverts beneath roads or berms will sometimes become plugged with floating debris or woody material placed there by beavers, resulting in unintended upstream water retention that has overflowed roads, or caused back-flooding of croplands on adjacent property.

CWS and DUC are not on-site and require time to respond to emergencies, help clear debris from culverts, issue permits and arrange for contractors to undertake repair work. This has sometimes resulted in negative consequences for local residents and municipal governments.

#### **3.2 Alien Invasive Plant Species**

Between 1968 and 1978, cropland in Stalwart NWA was seeded to tame grasses and legumes, which went ungrazed and unhayed for many years. This contributed to the widespread invasion by alien invasive plant species. The past practice of leaving unhayed strips of vegetation within harvested hay fields, which also may have helped alien invasive species become widespread, has been discontinued.

Dry, sandy upland habitats are now commonly invaded by species such as crested wheatgrass, yellow sweet clover, and baby's breath, while smooth brome, Kentucky bluegrass and large populations of absinthe dominate mesic sandy uplands. The more saline wetland margins are frequently invaded by quackgrass and perennial sow thistle. Some large patches of noxious weeds like nodding thistle, Canada thistle, and yellow toadflax are also well-established

in uplands. These biological invasions reduce the diversity of plant communities thereby reducing the occupancy, density, or productivity of nesting grassland birds.

### **3.3 Water Quality Reductions from Agricultural Intensification**

The Upper Qu'Appelle River Watershed, which includes Stalwart NWA, is considered a Stressed Watershed by Saskatchewan Water Security Agency (Davies and Hanley 2010). Condition indicators such as surface water quality, ground water quality, riparian areas, and rangeland health were rated as stressed across the watershed. This is due to agricultural intensification, which includes moderate intensities of invasive alien species, fertilizer inputs, livestock operations and manure production and a high intensity of pesticide inputs (Davies and Hanley 2010).

### **3.4 Upland Disturbance Processes**

Native prairies evolved under frequent disturbances from ecological processes such as grazing and fire. These processes affect soil temperatures, change light regimes, alter oxidation and decomposition rates, influence plant species composition, change phenology and create temporal and spatial habitat heterogeneity. The loss of free-ranging bison, the decline of fire use by Indigenous Peoples, wildfire suppression and the fragmentation of grassland landscapes by cultivation agriculture over the past two centuries have drastically reduced the background rates of vegetation disturbance processes in Stalwart NWA.

Cultivation is a form of disturbance with high frequency and high intensity, which is not analogous to large-scale natural processes. Cropland is not preferred habitat for most migratory birds. Conversion of cropland to hayland primarily benefits grassland bird species of low conservation concern in the prairie region. The exception would be the northern pintail (*Anas acuta*), an uncommon species of higher conservation concern which is abundant in hayfields (McMaster et al. 2005).

Although some waterfowl species benefit from haylands when haying is delayed beyond the nesting season, grassland endemic bird species, those of greatest conservation concern in the Northern Great Plains, use grasslands less than 30 cm in vegetation height and avoid areas with woody vegetation and deep litter (see review by Askins et al. 2007). Since Stalwart NWA is located in the Moist Mixed Grasslands ecoregion, disturbance processes are required to reduce

woody encroachment, reduce litter and increase the availability of habitats with shorter vegetation heights. Sustained rest (no disturbances) would lead to habitat that would be unattractive to endemic grassland birds (see review by Askins et al., 2007). In nearby Last Mountain Lake NWA, the threatened Sprague's pipit prefers vegetation 20 to 30 cm in height for territory establishment and nesting and some hayfields may become unsuitable as the vegetation increases beyond 30 cm in height (Fisher and Davis, 2011).

Haying, grazing and fire present different sets of management challenges. Haying is most productive in the years immediately following the seeding of forage crops. The value of standing hay decreases over time as the proportion of alfalfa diminishes, burrows that can damage haying equipment become larger and more widespread throughout the fields or perennial weeds increase in abundance. Baling and removal of standing hay by agricultural permittees may not be sustainable over time without periodic rejuvenation of hayfields, a process that involves several years of crop cultivation, weed management and reseeding.

A mosaic of heavily and lightly grazed areas is promoted as the best land management system to maintain habitats for grassland songbirds (McMaster et al., 2005; Askins et al., 2007). Grazing may also limit the rate of spread of some invasive species. To achieve grazed habitats, fences and gates are required for containment and movement of cattle between fields. Best management practices for grazing may also require solar pumps and water bowls adjacent to wetlands to prevent negative impacts of livestock in riparian areas through trampling and compaction of soils as well as nutrient loading and fecal contamination of surface waters (Alberta Environment and Parks, 2019). Acquiring and managing this infrastructure can be capital and labour intensive. Fences have no direct benefit to wildlife at Stalwart NWA as they are not required for a conservation purpose (*sensu* Hayward and Kerley, 2009) and have potential negative effects on wildlife due to entanglement and impact risks (Gates et al., 2012). Watering systems for cattle are also not required by wildlife. Construction and maintenance of infrastructure competes with habitat management activities for scarce labour and financial resources.

The effects of fire on waterfowl and songbird habitats in the northern mixed-grass prairie have not been studied as much as grazing because fire is now quite rare in the region. Nonetheless, periodic fire would serve to reduce vegetation height and decrease litter and woody encroachment. Prescribed fire can only be initiated under very limited time windows when temperatures, wind speeds, wind directions and fuel moisture are within prescription.

Outside of these parameters, fire intensity, smoke movement, crew safety hazards and escapement risk may be too great or fires will not start or be sustained. When conditions are within prescription at Stalwart NWA, they are likely to be within prescription at other nearby NWAs (e.g. Last Mountain Lake, Bradwell, St. Denis) and current CWS staff can only muster a large enough crew to operate at one location at a time, which limits the area that can be treated by a prescribed fire in any one season.

## **4. GOALS AND OBJECTIVES**

### **4.1 Vision**

The long-term vision for Stalwart NWA is wildlife conservation: the NWA provides relatively undisturbed wetland and upland migratory bird habitat in an intensively cultivated region and supports more than 180 bird species by providing staging, nesting, brood-rearing, and moulting habitats.

### **4.2 Goals and Objectives**

Management of Stalwart NWA requires coordination with water management actions by DUC for the Stalwart Wetland Project. CWS will continue the maintenance and improvement of upland and riparian wildlife habitat through grazing management, upland revegetation, invasive species management, prescribed fires, and other management techniques.

#### **GOAL 1: Restore and enhance upland grassland and riparian habitats at Stalwart NWA as nesting cover for migratory birds.**

##### *Objectives:*

- (a) Increase vegetation species diversity in recently seeded areas that were formerly lure crop fields to restore upland nesting habitat for migratory birds and species at risk (by 2021).
- (b) Implement prescribed fires to suppress alien invasive plant species, conserve native plant species, and create heterogeneity in upland nesting cover for migratory birds and species at risk (by 2025).
- (c) Replace haying with a rest-rotation livestock grazing system to increase heterogeneity of upland nesting cover for migratory birds and species at risk (by 2025).
- (d) Manage the impacts and footprint of permanent fencing by making perimeter fences wildlife-friendly and minimizing permanent internal cross-fences (by 2025).
- (e) Remove upland planted shelterbelts used as nesting sites or perches for predatory birds in experimental areas, to increase the nest success of ground-nesting species at risk (by 2023).

- (f) Seed or plant native shrubs to increase biodiversity in riparian habitats (by 2025).
- (g) Control noxious and prohibited weeds within the NWA to promote compliance with *The Saskatchewan Weed Control Act* (ongoing).
- (h) Support Rural Municipality of Big Arm #251 to control noxious and prohibited weeds on the road and trails they maintain (ongoing).

**GOAL 2: Maintain all natural and modified wetland habitats at Stalwart NWA in cooperation with DUC.**

**Objectives:**

- (a) All wetlands within the NWA will contain sufficient water of good quality to maximize brood habitat availability during times of drought (on-going).
- (b) Beaver and muskrat dam building or burrowing activities that interfere with water control structures will not increase over time (on-going).
- (c) Vegetation obstruction of water flow through ditches will not increase over time (on-going).
- (d) Support DUC in the rebuild the Stalwart Flats and Stalwart Marsh projects (with an accommodation of fish passage) by 2025.
- (e) Support the Rural Municipality of Big Arm #251 to manage water flow through roads culverts (ongoing).

### **4.3 Evaluation**

Annual monitoring will be performed within the limits imposed by the availability of financial and human resources. The management plan itself will be reviewed in five years and every ten years thereafter. Evaluation will take the form of an annual review of monitoring data obtained from the monitoring and research projects outlined below. This data and the annual review will be used to inform future management as well as to evaluate federal contributions towards accomplishing the mandates specific to CWS for which the protected area was established.



## 5. MANAGEMENT APPROACHES

This section and Table 5 contains a description of all the possible approaches that could be used in the management of the Stalwart National Wildlife Area. However, management actions will be determined during the annual work planning process and will be implemented as human and financial resources allow.

**Table 5: Management Challenges & Threats**

Management Challenge and/or Threat	Goal and Objectives	Management Approaches and Level of Priority <sup>1</sup>
3.1 Water Control Structures and Bisecting Roadways	2(d) Support DUC to manage and replace water control structures	Wetland Habitat Management (Priority 1)
		Wildlife Population Management (Priority 1)
	2(e) Support RM of Big Arm #251 to manage water flows through culverts	Wildlife Population Management (Priority 1)
3.2 Alien Invasive Plant Species	1 (a-h) Restore, enhance and manage upland grassland and riparian habitats as nesting cover for migratory birds	Revegetation (Priority 1)
		Haying (Priority 1)
		Livestock Grazing (Priority 1)
		Herbicide Application (Priority 1)
		Prescribed Fire (Priority 2)
3.3 Water Quality Reductions from Agricultural Intensification	1(a-f) Restore and enhance upland grassland vegetation	Revegetation (Priority 1)
		Livestock Grazing (Priority 1)
		Wetland Habitat Management (Priority 1)
3.4 Upland Habitat Management	1(b-c) Implement prescribed fire and rest rotation livestock grazing	Prescribed Fire (Priority 1)
		Livestock Grazing (Priority 1)

### 5.1 Upland Habitat Management

Wildlife habitat will be improved at Stalwart NWA by expanding the area of perennial grassland cover onto the former crop fields, and diversifying the structure and composition of all

perennial cover. Perennial upland cover is superior to annually tilled land because it provides productive nesting and foraging habitat for many Migratory Birds in the Prairie Ecozone (Davis et al. 1999, McMaster and Davis 2001).

### **5.1.1 Haying**

Haying of planted perennial forage crops at Stalwart NWA follows methods employed by farmers in the surrounding landscape utilizing a schedule prescribed by CWS. Hay is only cut after July 15 to provide migratory birds with undisturbed nesting cover throughout the spring (Dale et al. 1997). Bales are removed from fields by August 31 before fall migration and any prescribed fire activities. The haying process involves three to six passes of heavy equipment over the course of a week to a month, to swath, rake, bale, and remove the hay. Haying will be used as an interim management intervention on existing fields of smooth brome and alfalfa, and other fields to be revegetated in future, until such time that the combination of revegetation and fencing for livestock grazing is completed. After that point, haying or otherwise mowing vegetation may only be used on a small scale to prepare fireguards for prescribed fires, or to control woody and invasive alien vegetation.

### **5.1.2 Revegetation**

Revegetation of crop fields at Stalwart NWA would involve planting seed mixes of native plants or tame forages. The preference in species selection is to expand the cover of native grasses and forbs in upland and lowland ecosites (see Thorpe 2007 for typical species), and seed non-invasive tame forages (i.e. intermediate wheat grass and meadow brome) as a dense nesting cover and buffer between native vegetation and smooth brome. Seeding between mid-May and mid-June is preferred to take advantage of peak soil moisture and to maximize the frost-free period necessary for seedling establishment. Generally, the majority of grasses and forbs will be planted using a tractor-drawn drill-seeder, while riparian and other specific grasses and forbs will be distributed using an ATV-mounted broadcaster with pull-behind harrows; this will result in up to two passes over the same area.

Management of woody vegetation would include reducing the extent of planted non-native trees and shrubs in upland areas while enhancing native shrub species distribution and abundance in riparian habitats.

### **5.1.3 Herbicide Application**

Control of new invasive alien species, or weeds identified as prohibited or noxious under the *Saskatchewan Weed Control Act*, will employ chemical formulations and application timing prescribed by licensed pesticide applicators. Application methods may involve hand-held or ATV-mounted equipment to minimize disturbance to surrounding vegetation. Spot-spray applications of broad-leaf herbicides with limited residual effects may be used to target patches of the major problem species such as Canada thistle, toadflax, and perennial sow thistle. Stem-wipe applications of broad-spectrum herbicides with strong residual effects will be used to target alien shrubs in shelterbelts such as Siberian pea shrub and Russian olive. Applications will be monitored to determine success of weed control actions and re-application will occur where previous efforts failed.

### **5.1.4 Prescribed Fire**

Prescribed fire may be undertaken in any year to reduce the cover of invasive native shrubs, alien perennial grasses, and litter build-up. To minimize short-term negative effects on migratory birds, fires will be restricted to April before the nesting season begins, or September and October after the nesting season has ended.

Fire units will focus on restoring remnant native grasslands and maintaining planted native grasslands, in association with livestock grazing. Boundaries of fire units will include constructed features like gravel roads, open water bodies, or mowed fireguards. These boundary features provide either discontinuities in fuels (road, water), ease of equipment access in the event of an escaped fire (roads), or are otherwise effective lines for ignition of backfires. Backfires from these boundary features will be the primary form of ignition. Prescribed fires will not occur where wind speeds exceed  $25 \text{ km hr}^{-1}$  to reduce the risk of long-distance ember transport from woody fuels or the risk of fires jumping fire guards (Cheney and Sullivan 2008). Individual fire units will be designed to safely manage each fire with existing numbers of appropriately trained staff. Finally, prescribed fires will not occur during periods of fire bans dictated by surrounding municipal or provincial governments.

Other procedures, including Incident Commander (fireboss) designation, crew member training and fitness requirements, incident command system and cooperation with surrounding land owners and municipal fire departments, will be outlined in individual prescribed fire plans.

### **5.1.5 Livestock Grazing**

Grazing by domestic livestock can diversify the structure of perennial cover at Stalwart NWA. Two components of implementing livestock grazing are designing the grazing regime most appropriate for the ecosystem and constructing the infrastructure needed to support that grazing regime. Grazing regimes are described by timing, duration, frequency, and stocking density. Rotation is the movement of animals from one pasture to another, deferment is the delaying of grazing in a pasture until most plants have completed seed production, and rest is preventing grazing of a pasture for at least one year (Heitschmidt and Stuth 1991).

Grazing management units, dates and elements such as rotation and rest will be negotiated with potential grazing permittees. Determination of carrying capacity will occur through adaptive management including health assessments of the grasslands and riparian areas.

Implementing the grazing regime may require wildlife-friendly fencing upgrades and new permits or agreements with livestock producers. New cross-fencing and new gates maybe necessary to implement the proposed grazing management plan. Additional water supplies for grazing animals may be necessary due to issues of location, quality and quantity. Opportunities to remove unnecessary fencing will be identified.

### **5.1.6 Wetland Habitat Management**

Water flow controls may be changed in the future by DUC to become less costly to maintain. Options to rebuild the control structures will be evaluated, and include modification of the existing controls, or removal and replacement with fixed-crest rock weir structures. Fixed-crest rock weirs allow upstream basins to naturally fill to the full supply level, after which overflow through the spillway provides downstream flow. Water flows sufficient to stimulate and facilitate the upstream movement of spawning fish occur frequently, but in this semi-arid environment, flows often do not last long enough to allow fry to return to the lake proper. The rock spillway gradient will be low enough to function as a fish ladder and permit upstream passage of spawning fish, as well as gentle return of the fry, if flows are sufficient.

Water supplies may be pumped from permanent wetlands for the purpose of fire control during suppression or prescribed fire activities or for temporary water supplies for livestock in order to execute the grazing prescriptions. In these cases, the water removed is returned to the

same watershed and the volume removed for any one activity will represent a negligible fraction of the total water volume stored in the basins at Stalwart NWA. During droughts when water levels are at their lowest, prescribed fires may not achieve their goal and fields may not be productive enough to support livestock grazing. Water removals would be less likely during periods of low water levels.

Water quality and invertebrate communities might change significantly where large grazing animals have access to wetlands. Thus, shorelines of the Stalwart Marsh and Stalwart Flats will be monitored to prevent declines in riparian health. When necessary, solar water pumps and or wildlife-friendly fencing may need to be considered for riparian management.

The restrictions described above on water quantity and flow control should be consistent with the “no net loss of wetland functions... and area” directive from the *Federal Policy on Wetland Conservation* (Government of Canada 1991), should qualify as “exclusions from requirement for permit” under subsection 11(1)(f) of *The Drainage Control Regulations* under *The Saskatchewan Water Security Agency Act*, and should result in no adverse environmental effects under the *Canadian Environmental Assessment Act, 2012*.

#### **5.1.7 Wildlife Management**

Hunting is allowed on Stalwart NWA. Currently hunting is enabled by a notice posted in the provincial hunting synopsis, and at the small parking and information area on the property, however soon the mechanism for allowing hunting will be a listing in the updated Wildlife Area Regulations. Waterfowl hunters financially supported the original DUC Stalwart Wetland Project, with the intent that waterfowl hunting would be allowed in the area. All Federal and Provincial wildlife hunting regulations apply on Stalwart NWA.

Occasional removal of beaver or muskrats may be permitted where those animals are responsible for plugging water control structures, or back-flooding municipal roadways. Humane removal methods for the animals, lodges, and any dams, as well as methods to prevent recurrences (if possible) will follow the standard provincial hunting and trapping guidelines and any applicable Provincial legislation.

No other active wildlife population management is anticipated for 2019-2027.

## **5.2 Monitoring**

Monitoring will be carried out as resources allow. Ongoing monitoring needs are as follows:

1. Distribution and abundance of waterfowl, songbird species and species at risk (Goal 1.a-c; 2.a).
2. Upland habitat suitability for grassland songbirds and prairie ducks, particularly Sprague's Pipit and Northern Pintail, using vertical obstruction and foliar cover measures for comparison to published habitat needs (Goal 1.a-c).
3. Distribution and abundance of native plant species (Goal 1.a-e; 2.a).
4. Distribution and abundance of alien invasive species (Goal 1.g).
5. Range and riparian (lentic) health assessments where lands are grazed by livestock, including before and after measurements with associated control and impact sites (Goal 1.a-c).
6. Noxious weed reductions following control methods employed, using cover, area or density measures appropriate to the target weed, in the year controls were applied and the year following (Goal 1.g).
7. Adherence of permittee(s) and DUC to prohibited activities and permit conditions (Goal 1.a-h, 2.a-e).
8. Condition of infrastructure for consideration of repair, replacement, or decommissioning on a regular basis (Goal 1. d, 2.b-e).

## **5.3 Research**

Research activities will be encouraged when the results obtained through research have the potential to:

1. Address one or more of the management goals/objectives;
2. Not interfere with the conservation of wildlife; and
3. Not cause significant adverse environmental effects.

To obtain a permit to conduct research in Stalwart NWA and to receive instructions concerning guidelines for a research proposal, please contact:

Protected Areas Ecologist c/o  
Environment and Climate Change Canada  
Canadian Wildlife Service - Prairie Region  
115 Perimeter Road  
Saskatoon, SK S7N 0X4

#### **5.4 Public Information and Outreach**

Few people visit Stalwart NWA for wildlife viewing or waterfowl hunting so a substantial program for public information and outreach is not warranted. Visitor facilities and programs are available at the nearby Last Mountain Lake National Wildlife Area. For National and International audiences, summary information is made widely available through the federal internet site on Protected Areas (<https://www.canada.ca/en/environment-climate-change/services/wildlife-habitat.html>). For local audiences, boundary and information signs are vital for maintaining awareness of the site. Local audiences for communications materials and desired outcomes to consider when preparing any products or events include:

- Permitted agricultural users, hunters, or maintenance contractors; desired outcome is compliance with permit conditions and/or posted notices; and
- Adjacent neighbours; desired outcome is neighbours who will promptly report suspected contraventions of prohibited activities to CWS.

Since local users are most likely to impact Stalwart NWA, it is important to build local support for NWA management goals and objectives. It is reasonable to expect local support and compliance with prohibited activities, given the fact that current management includes permitted hunting, permitted removal of problematic beavers, and permitted grazing by local livestock owners.

## **6. AUTHORIZATIONS AND PROHIBITIONS**

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

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 in 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 by obtaining a permit from the Minister of the Environment.

## **6.1 Prohibition of Entry**

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

For Stalwart NWA, entry is not prohibited. Authorized activities and those activities that will be considered for permitting are described below.

## **6.2 Authorized Activities**

For Stalwart NWA, notices authorizing the following activities will be available through the provincial hunting and trapping synopsis, via local newspapers, and posted on information signs located along the area boundary.

Authorized Activities without special restrictions: none

Authorized Activities with special restrictions:

1. Hunting (on-foot) of waterfowl, big game, and upland game birds
2. Public access (on-foot) for wildlife viewing and berry picking

**Note:** 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 relating to wildlife or habitat conservation, or the activity benefits wildlife and their habitats or will contribute to wildlife conservation, or the activity is not inconsistent with the purpose for which the NWA was established and is consistent with the most recent management plan.

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

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

Protected Areas Ecologist c/o  
Environment and Climate Change Canada  
Canadian Wildlife Service - Prairie Region  
115 Perimeter Road  
Saskatoon SK S7N 0X4

For further information, please consult the Policy when Considering Permitting or Authorizing Prohibited Activities in Protected Areas Designated under the *Canada Wildlife Act, 1985* and *Migratory Bird Convention Act, 1994*. This Environment Canada policy document is available on the Protected Areas website at <https://www.canada.ca/en/environment-climate-change/services/national-wildlife-areas.html>.

### 6.4 Exceptions

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

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

## **6.5 Other Federal and Provincial Authorizations**

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

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

Protected Areas Ecologist c/o  
Environment and Climate Change Canada,  
Canadian Wildlife Service, Prairie Region  
115 Perimeter Road  
Saskatoon SK S7N 0X4

Province of Saskatchewan  
Ministry of Environment  
3211 Albert Street  
Regina SK S4S 5W6

## **7. HEALTH AND SAFETY**

The DUC water control structures pose a potential health and safety issues. Dangerous water flows during peak flow periods could result in risk of drowning, as well as potential falls from height on the control structure. DUC installed a guardrail around the control structure to reduce the risk of falling.

Hemmera Envirochem Incorporated (2005) carried out a Phase 1 Environmental Site Assessment for Stalwart NWA in 2004/2005. CWS staff directed Hemmera to investigate evidence of an old farmyard located onsite, predating 1964. The farmyard buildings were potentially heated with fuel oil and a small, domestic garbage dumpsite was likely associated with the farmyard; however, as the farmyard was quite small, predated the establishment of the NWA by at least five years, and is not going to be altered or transferred in the future, these areas do not warrant further investigation. The report concluded that no other Areas of Potential Environmental Concern (APECs) were identified in Stalwart NWA, and as such, a Phase II Assessment (i.e., intrusive subsurface work) was not warranted. If suspect materials are encountered in the future, CWS should ensure that the materials are managed in accordance with relevant legislation and regulations.

In the case of environmental emergencies, contact will be made with the Canadian Environmental Emergencies Notification System at the following contacts:

Saskatchewan Ministry of Environment (Spill control)  
Telephone: 1-800-667-7525

Saskatchewan Ministry of Environment (Forest Fire)  
Telephone: 1-800-667-9660

Saskatchewan Ministry of Environment (Poachers)  
Telephone: 1-800-667-7561

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. Further, Canadian Wildlife Service staff will take all reasonable and necessary precautions to protect their own health and ensure safety 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, recognizing that Canadian Wildlife Service staff neither regularly patrol nor offer services for visitor safety in NWAs.

Incidents or emergencies can be reported to:

Protected Areas Ecologist c/o  
Environment and Climate Change Canada,  
Canadian Wildlife Service - Prairie Region  
115 Perimeter Road  
Saskatoon, SK S7N 0X4

## **8. ENFORCEMENT**

No cooperative agreements for enforcement and surveillance have been developed with other competent authorities, such as other government departments and agencies (Royal Canadian Mounted Police, National Defence, etc.), provinces and territories, or any local or municipal authorities.

Environment and Climate Change Canada enforcement officers in Saskatoon are provided a list of properties where permits have been issued for agricultural or research activities each year. This list helps them plan their work with responses to complaints or regular inspections of properties.

The management of NWAs is based on three acts and the regulations thereunder:

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

## 9. PLAN IMPLEMENTATION

The management plan will be implemented over a 10-year period. Annual work plans will be developed in accordance with priorities and budgets, the details of management plan implementation will be developed through the Canadian Wildlife Service's annual work planning process and will be implemented as human, and financial resources allow. An adaptive management approach will be favoured for the implementation of the management plan. The implementation of the plan will be evaluated five years after its publication, based on the actions identified in Table 6.

The framework by which Stalwart NWA is managed is clearly delineated by the *Canada Wildlife Act*. Close liaison between government agencies and non-government wildlife organizations is essential for effective long-term management of the NWA and its surrounding environment. Topics of mutual interest to the federal and provincial governments include management of game and nongame wildlife, rare and endangered species, recreation, and production of special publications relevant to the NWA.

For Stalwart NWA, a minimum of one meeting per year should be held by DUC and CWS staff to review the previous year's events and to discuss and coordinate plans for the upcoming season.

The following items will be considered for action during the nine years following approval of the management plan for Stalwart NWA. New initiatives will be prioritized and added to the list as required.

**Table 6: Implementation Strategy timeline for Stalwart National Wildlife Area**

Activity	2020	2021	2022	2023	2024	2025	2026	2027
Reduce haying and implement grazing management	x	x	x	x	x	x	x	x
Increase diversity in former crop fields	x	x						
Inspect the property boundary annually to maintain necessary signage and fencing to protect the property from prohibited activities, facilitate livestock grazing, and detect and control undesired vegetation with herbicides	x	x	x	x	x	x	x	x
Meet annually with DUC staff responsible for water control structure operation and maintenance to discuss workplans and identify challenges to address	x	x	x	x	x	x	x	x
Meet annually with the RM Big Arm to discuss invasive species management along roadways and management of roadways through the RM	x	x	x	x	x	x	x	x
Process permits annually for haying and grazing to manage upland vegetation	x	x	x	x	x	x	x	x
Manage invasive species including use of herbicides for the removal of noxious weeds	x	x	x	x	x	x	x	x
Implement prescribed fires on 50% of the property					x	x		
Removal of non-native shelterbelts from the NWA				x	x	x	x	x
Planting of native trees and shrubs to enhance wildlife habitat				x	x	x	x	x

### 9.1 Management Authorities and Mandates

Canadian Wildlife Service: biological monitoring, habitat and land use management, permits and licensing, public information and outreach, enforcement, site maintenance (e.g., fences), boundary and information signs;

- Wildlife Enforcement Directorate of the Enforcement Branch of ECCC: federal wildlife statutes, including the Canada Wildlife Act and pursuant Wildlife Area Regulations, the Migratory Birds Convention Act and Species at Risk Act.
- Ducks Unlimited Canada: Stalwart Wetland Project and associated wetlands, water level manipulation, construction and maintenance of water control structures.

## **9.2 Management Plan Review**

Management plans will be reviewed 5 years after initial acceptance and every 10 years after that. Although the CWS is solely responsible for management of Stalwart NWA outside of the Stalwart Wetland Project, given that the Project lies within the boundaries of the NWA, it is recommended that DUC be involved in the review of the management plan. Joint public consultation with DUC, Indigenous Peoples, other special interest groups, and concerned individuals will be held, where possible, on topics related to conservation of habitat and wildlife on Stalwart NWA. Submissions for plan revision will be invited at that time.

## **10. COLLABORATORS**

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

For 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, with non-governmental organizations and municipal authorities to increase public awareness of conservation issues. Engagement with Indigenous people on management and traditional use of the land is of significant value to Stalwart National Wildlife Area. Efforts to engage with interested First Nations and Métis will be undertaken over the next 5 years, in concert with engagement activities underway at nearby Last Mountain Lake NWA. The main organizations likely to collaborate or to have a stake in the management of Stalwart NWA include:

- Ducks Unlimited Canada
- Interested First Nations and Métis
- Rural Municipality of Big Arm (town of Stalwart inclusive)
- Saskatchewan Ministry of Agriculture
- Saskatchewan Ministry of Environment
- Local fish and wildlife clubs



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