Minesing Wetlands Property Management Plan
Georgian Bay -- Huronia Sub Region / Ontario Region
2014 – 2018

Template Version 2 – June 2011

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1. Property Management Plan Information

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Project Description	Located just west of Barrie, Ontario, near the community of Minesing, the Minesing Wetlands Natural Area is one of the largest and most undisturbed wetlands in southern Ontario. The area supports important ecological functions and globally significant biodiversity including 36 federally listed species at risk, 29 provincially listed species at risk, seven globally rare species and 42 provincially rare species. The rivers are important migratory routes for fish species. The Minesing Wetlands NA has been designated an Area of Natural and Scientific Interest (ANSI), a Provincially Significant Wetland (PSW), and is on the Ramsar List of Wetlands of International Importance.

2. Stewardship Project Information

Information Type	Description
Province	Ontario
NCC Natural Area	Minesing Wetlands
Conservation Blueprint	Great Lakes
Ecoregion	Lake Simcoe – Rideau
Ecodistrict	6E-6
Watershed	Nottawasaga 2ED
Jurisdiction	County of Simcoe

Information Type	Description
Access Directions	Directions to Concession 2 wildlife viewing tower: From Highway 400 in Barrie, take County Road 90 West towards Angus. Continue west and then north on County Road 10/Brentwood Road. Turn right onto Concession Road 2 Sunnidale. Cross the Mad River bridge then immediately turn left into small parking area. Directions to the canoe corral: From Highway 400 in Barrie, take County Road 90 West. Turn right on George Johnston Road and continue north for approximately 8.5 km. The canoe corral parking lot and washroom will be on the left, just south of Willow Creek.
Conservation Partners	Nottawasaga Valley Conservation Authority (NVCA), Ducks Unlimited Canada, Ministry of Natural Resources, Simcoe County Trails, Brereton Field Naturalists, Ontario Field Ornithologists, Friends of Minesing Wetlands, local landowners and many others

3. Summary of Anthropogenic Features

Anthropogenic Feature	Description	Notes
Dams	Dams associated with tributary drains and beaver dams can be found throughout the natural area.	
Dock	A canoe launch with a small dock is located on Willow Creek, just off George Johnston Road north of the Trans Canada Trail.	A canoe launch with a small dock will be installed on the Mad River at the Concession 2 wildlife viewing tower in 2014.
Drains	Nine municipal drains can be found throughout the natural area.	
Dump Site	Dumping is common at some sites in the natural area, typically along roads.	
Fences	Some fences can be found throughout the area, but no extensive fencing exists.	
Markers - Boundary	Access gates act as boundary markers at some locations throughout the natural area.	
Other	A wildlife viewing platform is located adjacent to the Mad River, just north of Concession Road 2 Sunnidale.	
Road	Some arterial roads cut directly through the wetlands; several access roads lead up to access points around the natural area boundaries.	Unopened road allowances are present in the natural area
Signs	Some educational and warning signage can be found outside the perimeter of the wetlands. Additional signage was installed in 2013 (Clarence Smith property) and planned for 2014 (Mad River Trail interpretive signs, Iron Bridge sign).	Updated property information signs will be installed in 2014.
Trail - Hiking	Five hiking trails are found within the Minesing Wetlands.	Meadow Mouse Trail, Mayer's Marsh Trail, McKinnon Trail, North Simcoe Rail Trail, Mad River Trail
Trail - Snowmobile	Snowmobile trails (permitted use) exist within the Minesing Wetlands (OFSC 2014).	B109 Trail
Water Crossing	McKinnon Bridge (also known locally as the "Iron Bridge"), built in 1927, crosses the Nottawasaga River near the McKinnon Trail. There are several small creek crossings along the North Simcoe Rail Trail.	

4. Summary of Biodiversity Targets & Viability

Biodiversity Target	Habitat/ Species Type	Ecological Justification	Size	Condition	Landscape Context (LC)	Viability Rank	Viability Rationale (Size, Condition, LC)
Birds	Bird	Many rare and at risk bird species are present within the Minesing Wetlands, which provides breeding, staging, stopover and foraging habitat.	Good	Good	Good	Good	Size: Over 220 bird species have been observed in the Minesing Wetlands Natural Area (NA), including wetland, forest and grassland species. Condition: Minesing Wetlands provides breeding, foraging, staging and stopover habitat in large tracts of land in natural cover, largely free from human access. Decline of deciduous forest habitat is expected to threaten forest bird guild and the accompanying increase in marsh area is expected to support waterfowl guild. Landscape Context: Forest, swamp and marsh habitats are well connected within and beyond the natural area. Land use in the watershed is predominantly agricultural, and agricultural intensification of fields at the margins of the wetland may lead to loss of grassland habitat. OVERALL VIABILITY: The Minesing Wetlands provides important habitat for birds, and overall, the bird species guild is functioning within the range of natural variability. Specific guilds within this target are believed to differ in viability: marsh bird populations are expected to increase due to expanding habitat within the wetlands, while grassland birds are experiencing province-wide decline due to landscape-scale loss of breeding habitat, and the viability of migratory birds is threatened by the loss of wintering habitat, climate change and collisions with anthropogenic structures.

Biodiversity Target	Habitat/ Species Type	Ecological Justification	Size	Condition	Landscape Context (LC)	Viability Rank	Viability Rationale (Size, Condition, LC)
Deciduous Swamp Forests	Wetlands – Bogs, Marshes, Swamps, Fens, Peatlands	Matrix system in wetland complex; provides habitat for many rare species.	**Good**	**Fair**	**Good**	**Good**	SIZE: Approximately 1,900 ha (4,693 ac). Deciduous swamps in the Minesing Wetlands have declined significantly from their historic extent (>60% loss since 1953). Current size may not be large enough to withstand regular and catastrophic disturbances. CONDITION: These swamps are declining in size and condition due to anthropogenic water level changes over the past 60 years. As tree health deteriorates their ability to transpire is compromised, leading to even wetter conditions and further decline. Many areas of dead trees and stunted regrowth occur. However, no significant invasive species issues have been noted, although encroachment is predicted for Garlic Mustard (*Alliaria petiolata*) (on river levees) and Emerald Ash Borer (EAB, *Agrilus planipennis*) (not yet present in the Minesing Wetlands). LANDSCAPE CONTEXT: Some interface with agricultural land, though connectivity exists between similar systems. OVERALL VIABILITY: Swamp forest target is functioning outside of range of natural variation and will likely continue to decline if intervention does not occur.
Hackberry and Bur Oak Woodlands	Wetlands – Bogs, Marshes, Swamps, Fens, Peatlands	Regionally rare community, provides habitat for rare and at risk species.	**Good**	**Good**	**Good**	**Good**	SIZE: Occurs along approximately 10 km of Nottawasaga River in northern part of Natural Area as well as west of Glengarry/Ronald Road and downstream reaches of Willow Creek and Mad River. CONDITION: Natural flood cycles occur. Ice damage is a naturally occurring perturbation along riverbanks. Invasive species populations are currently not problematic, but some invasion is predicted (e.g. EAB, Garlic Mustard). Based on a recent survey there is abundant natural regeneration of Green Ash (*Fraxinus pennsylvanica*) and Common Hackberry (*Celtis occidentalis*) and levee forests are stable and in good condition. LANDSCAPE CONTEXT: Isolated system, but likely represents historic extent. Riparian linkages exist. OVERALL VIABILLITY: This vegetation community is currently functioning within range of natural variability.

Biodiversity Target	Habitat/ Species Type	Ecological Justification	Size	Condition	Landscape Context (LC)	Viability Rank	Viability Rationale (Size, Condition, LC)
Marshes	Wetlands – Bogs, Marshes, Swamps, Fens, Peatlands	Large wetland community complex, provides habitat for rare and at risk species.	Very Good	Good	Good	Good	SIZE: Approximately 2,300 ha (5,691 ac). Continues to increase in size with decrease in deciduous swamp forest size and regeneration on adjacent abandoned farm fields. Size large enough to withstand regular and catastrophic disturbances. CONDITION: Hydrologic conditions appear to be intact. Areas along Willow Creek and Mad River dominated by large monocultures of Reed Meadowgrass (*Glyceria maxima*), but demonstrate good biological filtering functioning and habitat provision for wildlife. Minimal human use of area. LANDSCAPE CONTEXT: Some interface with agricultural land. Some connectivity with similar systems, well connected within NA. OVERALL VIABILITY: Marsh systems are functioning within acceptable range of variability.
Mixed and Coniferous Swamp Forests	Wetlands – Bogs, Marshes, Swamps, Fens, Peatlands	Matrix system in wetland complex; provides habitat for many rare species.	Very Good	Very Good	Good	Very Good	SIZE: > 1,800 ha (4,446 ac). Likely represents historic extent, size has remained stable from 1953. Size large enough to withstand regular and catastrophic disturbances. CONDITION: Hydrologic function appears to be intact. No significant invasive species issues have been noted. Minimal human use of area. Multiple age classes represented. LANDSCAPE CONTEXT: Interface with agricultural land. Some connection to similar systems, well connected within NA. OVERALL VIABILITY: Mixed/coniferous swamp forest target is functioning exceptionally well and will require minimal management.
Open Fens	Wetlands – Bogs, Marshes, Swamps, Fens, Peatlands	Regionally rare ecosystem. Habitat for sensitive and globally rare species.	Good	Very Good	Good	Good	SIZE: Over 230 ha (568 ac) of fen; represents historic size. CONDITION: Species composition and processes are intact. LANDSCAPE CONTEXT: Fen is within a large wetland system, connected to undisturbed coniferous forest, and buffered by surrounding natural vegetation. Fen may be isolated from similar systems. OVERALL VIABILITY: Open fen is functioning within range of natural variability.

Biodiversity Target	Habitat/ Species Type	Ecological Justification	Size	Condition	Landscape Context (LC)	Viability Rank	Viability Rationale (Size, Condition, LC)
Reptiles and Amphibians	Amphibian; Reptile; Turtle	Majority of species are rare, all reptile species very sensitive to a variety of wide-ranging threats.	**Unknown**	**Unknown**	**Fair**	**Unknown**	SIZE: There is inadequate data available to assess the size of herptile populations. Some species are secretive in nature and are difficult to document. Reptile populations are generally in decline throughout their range, a trend which is likely occurring in the Minesing Wetlands. CONDITION: There is inadequate data to assess the condition of herptile populations. Reptile populations are exposed to a variety of persistent threats, including nest predation by mesopredators, and road kills. Management will likely be required if the populations are to be sustained into the future. LANDSCAPE CONTEXT: The large expanses of natural cover within the Minesing Wetlands provide good, contiguous habitat for many reptile species, but encroaching threats from the areas surrounding the wetland and other human interference threaten the viability of these populations. OVERALL VIABILITY: Further assessment and proactive management required to determine viability. Management intervention will be required in order to re-establish the targets species' functionality within their range of natural variability.
Rivers, Streams and Creeks	Rivers, Streams, Creeks – Permanent	Provides habitat for a number of rare plant and wildlife species; provides surface water linkages to larger bodies of water.	**N/A**	**Fair**	**Fair**	**Fair**	SIZE: Size of systems is unchanging. CONDITION: The rivers, streams and creeks of the Minesing Wetlands have experienced some degradation due to stressors such as invasive aquatic species, urban and agricultural effluents from upstream areas, and altered hydrology and sediment transport regimes. Condition varies among the rivers and their locations (e.g. Nottawasaga River shows impaired functioning with high nutrient levels and is confined to its channels by levees, Willow Creek and Mad River function becomes unimpaired as they move through the marshes). LANDSCAPE CONTEXT: River, streams and creeks found throughout the Minesing Wetlands flow through other buffered and natural areas, but are also impacted by land uses such as agriculture and residential/urban development. OVERALL VIABILITY: Rivers, streams and creeks are operating just outside the acceptable range of variability.
Overall Target Viability						**Good**	

Very Good	**Optimal Health**: *The biodiversity target is functioning at an ecologically desirable status, and requires little management.*
Good	**Minimum Health**: *The biodiversity target is functioning within its range of acceptable variation; it may require some management.*
Fair	**Likely Degradation**: *The biodiversity target lies outside of its range of acceptable variation and requires management. If unchecked, the biodiversity target will be vulnerable to serious degradation.*
Poor	**Imminent Loss**: *Allowing the biodiversity target to remain in this condition for an extended period will make restoration or preventing extirpation practically impossible.*
Unknown	**Research Need**: *These targets are known to occur, but information on these criteria is currently is unknown*.
NA	**Not Applicable**: *This criterion is not significant in assessing the health of this target.*

5. Summary of Threats

Threats Across Targets	Birds	Deciduous Swamp Forests	Hackberry and Bur Oak Woodlands	Marshes	Mixed and Coniferous Swamp Forests	Open Fens	Reptiles and Amphibians	Rivers, Streams and Creeks	Overall Threat Rank
2.1. Annual & Perennial Non-Timber Crops *2.1.1 Expansion and intensification of croplands adjacent to protected areas reduces buffers, changes habitat, and increases edge effects, sediment loading, and nutrient and pesticide runoff.*	**Medium**	**Medium**	**Medium**	**Medium**	**Medium**	**Medium**	**Medium**	**Medium**	**Medium**
4.1. Roads & Railroads *4.1.1 Road kills of sensitive reptile species*							**High**		**Medium**
5.3. Logging & Wood Harvesting *5.3.1 Incompatible forestry practices which remove habitat, reduce buffers, increase edge effects and cause disturbances associated with operations*	**Medium**	**Medium**	**Medium**		**Medium**		**Medium**		**Medium**
6.1. Recreational Activities *6.1.1 Recreational use of ATVs, ORVs and prohibited boats throughout property*	**Low**	**Low**	**Low**	**Low**	**Low**	**Low**	**Low**	**Low**	**Low**
8.1. Invasive Non-Native/Alien Species *8.1.1 Current and future threat from aquatic species such as Reed Meadowgrass and the non-native variety of Common Reed (Phragmites australis).*	**Medium**			**High**		**Medium**	**Medium**	**High**	**High**
8.1. Invasive Non-Native/Alien Species *8.1.2 Current and future threat from terrestrial species such as Garlic Mustard, European Swallow-wort (Cynanchum rossicum, locally known as Dog-strangling Vine, Buckthorn (Rhamnus cathartica),and Glossy False Buckthorn (Frangula alnus).*		**Medium**	**Medium**		**Low**				**Medium**
8.1. Invasive Non-Native/Alien Species *8.1.3 Emerald Ash Borer is expected to invade the Minesing Wetlands in the near future, potentially causing large-scale mortality of ash trees.*	**Low**	**Medium**	**Medium**		**Medium**				**Medium**

Threats Across Targets	Birds	Deciduous Swamp Forests	Hackberry and Bur Oak Woodlands	Marshes	Mixed and Coniferous Swamp Forests	Open Fens	Reptiles and Amphibians	Rivers, Streams and Creeks	Overall Threat Rank
8.2. Problematic Native Species *8.2.1 Overabundant mesopredators targeting nests of sensitive birds and reptiles*	**Medium**						**High**		**Medium**
9.1. Household Sewage & Urban Waste Water *9.1.1 Residential development in the Minesing watershed could alter groundwater regimes, river hydrology and erosion, and water quality (nutrient regimes, road salts, pharmaceuticals).*	**Medium**	**Medium**	**Medium**	**Medium**	**Medium**	**High**	**Medium**	**High**	**High**
9.4. Garbage & Solid Waste *9.4.1 Illegal dumping of garbage into portions of the Minesing Wetlands*		**Low**	**Low**		**Low**			**Low**	**Low**
11.1. Habitat Shifting & Alteration *11.1.1 Changes to hydrology*	**Medium**	**High**	**Medium**	**Medium**	**Medium**	**Medium**	**Medium**	**Medium**	**High**
11.4. Storms & Flooding *11.4.1 Climate change may lead to more frequent intense storm and drought events, altering river and wetland hydrology and potentially increasing log jams in rivers and streams*		**Low**	**Low**	**Low**	**Low**	**Low**		**Medium**	**Low**
Overall Threat Status for Targets and Project	**Medium**	**High**	**Medium**	**Medium**	**Medium**	**Medium**	**High**	**High**	**High**

Notes on Current/Future Condition	**2.1.1 Agricultural expansion, intensification and runoff**: The expansion of agricultural lands adjacent to the protected areas of the Minesing Wetlands will result in loss of habitat, reduction of buffers and increased edge effects. Intensification of marginal farmlands through tiling and conversion of hayfields to intensive cropland may also result in habitat loss for grassland birds, and increased runoff/pollution of nutrients, pesticides and sediment into the wetlands. Fertilizer pollution can deposit an excess of nutrients into aquatic areas, which stimulates primary production and subsequent decomposition of excess plant life. Pesticides pollution introduces chemicals and toxins which can result in reductions in health as well as mortality of native wildlife and plant species. Intensive agriculture can promote accelerated soil erosion, and increase turbidity and sedimentation of waterways. These agricultural inputs may not be tolerated by more sensitive wetland plants and wildlife. **4.1.1 Road kills of sensitive reptile species**: Road kills are occasionally observed in and around roads in the Minesing Wetlands. Turtle road mortalities have been observed near George Johnston Rd and Highway 90. **5.3.1 Incompatible forestry**: Forestry activity adjacent to or within core conservation lands contributes to habitat loss, increased edge effects, soil erosion and the spread of invasive species on disturbed soils. **6.1.1 Incompatible recreational activities**: ATVs and ORVs can tear up hiking and snowmobiling trails and off-trail areas as well, causing direct mortality of plants and animals as well as more indirect effects of habitat degradation such as soil compaction, soil erosion and the transport of invasive plant material on tires. Fortunately, through education, outreach, installation of gates and the establishment of sanctioned ATV trails in a nearby County Forest, there has been a decrease in ATV and ORV damage within the Minesing Wetlands in recent years. ORV use is still occurring near McKinnon Road and the Clarence Smith property.

	8.1.1 Aquatic invasive species: Aquatic invasive species of concern in the Minesing Wetlands include Reed Meadowgrass and non-native Common Reed. While the population of Common Reed in the Minesing Wetlands is currently small in area (but with a growing number of patches), it is known to act dominantly (typically creating monocultures) in open wetland ecosystems, altering wetland hydrology, reducing habitat quality for sensitive native wildlife and competing with and directly excluding other native plants. Reed Meadowgrass has already formed large monocultures throughout the Minesing Wetlands. While these patches may reduce habitat for native plants, they typically do not cause significant alterations to hydrology and they provide acceptable marsh bird habitat. **8.1.2 Terrestrial invasive species**: The terrestrial invasive species present within the Minesing Wetlands currently have manageable population sizes, but a number of species are anticipated to become problematic if action is not taken. Dog-strangling Vine growing along the Trans Canada Trail (also called the North Simcoe Rail Trail) has has been treated with herbicide, which will need to be repeated to prevent the spread of this highly invasive vine. Garlic Mustard is growing on the disturbed soils of the levees, and is at risk of spreading into the nearby deciduous swamp forests. Other species of concern for the area are Buckthorn and Glossy False Buckthorn. **8.1.3 Emerald Ash Borer**: The Emerald Ash Borer is spreading rapidly throughout Ontario; it has not yet been observed within the Minesing Wetlands but it is predicted to arrive in the near future. EAB infests all native ash species, and typically kills affected trees. There are some communities that are dominated, co-dominated or complemented by ash within the deciduous and mixed swamp forests of the Minesing Wetlands. Mass ash mortality will alter the composition and structure of these communities and could increase the deciduous forest decline already occurring. **8.2.1 Overabundant mesopredators**: Mesopredators such as Raccoon (*Procyon lotor*) appear most abundant along the boundaries of the natural area. Turtle nest predation has been observed along the rail trail and roadsides. **9.1.1 Residential development and municipal effluent**: Recent and future residential developments within the Minesing Wetlands drainage area vary greatly in scale and impact. Beyond habitat loss due to deforestation and drainage for development, the increase in municipal effluents entering the waterways from these new developments threaten wetland community function. Municipal wastewater effluent can degrade water quality physically (sediment), thermally (warm water) and chemically (nutrients, road salt, pharmaceuticals). Pollutants may enter the Minesing Wetlands through groundwater, surface runoff and direct discharge of wastewater into the rivers, creeks and streams entering the wetlands. Approximately 100,000 new residents will be accommodated within the NVCA jurisdiction by 2031. Most of the development associated with this growth will occur within the Minesing Wetlands drainage area. **9.4.1 Illegal dumping**: There are no significant dumping issues in the Minesing Wetlands, likely due in part to the inaccessibility of the majority of the NA. Small scale roadside dumping does occur. **11.1.1 Changes to hydrology**: Changes to the hydrology of the Minesing Wetlands is largely connected to the threat of climate change. However, this occurrence is also related to increasing municipal and urban effluent, and the overall decline of the floodplain deciduous swamp forests which has reduced evapotranspiration. Invasive species such as Common Reed can form dense monocultures that also alter water levels and flow. Finally, development on lands within the Minesing Wetlands drainage area (e.g. surface hardening, drain outlets, tree clearing) can also alter the quantity, flow and quality of water entering the wetlands. **11.4.1 Storms & Flooding**: Climate change can lead to more frequent storm events, felling dead trees and branches, resulting in increased log jam events in rivers. Changes in sediment loading to the wetlands may also be associated with more frequent storm events. Changing thermal and moisture regimes may alter species phenologies and expand the ranges of invasive species.

Very High	The threat is likely to *destroy or eliminate* the biodiversity target.
High	The threat is likely to *seriously degrade* the biodiversity target.
Medium	The threat is likely to *moderately degrade* the biodiversity target.
Low	The threat is likely to *only slightly impair* the biodiversity target.

6. Stewardship Vision Statement

The Minesing Wetlands remains among the largest intact wetlands in Southern Ontario, containing fens, marshes, deciduous and coniferous swamps and significant riparian areas. The property provides myriad recreational opportunities for residents of and visitors to Simcoe County, including canoeing, hiking, nature appreciation, angling and hunting. The Nature Conservancy of Canada and the Nottawasaga Valley Conservation Authority work closely with community and nature groups such as the Friends of Minesing and Brereton Field Naturalists to help maintain the wetland's biodiversity values. Rare and significant species and guilds such as amphibian, reptiles and birds are provided with a large, undisturbed, protected area to maintain or improve their viability.

7. Conservation Goals

1. Monitor and maintain, enhance or restore the condition of the property's various habitats.
2. Control the establishment and spread of problematic invasive species such as Common Reed and Dog-strangling Vine within the wetlands.
3. Work closely with key partners on conservation and outreach initiatives.
4. Educate the community on the importance of the area and encourage compatible use of the wetlands.
5. Monitor significant species and maintain, enhance or restore their populations.

8. Summary of Permitted Activities

Activities	Permitted (yes, no, or partial)	Notes on Activity (e.g. conditions, parties involved, start/end date)
Commercial Activities		
Agricultural Crops	Partial	Portions of properties owned by NVCA are currently in agricultural production.
Commercial Fur Harvesting	Partial	Licensed trapping of furbearers is permitted with appropriate NVCA/MNR approval. Currently 5-6 trappers actively use the site.
Commercial Baitfish Harvesting	No	
Commercial Timber Harvest	No	
Commercial Tourism	Yes	Guided tours of Minesing Wetlands are available through local canoe outfitters.
Outpost Camps	No	
Energy Transmission and Communications Corridors	Yes	A hydro line transects the eastern portion of the wetlands running southwest to northeast. Hydro corridor management is ongoing.
Food Harvesting (e.g. Wild Rice)	No	
Livestock Grazing	Partial	Cattle are grazed on some properties between George Johnston Road and Vespra Valley Road.
Maple Sugar Operations	No	
Peat Extraction	No	
Renewable Energy	No	
Silviculture	Partial	NVCA has issued permits for sustainable forestry on private lands
Subsurface Resource Exploration and Development	No	

Activities	Permitted (yes, no, or partial)	Notes on Activity (e.g. conditions, parties involved, start/end date)
Surface or Groundwater Extraction	No	
Other Commercial Activities	No	
Land and Resource Management Activities		
Fire Suppression	Yes	Fire is not a part of natural wetland dynamics, though fire is suppressed in the larger landscape context.
Fish Stocking	No	
Herbicide Application	Partial	As determined appropriate to control non-native invasive species by NCC and NVCA staff; with appropriate permits in place.
Insect/disease Suppression	Partial	As determined appropriate by NCC/NVCA staff.
Invasive Species Management	Partial	As determined appropriate by NCC/NVCA staff.
Prescribed Fire	Partial	Fire is not a part of natural wetland dynamics, but may be used for invasive species control or restoration of open areas as determined necessary by NVCA staff.
Wildlife Population Management	No	Primarily indirectly managed through means such as hunting and trapping; direct management only as determined appropriate by NVCA staff.
Other Land and Resource Management Activities	No	
Science, Education and Heritage Appreciation		
Bird Tape Playing	Yes	
Collecting	Partial	Some collecting of species has occurred for research purposes; permit and approval required.
Nature Appreciation	Yes	Friends of Minesing Wetlands, Barrie Canoe and Kayak Club, and Brereton Field Naturalists' Club and members of the public make regular excursions into the Minesing Wetlands.
Research	Partial	Scientific research is conducted frequently in the area. Appropriate permission from NVCA must be first acquired.
Wildlife Viewing	Yes	
Other Sci., Educ., Heritage Appreciation Activities	No	
Recreation Activities and Facilities		
All Terrain Vehicle Use	No	Unauthorized ATV use occurs frequently throughout the area.
Camping	No	
Dog Walking	Partial	Dogs must remain on-leash.
Fires	No	
Fishing	Partial	With appropriate provincial licenses in place.
Food Gathering	No	
Horseback Riding	No	
Hunting	Partial	With written permission from NVCA and appropriate provincial licenses in place. Permanent hunting structures not permitted, no-hunt areas established and hunting regulations in effect.

Activities	Permitted (yes, no, or partial)	Notes on Activity (e.g. conditions, parties involved, start/end date)
Hunt Camps	No	
Mountain Biking	Partial	Permitted only on TransCanada Trail and not allowed in other areas of the wetland.
Motor Boat Use	Partial	Motorboats encouraged to use only the Nottawasaga River, and engines of greater than 10 hp are discouraged from using area.
Hiking/ Cross-county Skiing	Partial	Both activities can only occur on designated trails; are permitted but regulated via fee stations for accessing NVCA properties.
Rock Climbing	No	
Snowmobiling	Partial	Permitted on designated Ontario Federation of Snowmobile Clubs trails.
Trail Development	Partial	Trail maintenance occurs, new trail construction possible - as determined appropriate by NCC/NVCA staff.
Other Recreation Activities and Facilities	Yes	Recreational canoeing is permitted throughout waterways on property. The Friends of Minesing Wetlands lead regular canoe trips.

9. Summary of Effectiveness Monitoring

					Indicator Rating Thresholds (Viability / Threat Magnitude)												
MOS-E Category	Key Attribute	Indicator	Indicator Category	Monitoring Scale	Poor/ *Very High*	Fair/ *High*	Good/ *Medium*	Very Good/ *Low*	Initial Rating (Year)	Current Rating (Year)	Estimated Trend (+, -, =, ?)	Desired Future Rating	Level of Confidence	Monitoring Methodology/ Action Step	Monitoring Frequency	MOS-E Description	Aligned PMP Action
Targets																	
Open Fens	***Native species composition***	***Invasive species - cover (class)***	***Condition***	***Natural Area***	***Dominant***	***Frequent***	***Occasional***	***Rare to None***	*Good (2009)*	***Very Good (2013)***	+	***Very Good (Rare to None)***	*Good*	*Update ELC*	*Every 5 years*	*Invasive species remain at low levels throughout the open fens*	*2.2.1, 2.2.4*
Hackberry & Bur Oak Woodlands	***Native species composition***	***Invasive species - cover (class)***	***Condition***	***Natural Area***	***Dominant***	***Frequent***	***Occasional***	***Rare to none***	*Good (2009)*	***Good (2013)***	=	***Good (Occasional)***	*Good*	*Update ELC*	*Every 5 years*	*Invasive species remain at low levels within the Hackberry and Bur Oak woodlands.*	*2.2.2*
Deciduous Swamp Forests	***Native species composition***	***Invasive species - cover (class)***	***Condition***	***Natural Area***	***Dominant***	***Frequent***	***Occasional***	***Rare to none***	*Fair (2009)*	***Good (2013)***	+	***Good (Occasional)***	*Good*	*Update ELC*	*Every 5 years*	*Invasive species levels are monitored and reduced within deciduous swamp systems.*	*2.2.2*
Mixed & Coniferous Swamp Forests	***Native species composition***	***Invasive species - cover (class)***	***Condition***	***Natural Area***	***Dominant***	***Frequent***	***Occasional***	***Rare to none***	*Very Good (2009)*	***Very Good (2013)***	=	***Very Good (Rare to none)***	*Good*	*Update ELC*	*Every 5 years*	*Invasive species remain at low level throughout the mixed and coniferous swamp forests.*	*2.2.2*

MOS-E Category	Key Attribute	Indicator	Indicator Category	Monitoring Scale	Indicator Rating Thresholds (Viability / Threat Magnitude) Poor/ *Very High*	Fair/ *High*	Good/ *Medium*	Very Good/ *Low*	Initial Rating (Year)	Current Rating (Year)	Estimated Trend (+, -, =, ?)	Desired Future Rating	Level of Confidence	Monitoring Methodology/ Action Step	Monitoring Frequency	MOS-E Description	Aligned PMP Action
Marshes	***Native species composition***	***Problematic invasive species - cover (class)***	***Condition***	***Natural Area***	***Dominant***	***Frequent***	***Occasional***	***Rare to none***	*Good (2009)*	***Fair (2013)***	*-*	***Good (Occasional)***	*Good*	*Annual monitoring of marshes for problematic invaders such as Common Reed*	*Every 5 years*	*Problematic non-native species other than Reed Meadowgrass remain at low levels throughout the marshes*	*2.1.2, 2.1.3, 2.1.4, 2.2.1, 2.2.4*
Reptiles and Amphibians	***Turtle breeding populations***	***Population size and age-class distribution of turtle species***	***Size***	***Natural Area***	***No individuals observed***	***Few individuals observed***	***Multiple age classes observed***	***Many individuals of multiple age classes observed***	*Poor (2013)*	***Poor (2013)***	*?*	***Good (Multiple age classes observed)***	*Fair*	*Census population and measure breeding success by observing age-class distribution*	*Annually*	*Turtle breeding populations are maintained or improved*	*2.1.5*
Rivers, Streams and Creeks	***Average Subwatershed Stream Health Score***	***Subwatershed Stream Health Score - total phosphorus (mg/L)***	***Condition***	***Natural Area***	***> 0.03 mg/L***	***0.02 - 0.03 mg/L***	***0.01 - 0.02 mg/L***	***< 0.01 mg/L***	*Fair (2013)*	***Fair (2013)***	*?*	***Good (0.01-0.02 mg/L)***	*Good*	*Monitored by NVCA for Subwatershed Health Checks*	*Every 5 years*	*The average subwatershed stream health score for the Willow, Mad and Lower Nottawasaga subwatersheds remain constant or improves.*	*2.1.13*
Birds	***Population Size***	***Average number of indicator birds observed across point counts in suitable habitat***	***Size***	***Natural Area***	***0***	***1-3***	***4-6***	***>6***	*Good (2013)*	***Good (2013)***	*?*	***Good (4-6)***		*Census breeding populations*	*Every 5 years*	*Breeding bird populations are maintained or improved*	*2.1.5, 2.1.14*
Reptiles and Amphibians	***Amphibian breeding populations***	***Intensity of calling males at marsh monitoring station***	***Condition***	***Natural Area***	***0 - no calls***	***1 - individuals can be counted, calls distinct***	***2 - some individuals can be counted, some calls overlap***	***3 -full chorus, continuous and overlapping calls***	*Unknown*	***Unknown (2013)***	*?*	***Good (2)***		*3 monitoring sessions per year per station, conducted as part of Marsh Monitoring Program*	*Other*	*Amphibian breeding populations are maintained or improved*	*2.1.2, 2.1.3, 2.1.4*
Threats																	
Other																	

10. Conservation Actions from 2014 to 2018

Action Category	Actions	Importance	Biodiversity Target(s)	Threat(s)	Measures of Success[1]	Date for Completion
2. Stewardship - Land/Water Management 1. Site/Area Management	*2.1.1 Continue to update ELC mapping*	Necessary	Deciduous Swamp Forests, Hackberry and Bur Oak Woodlands, Marshes, Mixed and Coniferous Swamp Forests, Open Fens, Reptiles and Amphibians, Rivers, Streams and Creeks, Birds	9.1.1, 2.1.1, 4.1.1, 5.3.1, 6.1.1, 8.1.1, 8.2.1, 9.4.1, 11.1.1, 11.4.1, 8.1.2, 8.1.3	MOS-I: ELC mapping is continually updated and resurveyed on a 5 year cycle, with priorty areas set for each year. Some classification completed remotely. MOS-E: Mapping is used in monitoring, management, and planning, and is incorporated into the next Property Management Plan.	2018
2. Stewardship - Land/Water Management 1. Site/Area Management	*2.1.2 Continue annual monitoring of established Marsh Monitoring stations*	Necessary	Marshes, Reptiles and Amphibians, Birds, Rivers, Streams and Creeks	2.1.1, 6.1.1, 8.1.1, 8.2.1, 11.1.1, 9.1.1	MOS-I: Established marsh monitoring stations are monitored annually MOS-E: Monitoring program is in place, and changes in amphibian, bird and rare vegetation communities are detected. MOS-E: Problematic non-native species other than Reed Meadowgrass remain at low levels throughout the marshes MOS-E: Amphibian breeding populations are maintained or improved	2018
2. Stewardship - Land/Water Management 1. Site/Area Management	*2.1.3 Establish a new Marsh Monitoring station at the junction of the Nottawasaga and Mad Rivers.*	Beneficial	Birds, Marshes, Reptiles and Amphibians, Rivers, Streams and Creeks	9.1.1, 2.1.1, 6.1.1, 8.1.1, 11.1.1, 8.2.1	MOS-I: Marsh Monitoring station is set up at the junction of the Nottawasaga and Mad Rivers MOS-E: Monitoring station is included in the annual Marsh Monitoring program, and changes in amphibian, bird and rare vegetation communities are detected. Note: Canoe access to monitoring station - not suitable for volunteer monitors MOS-E: Problematic non-native species other than Reed Meadowgrass remain at low levels throughout the marshes MOS- E: Amphibian breeding populations are maintained or improved.	2018
2. Stewardship - Land/Water Management 1. Site/Area Management	*2.1.4 Establish road routes for amphibian monitoring*	Beneficial	Marshes, Reptiles and Amphibians	9.1.1, 2.1.1, 4.1.1, 8.1.1, 8.2.1, 11.1.1	MOS-I: Road routes and stations are set up for frog monitoring as part of the Marsh Monitoring program. MOS-E: Monitoring program is in place, and changes in frog communities are detected. MOS-E: Problematic non-native species other than Reed Meadowgrass remain at low levels throughout the marshes MOS-E: Amphibian breeding populations are maintained or improved.	2018
2. Stewardship - Land/Water Management 1. Site/Area Management	*2.1.5 Monitor target species and communities and collaborate with SAR recovery teams*	Necessary	Deciduous Swamp Forests, Hackberry and Bur Oak Woodlands, Marshes, Mixed and Coniferous Swamp Forests, Open Fens, Reptiles and Amphibians, Rivers, Streams and Creeks		MOS-I: Target species and communities are monitored and collaboration with Species at Risk recovery teams occurs where opportunity is available. MOS-E: Monitoring program is in place, and changes to target, at-risk, and rare populations and communities are detected. MOS-E: Turtle breeding populations are maintained or improved. MOS-E: Breeding bird populations are maintained or improved.	2018

[1] MOS-I: Measures of Success – Implementation; MOS-E: Measures of Success - Effectiveness

Action Category	Actions	Importance	Biodiversity Target(s)	Threat(s)	Measures of Success[1]	Date for Completion
2. Stewardship - Land/Water Management 1. Site/Area Management	*2.1.6 Monitor effect of ATV's, snowmobile and other off-road vehicle usage and hunting activities ensuring limited damage to the wetlands.*	Necessary	Deciduous Swamp Forests, Hackberry and Bur Oak Woodlands, Marshes, Mixed and Coniferous Swamp Forests, Open Fens, Birds, Reptiles and Amphibians, Rivers, Streams and Creeks	6.1.1	MOS-I: A variety of techniques including education, outreach, gates, and enforcement are in place to address ORV access issues. MOS-E: Unauthorized ORV access and activities are kept to a minimum. Note: NVCA leads this action	2018
2. Stewardship - Land/Water Management 1. Site/Area Management	*2.1.7 Implement recommendations from the 2014 Forest Health Plan*	Necessary	Deciduous Swamp Forests, Hackberry and Bur Oak Woodlands, Mixed and Coniferous Swamp Forests, Birds	2.1.1, 5.3.1, 6.1.1, 9.1.1, 8.1.2, 8.1.3, 11.1.1	MOS-I: Recommendations from the 2014 Forest Health Plan are implemented MOS-E: Forest condition remains stable or improves. Changes in forest health are detected.	2018
2. Stewardship - Land/Water Management 1. Site/Area Management	*2.1.8 Implement deciduous floodplain forest management recommendations from the 2014 Forest Decline Study*	Necessary	Birds, Deciduous Swamp Forests, Hackberry and Bur Oak Woodlands, Mixed and Coniferous Swamp Forests	9.1.1, 2.1.1, 5.3.1, 6.1.1, 8.1.2, 8.1.3, 11.1.1	MOS-I: Recommendations for floodplain forest and Hackberry/Bur Oak Woodland management from the 2014 Forest Decline Study are implemented. Afforestation of key sites within deciduous floodplain forest habitat occurs where feasible. Managment options that specifically support forest adaptation to climate change are considered. MOS-E: Floodplain deciduous forest health improves: regeneration rates of desirable tree species improve, tree mortality is reduced.	2018
2. Stewardship - Land/Water Management 1. Site/Area Management	*2.1.9 Identify sensitive areas outside Minesing Wetlands requiring additional protection.*	Necessary	Deciduous Swamp Forests, Hackberry and Bur Oak Woodlands, Marshes, Mixed and Coniferous Swamp Forests, Open Fens, Reptiles and Amphibians, Rivers, Streams and Creeks	9.1.1, 2.1.1, 4.1.1, 5.3.1, 6.1.1, 8.1.1, 8.2.1, 9.4.1, 11.1.1, 11.4.1	MOS-I: Using emerging research and the Minesing Wetlands landscape connectivity study, properties of conservation value outside of the NA that require stewardship, securement and regulation are identified and prioritized. MOS-E: Priority properties are included in the securement strategy for the Minesing Wetlands and secured where opportunity exists. Sensitive areas outside of the Minesing Wetlands are stewarded for the conservation of SAR and biodiversity targets. Regulatory tools are employed to protect these sensitive areas.	2018
2. Stewardship - Land/Water Management 1. Site/Area Management	*2.1.10 Maintain existing trails within Minesing Wetlands for safety, access and recreational/education opportunities.*	Necessary		6.1.1	MOS-I: Existing trails within Minesing Wetlands (including the Mad River Trail and Meadow Mouse Trail) are maintained as required. MOS-E: Trails are safe and accessible to visitors for education and recreational activities.	2018
2. Stewardship - Land/Water Management 1. Site/Area Management	*2.1.11 Investigate the development of additional trails within Minesing Wetlands and create new trail if opportunity permits*	Beneficial		6.1.1	MOS-I: Oportunities to develop additional trails within Minesing Wetlands are investigated and new trails created if funding permits. MOS-E: Increase educational and recreational opportunities within Minesing Wetlands. Trails are developed with minimal impact to sensitive wetland habitats.	2018
2. Stewardship - Land/Water Management 1. Site/Area Management	*2.1.12 Maintain existing stream bank stabilization initiatives and investigate the need for additional stabilization throughout the area.*	Necessary	Rivers, Streams and Creeks	9.1.1, 2.1.1, 11.1.1, 11.4.1	MOS-I: Channel modifications to stabilize banks and reduce sediment loading into the wetlands including live-staking, soil anchoring and the installation of wing deflectors are implemented. MOS-E: Banks are stabilized and sediment loading is minimized	2018
2. Stewardship - Land/Water Management 1. Site/Area Management	*2.1.13 Conduct water quality monitoring along Willow Creek*	Beneficial	Rivers, Streams and Creeks, Reptiles and Amphibians, Marshes	9.1.1, 2.1.1, 8.1.1, 11.1.1, 11.4.1	MOS-I: Water quality in Willow Creek is monitored using baseflow cruises, Marsh Monitoring Program protocols, and nutrient movement. MOS-E: A baseline is established for water quality in Willow Creek and future changes to creek are detected. MOS-E: The average subwatershed stream health score for the Willow, Mad and Lower Nottawasaga subwatersheds remain constant or improves.	2018

Action Category	Actions	Importance	Biodiversity Target(s)	Threat(s)	Measures of Success[1]	Date for Completion
2. Stewardship - Land/Water Management 1. Site/Area Management	*2.1.14 Monitor bird SAR, floodplain forest birds, heronries and other sensitive bird populations. Encourage local field naturalists to conduct a baseline bird study.*	Beneficial	Birds	9.1.1, 2.1.1, 5.3.1, 6.1.1, 8.1.1, 8.1.2, 8.1.3, 8.2.1, 11.1.1, 11.4.1	MOS-I: A baseline study and regular monitoring of Minesing Wetlands bird populations, with focus on sensitive species (SAR, floodplain forest birds, breeding birds, etc) is conducted. MOS-E: Information gaps regarding size and condition of bird target is filled. Changes in bird populations are detected. MOS-E: Breeding bird populations are maintained or improved	2018
2. Stewardship - Land/Water Management 1. Site/Area Management	*2.1.15 Create 2019-2024 Minesing Wetlands Property Management Plan (PMP) using 2014 PMP progress, lessons learned, new information and data, and expert input.*	Necessary	Birds, Deciduous Swamp Forests, Hackberry and Bur Oak Woodlands, Marshes, Mixed and Coniferous Swamp Forests, Open Fens, Reptiles and Amphibians, Rivers, Streams and Creeks		MOS-I: New PMP is developed and approved by 2018. MOS-E: PMP successfully guides management of the Minesing Wetlands between 2019-2024.	2018
2. Stewardship - Land/Water Management 1. Site/Area Management	*2.1.16 Monitor, map and mitigate road mortality of wildlife*	Beneficial	Birds, Amphibians and Reptils	4.1.1	MOS-I: Road mortality of wildlife and roadside nesting sites (e.g. turtles) are monitored and mapped opportunistically. Wildlife passages and other wildlife mortality mitigation methods are investigated for mortality or nesting hotspots and implemented if feasible. MOS-E: Road mortality of wildlife is reduced.	2018
2. Stewardship - Land/Water Management 2. Invasive/Problematic Species Control	*2.2.1 Monitor, map and control invasive Common Reed*	Urgent	Deciduous Swamp Forests, Hackberry and Bur Oak Woodlands, Marshes, Mixed and Coniferous Swamp Forests, Open Fens, Reptiles and Amphibians, Rivers, Streams and Creeks, Birds	8.1.1	MOS-I: Non-native Common Reed is monitored and mapped annually. Herbicide control is used when feasible. MOS-E: The population of non-native Common Reed in the wetland is reduced or eliminated. Notes: Prioritize monitoring in the fen area for invasion by Common Reed. MOS-E: Problematic non-native species other than Reed Meadowgrass remain at low levels throughout the marshes MOS-E: Invasive species remain at low levels throughout the open fens	2018
2. Stewardship - Land/Water Management 2. Invasive/Problematic Species Control	*2.2.2 Monitor, map and control Dog-strangling Vine*	Urgent	Deciduous Swamp Forests, Hackberry and Bur Oak Woodlands, Mixed and Coniferous Swamp Forests	8.1.2	MOS-I: Dog-strangling Vine (DSV) is monitored and mapped annually. Herbicide control is used when feasible. MOS-E: The population of DSV in the Minesing Wetlands area is reduced or eliminated. MOS-E: Invasive species levels are monitored and reduced within deciduous swamp systems. MOS-E: Invasive species remain at low levels within the Hackberry and Bur Oak woodlands. MOS-E: Invasive species remain at low level throughout the mixed and coniferous swamp forests.	2018
2. Stewardship - Land/Water Management 2. Invasive/Problematic Species Control	*2.2.3 Monitor deciduous and mixed forests for invasion by Emerald Ash Borer*	Beneficial	Birds, Deciduous Swamp Forests, Hackberry and Bur Oak Woodlands, Mixed and Coniferous Swamp Forests	8.1.3	MOS-I: Deciduous and mixed forest communities are monitored annually for presence of EAB. Ash health assesment and prism traps may be used. Municipality and relevant agencies are alerted if/when EAB is detected. MOS-E: EAB invasion is rapidly detected; changes to forest composition and health are detected; municipalities act accordingly to deal with infestation.	2018

Action Category	Actions	Importance	Biodiversity Target(s)	Threat(s)	Measures of Success[1]	Date for Completion
2. Stewardship - Land/Water Management 2. Invasive/Problematic Species Control	*2.2.4 Map the occurrence of Reed Meadowgrass within Minesing Wetlands and monitor its spread and impact on native species and wetland functioning.*	Necessary	Marshes, Rivers, Streams and Creeks, Open Fens	8.1.1	MOS-I: Marsh and river communities are monitored annually for presence and extent of Reed Meadowgrass and population is mapped. MOS-E: Scale of Reed Meadowgrass invasion is known, changes to marsh composition and health are detected. MOS-E: Problematic non-native species other than Reed Meadowgrass remain at low levels throughout the marshes MOS-E: Invasive species remain at low levels throughout the open fens	2018
2. Stewardship - Land/Water Management 3. Habitat & Natural Process Restoration	*2.3.1 Support hydrogeological monitoring work, including well monitoring on private lands.*	Necessary	Deciduous Swamp Forests, Hackberry and Bur Oak Woodlands, Marshes, Mixed and Coniferous Swamp Forests, Open Fens, Reptiles and Amphibians, Rivers, Streams and Creeks	2.1.1, 5.3.1, 6.1.1	MOS-I: Ongoing hydrogeological monitoring work is conducted (e.g. well monitoring on private lands) MOS-E: Threats and changes to hydrology within and surrounding Minesing Wetlands are detected and managed if possible.	2018
4. Communications, Education & Awareness 3. Awareness & Communications	*4.3.1 Educate the public on the role and importance of Minesing Wetlands*	Necessary	Deciduous Swamp Forests, Hackberry and Bur Oak Woodlands, Marshes, Mixed and Coniferous Swamp Forests, Open Fens, Reptiles and Amphibians, Rivers, Streams and Creeks, Birds	9.1.1, 2.1.1, 4.1.1, 5.3.1, 6.1.1, 8.1.1, 8.2.1, 9.4.1, 11.1.1, 11.4.1, 8.1.2, 8.1.3	MOS-I: User groups (e.g. anglers, hunters, naturalists, canoeists) and general members of the public have information about the Minesing Wetlands and support its conservation MOS-E: Local connections are established and community support is improved Notes: Use existing education material where possible and potentially increase the number of signs around the Minesing Wetlands	2018
4. Communications, Education & Awareness 3. Awareness & Communications	*4.3.2 Maintain existing and develop new relationships with local landowners.*	Necessary	Deciduous Swamp Forests, Hackberry and Bur Oak Woodlands, Marshes, Mixed and Coniferous Swamp Forests, Open Fens, Reptiles and Amphibians, Rivers, Streams and Creeks, Birds	2.1.1, 5.3.1, 6.1.1, 8.1.1, 9.4.1, 4.1.1, 8.1.2, 8.1.3	MOS-I: New connections are established with some landowners and relationships are maintained with existing and known owners. MOS-E: Landowners understand the value and role of the Minesing Wetlands and support its conservation	2018
4. Communications, Education & Awareness 3. Awareness & Communications	*4.3.3 Coordinate biannual Minesing Management Committee meetings*	Necessary	Birds, Deciduous Swamp Forests, Hackberry and Bur Oak Woodlands, Marshes, Mixed and Coniferous Swamp Forests, Open Fens, Reptiles and Amphibians, Rivers, Streams and Creeks	9.1.1, 2.1.1, 4.1.1, 5.3.1, 6.1.1, 8.1.1, 8.1.2, 8.1.3, 8.2.1, 9.4.1, 11.1.1, 11.4.1	MOS-I: Coordinate and lead biannual Minesing Management Committee (MMC) meetings MOS-E: MMC members are informed about Minesing Wetlands conservation and stewardship and contribute to implementation of the 2014 PMP.	2018
4. Communications, Education & Awareness 3. Awareness & Communications	*4.3.4 Investigate the possibility of installing large singage advertising the Minesing Wetlands along nearby major roadways and install the signage if opportunity permits*	Beneficial			MOS-I: Oportunities to install signage along major routes to advertise the location of the Minesing Wetlands are investigated and new signs are designed and installed if funding permits. MOS-E: Public awareness of the Minesing Wetlands is improved.	
5. Government Relations, Law & Policy 2. Policies & Regulations	*5.2.1 Advise municipalities of the importance of buffers and setbacks to the Minesing Wetlands.*	Necessary	Deciduous Swamp Forests, Hackberry and Bur Oak Woodlands, Marshes, Mixed and Coniferous Swamp Forests, Open Fens, Reptiles and Amphibians, Rivers, Streams and Creeks	2.1.1	MOS-I: Municipalities have information in advance of approving new development around the Minesing Wetlands. Critical wildlife connectivity areas (as identified in Landscape Connectivity Study) are identified and communicated to municipal planners. MOS-E: Buffers and setbacks to the Minesing Wetlands are in place for any new development.	2018

Action Category	Actions	Importance	Biodiversity Target(s)	Threat(s)	Measures of Success[1]	Date for Completion
7. Philanthropy, Marketing and Capacity Building 2. Alliance & Partnership Development	*7.2.1 NCC and NVCA continue to work together to complete Minesing Wetland PMP actions. Complete reporting on annual basis, and hold annual planning meetings between NCC and NVCA.*	Necessary	Deciduous Swamp Forests, Hackberry and Bur Oak Woodlands, Marshes, Mixed and Coniferous Swamp Forests, Open Fens, Reptiles and Amphibians, Rivers, Streams and Creeks, Birds	9.1.1, 2.1.1, 4.1.1, 5.3.1, 6.1.1, 8.1.1, 8.2.1, 9.4.1, 11.1.1, 11.4.1, 8.1.2, 8.1.3	MOS-I: NCC and NVCA meet regularly to plan and report on implementation of conservation actions in the 2014 PMP as well as emerging issues. MOS-E: Annual work schedules and joint fundraising plans are regularly developed and updated.	2018
7. Philanthropy, Marketing and Capacity Building 2. Alliance & Partnership Development	*7.2.2 Where opportunity presents, build partnerships/affiliations with Universities and Colleges and high schools.*	Beneficial	Deciduous Swamp Forests, Hackberry and Bur Oak Woodlands, Marshes, Mixed and Coniferous Swamp Forests, Open Fens, Reptiles and Amphibians, Rivers, Streams and Creeks, Birds	9.1.1, 2.1.1, 4.1.1, 5.3.1, 6.1.1, 8.1.1, 8.2.1, 9.4.1, 11.1.1, 11.4.1, 8.1.2, 8.1.3	MOS-I: Partnerships to enhance monitoring program and implement conservation actions are established where opportunity is available. MOS-E: Conservation actions are successfully implemented and partnerships established for future work. Conservation action is enhanced by academic research component when post-graduate institutions are involved.	2018

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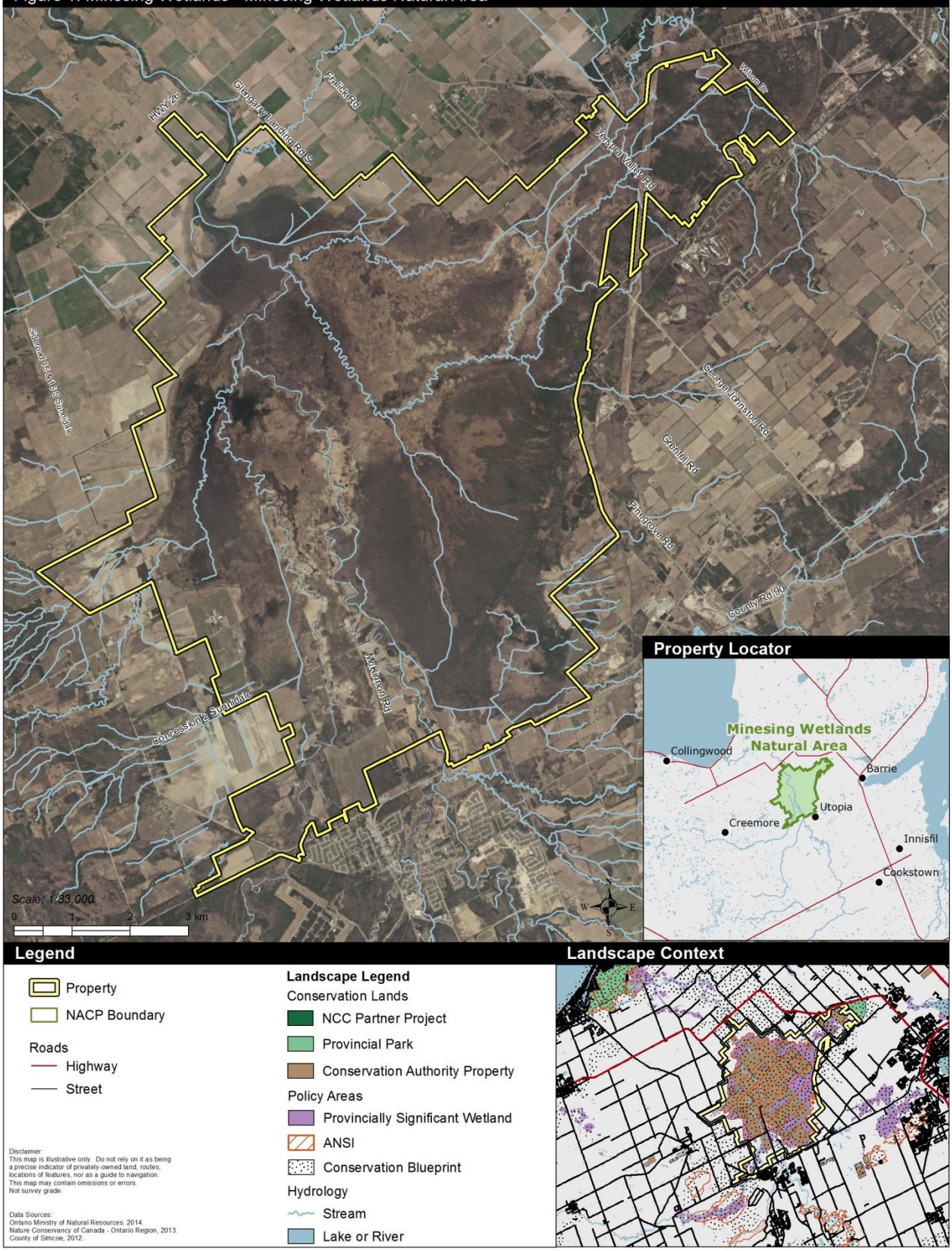
Figure 1: Minesing Wetlands - Minesing Wetlands Natural Area



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This map is illustrative only. Do not rely on it as being a precise indicator of privately-owned land, routes, locations of features, nor as a guide to navigation. This map may contain omissions or errors. Not survey grade.

Data Sources:
Ontario Ministry of Natural Resources. 2014.
Nature Conservancy of Canada - Ontario Region, 2013.
County of Simcoe, 2012.