



Perch Creek Habitat Management Area Management Plan

St. Clair Region
Conservation Authority
November 2010





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1.0 Introduction

For more than 15 years, St. Clair Region Conservation Authority and the County of Lambton have had a very successful partnership for the maintenance and development of the Perch Creek Habitat Management Area (HMA). Since the initial formation of the partnership in 1994, a number of steps have been taken to develop natural habitat and improve passive recreation opportunities. The Authority has provided basic maintenance, developed and surfaced trails, created ponds and parking areas and planted/maintained trees.

In 2008, the County renewed contracts for maintenance of this property and Marthaville HMA and added additional properties for Authority management. This management plan (10 year operational plan) was updated, to act as an appendix to the master agreement. The management plan will provide direction to the Authority for the management of Perch Creek HMA, as well as providing a guide for the costs associated with the required management including opportunities for revenues directly from the management or from potential grant sources.

In order to develop management recommendations, properties managed by the Authority are broken down into subunits known as Vegetation Management Units (VMUs). Generally, each VMU is composed of a certain plant community, habitat, and/or landuse. If relevant, forest inventories are conducted and basic description of the history, soil type, herbaceous plants, wildlife features of each VMU are provided. This information is used to develop recommendations for each VMU individually and for the Management Area as a whole.

Key recommendations for the Perch Creek HMA are as follows:

- Deterring ATV use
- Mowing select areas to maintain meadows
- Maintain meadow habitat (VMU 8) for Riddell's Goldenrod (*Solidago riddellii*), a Species at Risk (SAR) which is of Special Concern provincially and nationally.
- Maintaining trails for passive recreation
- Controlling exotic/invasive species with initial emphasis on invasive Phragmites
- Salvage harvesting of ash





2.0 Property Location and Description

The Perch Creek Habitat Management Area is located on Churchill Line, just east of Blackwell Rd. (Lot 11&12, Concession III) in the former Sarnia Township, Ontario (Map 2-1).

Map 2-1. Location of Perch Creek Habitat Management Area



The County of Lambton originally purchased this 80 hectare property to provide space for ancillary services of the Sarnia Landfill. The former landfill, which is still owned and managed by the county, is located on the adjacent northwest corner. Although Sarnia Landfill closed October 24, 1999, Lambton County staff continues to manage it and the associated water treatment ponds. For this reason, access to the landfill and treatment ponds continues to influence the Management Plan. Much of the other surrounding property is used for agriculture. Enbridge Canada owns land directly to the north and to the west of the landfill (Figure 2-1). A corridor of natural habitat extends onto neighboring land along the course of Perch Creek.





PHOTO COURTESY OF FIRST SOLAR

Figure 2-1. Aerial photo of the Enbridge Solar Farm.

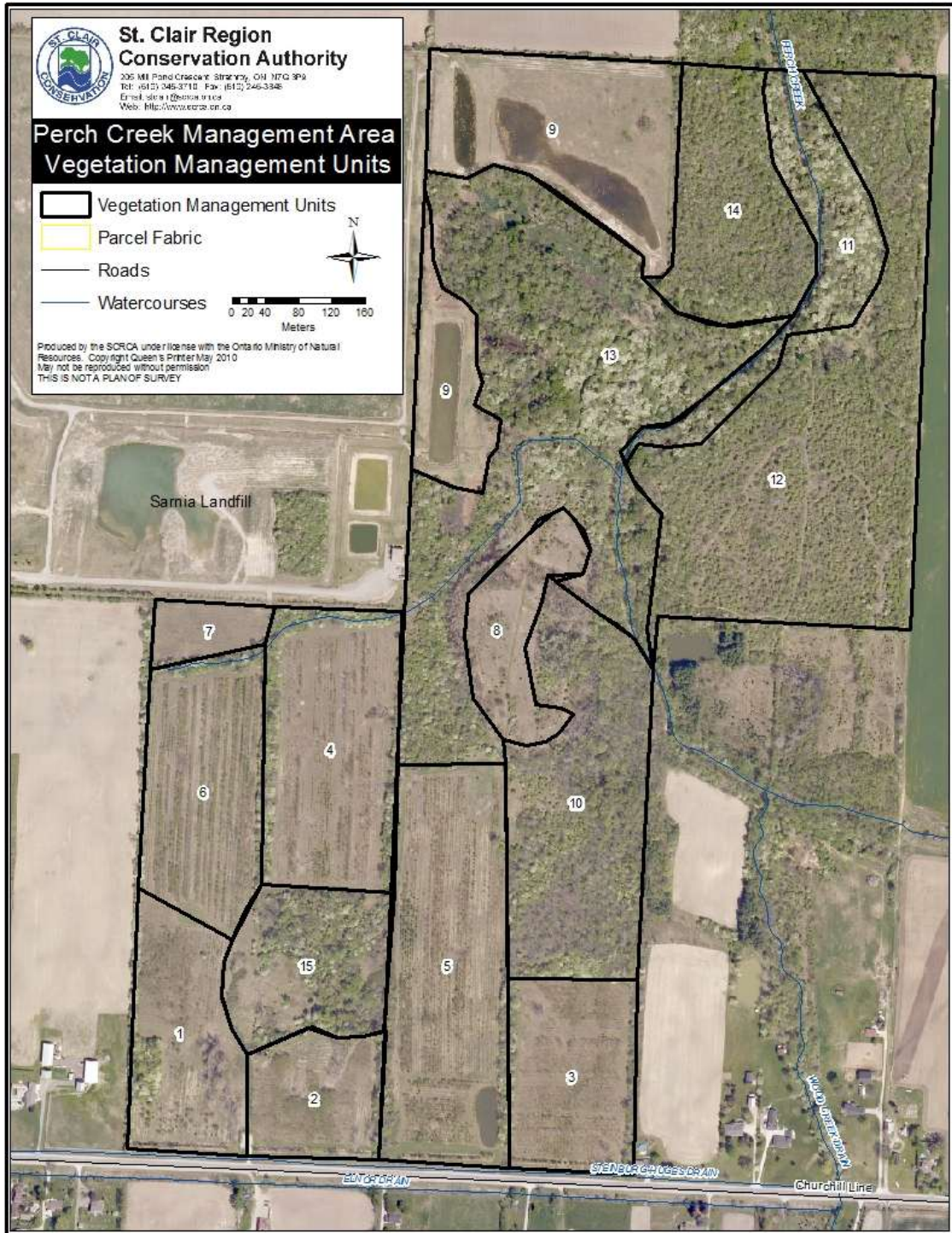
Today, most of the property is in a state of naturalization, with over half of the land in a natural second growth forest (Table 2-1). Map 2-2 shows the property is separated into VMUs by land use, habitat and vegetation type. The large expanse of forest (VMUs 10-15) and other types of wildlife habitat accommodate many species of wildlife. The species composition and population size will change as the plantations fill-in and mature. For example, interior nesting species will likely inhabit the area, when the forest and plantations increase in height and shade density.

Table 2-1. Habitats of Perch Creek HMA

<i>Habitat</i>	<i>Size</i>
Natural second growth forest	42.5 hectares
Plantations	27 hectares
Meadow	7.6 hectares
Open water/wetland	2 hectares
Total	83 hectares



Map 2-2. Perch Creek Management Area Vegetation Management Units



2.1 History

Prior to ownership by the County, the property was part of several small farming operations. Although there were some small crop fields, pasture lands predominated. Discarded agricultural equipment and remnants of old buildings remained scattered around the property when SCRCA assumed management.

A number of tree species including Manitoba maple and European silver poplar were planted by former owners. Most of the very large trees are either remnant of 1800s land clearing or are intolerant light loving species succeeded from the hawthorn forest (which often result from continuous cattle grazing). These trees have continued to grow since the land was acquired by the County, resulting in some areas containing a proportion of very large trees.

2.2 Management from 1994 to 2008

In the early 1990s, a plan was developed to naturalize buffer areas and to provide opportunities for passive recreation. Since then, the Authority planted former agricultural land with trees and shrubs, created an extensive trail system (Map 2-3), removed debris (old buildings), constructed three wetland/ponds and taken measures to restrict ATV access (Table 2-2). A small parking lot was constructed on Churchill Line to provide the only public access to the property. Additionally, a policy was adopted to only mow a narrow strip at the front parallel with Churchill Line on a regular basis. The mowing required to maintain areas for open field plants and animals is done only once annually, after the end of the nesting season.

All-Terrain Vehicles (ATVs)

In the mid 1990s, there were major problems with ATVs using the trails and creating ruts, intimidating other users, trespassing on neighboring properties, causing erosion and trampling young trees. The issue was exacerbated by some of the neighbors who also accessed the property from their own by well-marked trails. Gates and barriers have been constructed across most of these access points and there seems to be much less use of the property by ATVs and motorcycles than in the past.

Meadows

There are two small meadow areas (VMU 8 and 9, Map 2-2) which could have been planted to trees, but were left as meadows for butterflies and other wildlife which depend on meadows. Riddell's Goldenrod (*Solidago riddellii*) - a Species at Risk (SAR) - has been identified in VMU 8 and its habitat should not be planted to trees. In fact, efforts should continue to be made to discourage tree and shrub growth in this meadow.

During reforestation, from 1994 to 2000, many groups and individuals assisted SCRCA with planting. Subsequently, some people independently acquired trees (e.g., Kentucky coffee tree, giant shell bark hickory, shagbark hickory and catalpa) planting them within



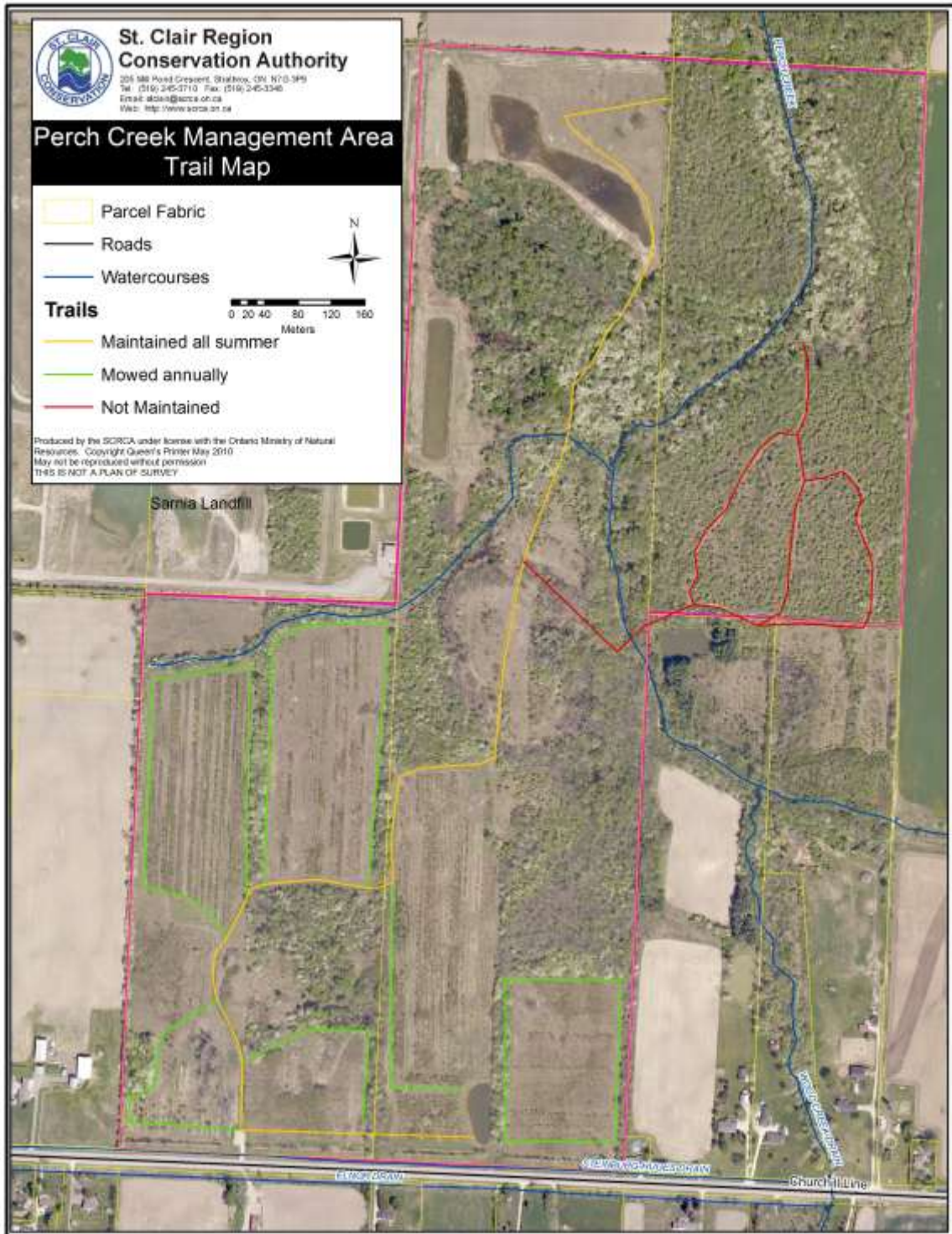
rows, assuming normal plantation maintenance would provide adequate care for the trees
 This planting occurred in small numbers, primarily in VMU 1, 2 and 4.

Table 2-2 Perch Creek Habitat Management from 1994-2008

<i>Action</i>	<i>Amount</i>	<i>Objective</i>	<i>Location</i>
Planting – trees and shrubs	27 hectares	Development of natural habitat	VMU 1, 2, 3, 4, 5, 6, 7, 15
Creation/upkeep all weather trail system	1,850 meters	Passive Recreation	North-South, West of Perch Creek
Creation/ upkeep of dry weather trails	3,300 meters	Passive Recreation	VMUs 1,2,3,4,6,15
Small parking lot	<0.5 hectares	Passive Recreation, access	Former Landfill
Wetland/ pond creation	3 hectares	Development of natural habitat	VMU 5, 6, 9
Restrict ATV use by constructing gates and barriers	As needed	Development of natural habitat	All
Debris Removal (old buildings)		Development of natural habitat	VMU 15
Annual mowing to maintain meadow	7.6 hectares	Development of natural habitat	VMU 8 and 9



Map 2-3. Perch Creek Management Area Trails Map



3.0 Vegetation Management Unit Inventory and Recommendations

This inventory was conducted in the fall of 2008. While it was the wrong time of year to do an inventory of herbaceous plants, the purpose of the inventory was to draft a property management plan with specific management recommendations for the forested areas. The area was divided into VMUs where the species composition and age were similar enough to manage as a unit (Map 2-2). Each VMU received an identification number as well as a descriptive title to give the reader and the idea of what is in the VMU and the closest classification from the Ecological Land Classification (ELC) for Southern Ontario. This was difficult for the plantations because the ELC system assumes all plantations are single species except white pine/walnut. Most of the plantations on this property contain five to seven species of trees plus shrub plantings.

The heights are generally only taken for the most common two or three species. Although an exception was made for Eastern Cottonwood, a volunteer after planting, which is generally the tallest species in each plantation.



VMU 1. Plantation

ELC CUP1-5(7)

Area 3.2 hectares

Soils Perth clay

Drainage Imperfect to poor

History Prior to 1993 this VMU was a crop field rented to an agricultural tenant. In 1993, a few large stock trees were planted by volunteers on arbor-day. The remainder was planted by Sarnia District Boy Scouts of Canada and staff of SCRCA in 1994, 1999, and 2000. A stalk chopper has been used annually usually in July or August to maintain an access trail around the plantation.

Species Composition This VMU is a mixture of plantings and three sections of natural reforestation. There are natural willows and cottonwood along the shallow drainage ditch along the east side. The natural woodlot along the west side (less than five hectares) is composed of green ash, silver maple, bur oak and cottonwood. The property line along the west side of the VMU contains all of the above species plus hawthorn and apple where it is dry.

<i>Species</i>	<i>Height (m)</i>	<i>DBH (cm)</i>	<i>Condition</i>	<i>Regeneration</i>
Green ash	7-9	2-4	good	Yes
Soft Maple	7-11	2-6	good	little
Carolina Poplar	11-12	8	good	
Other Species*				

* European apple, hawthorn, shagbark hickory, Giant shell bark hickory, bur oak, white cedar.

Shrubs and Vines European high-bush cranberry, silky and red osier dogwood, sandbar willow

Herbaceous Plants Meadow grasses and annual/ perennial plants

Diseases and Insects Nothing of significance

Canopy Closure 20-60%

Ten Year Management EAB will likely remove a significant portion of the ash. Maintenance will include inspections for infestations (e.g., harmful insects, invasive exotic plants, disease) and removal of dead and/or hazard trees. The area along the fence should be mowed regularly



VMU 2. Plantation

ELC CUP1-5(7)

Area 3.2 hectares

Soils Perth clay

Drainage Imperfect to poor

History Prior to 1995, this area was part of a farming operation. Trees 1.5 - 2.5 meters tall were planted in a 12 x 12 meter grid. The remainder was planted with seedlings purchased from the provincial government nursery. These trees were planted in rows, 2 meters apart, by the Sarnia District Boys Scouts of Canada and SCRCA staff. Vegetation control was performed by SCRCA until 2000. At that time the north and west edges where maintenance equipment turned around were planted with additional seedlings. Vegetation control in the rows planted in 2000 was maintained until 2005.

The front portion of the VMU originally consisted of three rows of trees planted parallel to Churchill Line to block the view of the agricultural operations on the property. When it was decided to reforest all the agricultural lands it was decided to maintain all of the land between the plantations and the fence along Churchill in a park like setting. Since that time contractors have been hired on three year contracts to mow the grass on a regular basis from April until October. The row of Carolina poplar was planted closest to the power lines to provide an early visual and then be removed when the conifers were large enough to act as a visual barrier.

<i>Species Composition</i>	<i>Species</i>	<i>%</i>	<i>Height (m)</i>	<i>DBH (cm)</i>	<i>Condition</i>	<i>Regeneration</i>
	Green Ash	40	6	6	good	some
	Soft Maple	40	5	4	good	little
	Carolina Poplar	10	8	10	good	
	Other species*	10				

* White cedar, Norway spruce, swamp white oak, red maple, white elm, shagbark hickory, Manitoba maple and black locust

Shrubs and Vines Silky dogwood, purging buckthorn, European high-bush cranberry

Herbaceous Plants Goldenrod, asters and grasses along the edges

Diseases and Insects None observed



Canopy Closure 90%

Ten Year Management This VMU has reached “free to grow” and should not require any management other than the annual mowing of the access lane around the edge for the next ten years. The area along the road fence should continue to be mowed on a regular basis during the growing season.

The front portion of the VMU originally consisted of three rows of trees planted parallel to Churchill Line to block the view of the agricultural operations on the property. The poplar row was removed in 2007 (Figure 3.5). It is suggested that the stumps are removed and two shrub seedlings are planted between each. The regular mowing should be continued.



Figure 3-1. Carolina poplar row removed in 2007 to release the conifers



VMU 3. Plantation

ELC CUP1-5(7)

Area 3.4 hectares

Soils Perth clay

Drainage Imperfect to poor

History This was a crop field until it was planted to trees in 1996.

<i>Species Composition</i>	<i>Species</i>	<i>%</i>	<i>Height (m)</i>	<i>DBH (cm)</i>
	Green Ash	35	6	6
	Soft Maple	35	5	6
	Carolina Poplar	10	9	10
	Other species*	20		

* White cedar, Norway spruce, swamp white oak, red maple, white elm, shagbark hickory, Manitoba maple and black locust

Shrubs and Vines None recorded

Herbaceous Plants Frost aster, New England aster, goldenrod, meadow grasses

Diseases and Insects None observed

Canopy Closure 20-60%

Ten Year Management If EAB kills all of the ash it may be necessary to refill in this VMU because it is already open. The regular mowing along the road should be continued.



Figure 3-2. Relative size of conifers and deciduous trees after 13 growing seasons

VMU 4. Plantation

ELC CUP1-5(7)

Area 4.1 hectares

Soils Perth clay

Drainage Imperfect to poor

History This was a crop field until it was planted to trees in 1997. The west side was planted by volunteers from Sunoco and Boy Scout troops. The rest was planted by staff of the SCRCA. This was one of the areas where volunteers from the Urban Wildlife Committee supplied some trees of their own and planted them in openings within existing rows of the original planting.

<i>Species Composition</i>	<i>Species</i>	<i>%</i>	<i>Height (m)</i>	<i>DBH (cm)</i>	<i>Condition</i>	<i>Regeneration</i>
	Green ash	30	4-7	4	Good	Some
	Soft Maple (silver and red)	30	4-8	2-4	Good	Little
	Carolina Poplar	10	10-18	1-23	Good	
	Norway spruce	5	3-7	2-4	Good	
	Other species*	25				

* Bur oak, swamp white oak, Manitoba maple, white elm, white cedar, Kentucky coffee tree and giant shellbark hickory, Eastern Cottonwood (1-16 m height, good condition, little regeneration).

Shrubs and Vines Red osier dogwood and gray dogwood

Herbaceous Plants Goldenrod, aster and grasses

Diseases and Insects None observed

Canopy Closure 40%-80%

Ten Year Management The canopy is still very open in this plantation and it would benefit from one to two applications of roundup to kill the perennial herbaceous competition. The open condition will be exacerbated when EAB removes the ash.



VMU 5. Plantation

ELC CUP1-5(7)

Area 6.9 hectares

Soils Sand loam to Perth clay

Drainage Good to poor

History This was a crop field until it was planted to trees and shrubs in 1998. In the fall of 1997 a small wildlife pond was dug in the south-east corner. The excavated material was used to create a raised access lane across the front from the east side of this VMU to the parking lot. Following the planting it was designated part of the McKenzie & Blundy Memorial Forest. A lane way is mowed annually after the nesting season around this VMU. The area between the main plantation and the fence should be maintained by mowing on a regular basis throughout the growing season.

Species Composition

<i>Species</i>	<i>%</i>	<i>Height (m)</i>	<i>DBH (cm)</i>
Green ash	30	6-7	6
Soft Maple (silver and red)	50	6	6
White Pine	5	3.74	4
Other Species*	15		

* Norway spruce, white cedar, heartleaf willow, white elm, Manitoba maple, bur oak, Eastern Cottonwood (10m height, 14 cm DBH)

Shrubs and Vines European highbush cranberry, staghorn sumac, wild rose, red osier dogwood, gray dogwood, Virginia creeper.

Herbaceous Plants Aster, goldenrod

Diseases and Insects None observed

Canopy Closure 60%-90%

Ten Year Management This plantation is doing okay. It is however part of the McKenzie & Blundy Memorial Forest and if large numbers of ash die it may be necessary to fell them or even replace them.



VMU 6. Plantation

ELC CUP1-5(7)

Area 4.6 hectares

Soils Perth clay

History This VMU was a crop field until it was planted to trees and shrubs in 1999. The road way in this area is rutted from ATV use. In order to improve the lane and wildlife habitat, a pond was dug at the south end of this plantation to provide fill for the road way in 2001. A good crop of water plants have established in the pond.

<i>Species Composition</i>	<i>Species</i>	<i>%</i>	<i>Height (m)</i>
	Green and White ash	40	5-9
	Soft Maple	40	6-9
	Carolina Poplar	10	12-18
	Other Species*	10	

* Bur oak , Manitoba maple, white elm and cottonwood

Shrubs and Vines Red osier dogwood, European highbush cranberry and nannyberry.

Herbaceous Plants Golden rod, aster and grasses.

Diseases and Insects Septoria Canker on Carolina poplar

Canopy Closure 60%-90%

Ten Year Management At this time the trees are showing no signs of stress and are doing quite well. Some of the shrubs are showing signs of decline from shade but that was part of the original plan. Unless EAB affects this plantation it should not require attention during the next ten years. The hiking trail around the outside should be mowed annually after the nesting season.

In order to retain good nesting and brood cover in the form of herbaceous plants growing in the pond it may be necessary to fell some of the trees which have volunteered along the edge of the pond.



VMU 7. Ash Plantation

ELC CUP1-7

Area 1.6 hectares

Soils Perth clay

Drainage Imperfect

History This plantation was planted with the trees left over from VMU 2.

<i>Species</i>	<i>%</i>	<i>Height (m)</i>	<i>DBH (cm)</i>	<i>Condition</i>	
<i>Composition</i>	Green Ash	100	6-7	4-6	good

Shrubs and Vines None observed

Herbaceous Plants Aster species, goldenrod, species and grasses

Diseases and Insects None noted

Canopy Closure 60%

Ten Year Management Of all the plantations this one needs the most attention because it is 100% ash. It probably should be blanket sprayed with roundup to kill off the perennials and then have seedling trees or tree seed planted in the existing rows.



VMU 8. Meadow

ELC CUM1-1

Area 2.8 hectares

Soils Silty loam in bottomlands

Drainage Good to very poor

History This meadow was pasture when this property was part of an operating farm. There is also evidence that some of the soils were altered by earth moving equipment sometime in the past.

Species Composition European white poplar, trembling aspen, eastern red cedar, domestic apple, cottonwood and green ash

Shrubs and Vines Gray dogwood, red osier dogwood, purging buckthorn, Virginia creeper, and silky dogwood.

Herbaceous Plants This VMU is dominated by herbaceous plants including Riddell's goldenrod.

Diseases and Insects None Observed

Ten Year Management Although the deer are retarding the growth of most woody species with browsing, this area is gradually converting to forest cover. To prevent succession, trees and shrubs in this VMU can be removed mechanically, chemically or by controlled burn.

Beaver activity was observed along the old meander. As long as their activities are not threatening SAR or blocking of the drain no action or management is required.



VMU 9. North Meadow

ELC CUM1-1

Area 4.8 hectares

Soils Perth clay

History This area was cropland at one time, but has been an old field/meadow cover type for many years. Four rows of deciduous trees were planted along the north boundary in 2000. The county operates a storm water treatment pond along the west side of this VMU. The Authority constructed a small wet land in 1999 as a wildlife feature. It is lowered periodically to reduce the invasive phragmites population.

Species Composition There is one large bur oak and a few seedlings as well as seedling ash. All woody plants are severely browsed.

Shrubs and Vines Gray dogwood, silky dogwood

Herbaceous Plants Goldenrod, aster, grasses, cattails and invasive phragmites.

Diseases and Insects The large oak is exhibiting signs of decline.

Ten Year Management Some management of the wetland to control invasive phragmites is required. If the woody species begin to dominate a decision will need to be made to either set back the reforestation process or allow it to proceed. Currently the deer and rabbits seem to keep the woody stems from dominating the site.



Figure 3-3. The wetland in VMU 9



VMU 10. Early Succession Forest

ELC FOD7-4

Area 5.8 hectares

Soils Perth clay and silty loam in bottomlands

History This is a second growth forest, which began development during the era of cattle pasturing. The main species in recruitment at that time were hawthorn, black walnut and elm. The European silver poplar was planted at one time to prevent erosion. Because it is a male clone we know that all the young stems are root suckers. The walnut and bur /swamp white oak are well represented in all age classes. The ash component is generally younger. The hawthorn trees are dying out from shade and there has been very little regeneration of European silver poplar in the last 30 years.

<i>Species Composition</i>	Species	%
	Black Walnut	40
	Bur/swamp white oak	15
	Green Ash	10
	White elm	10
	Other Species*	25

* hawthorn, European silver poplar, cottonwood, large toothed aspen, catalpa, Manitoba maple and basswood

Basal Area Basal area readings varied from 20-30 and averaged 24.3 m²/ha

Size Class	POLEWOOD	SAWLOG CLASS				TOTAL
	Pole wood 10-24 cm	Small sawlog 26-36cm	Medium sawlog 38-48cm	Large sawlog 50-60 cm	X-Large sawlog 62 cm+	
AGS BA (m ² /ha)	6.6	5.7	5.0	2.7	2.3	22.3.
UGS BA (m ² /ha)	0.3	0.7	0.3	0.3	0.3	1.9
Total BA (m ² /ha)	6.9	6.4	5.3	3.0	2.6	24.2

AGS - acceptable growing stock – trees which will be as valuable or more valuable in ten years than they are now.

UGS - unacceptable growing stock – trees which will be less valuable in ten years than they are now.

DBH (Diameter at Breast Height) 1.3m off the ground

Shrubs and Vines Gray dogwood, purging buckthorn, nannyberry, currant, choke cherry, Virginia creeper, buttonbush, poison ivy, grape, and American prickly-ash

Herbaceous Plants Garlic mustard



Diseases and Insects Black knot on chokecherry, Dutch elm disease on white elm.

Ten Year Management This section of woodlot is reasonably healthy. The ash component is not very large and most of the ash trees are in size classes of no interest to loggers. A harvest could be made within time frame of this plan, but it is not critical that one be done immediately.

The most critical actions would be the removal of exotic species like buckthorn, catalpa and European silver poplar. Any tree (except buckthorn) which is large enough to have merchantable volume should be left for the next harvest.



VMU 11. Floodplain Forest

ELC FOD7-2

Area 5.0 hectares

Soils Bottom Land

Drainage Good to poor

History This area was cleared of forest but does not appear to ever have been in row crop production. Certainly, after Perch Creek was cleaned and straightened it was only used for pasture.

Species Composition	Species	%
	Green Ash	40
	Hawthorn	25
	Bur Oak	15
	Other Species*	20

*shagbark hickory, Manitoba maple, basswood, hard maple, beech, white elm, domestic apple, silver maple, feral pear, peachleaf willow and black cherry

Basal Area Basal area readings varied from 16-26 and averaged 19.6 m²/ha

Size Class	POLEWOOD	SAWLOG CLASS				TOTAL
	Pole wood 10-24 cm	Small sawlog 26-36 cm	Medium sawlog 38-48 cm	Large sawlog 50-60 cm	X-Large sawlog 62 cm+	
AGS BA (m ² /ha)	10	4.8	2.4	0.4	0	17.6
UGS BA (m ² /ha)	0.8	0.8	0.4	0.0	0	2
Total BA (m ² /ha)	10.8	5.6	2.8	0.4	0	19.6

AGS - acceptable growing stock – trees which will be as valuable or more valuable in ten years than they are now.

UGS - unacceptable growing stock – trees which will be less valuable in ten years than they are now.

DBH (Diameter at Breast Height) 1.3m off the ground

Shrubs and Vines European highbush cranberry, grape, purging buckthorn and choke cherry

Herbaceous Plants Aster, grasses and golden rod

Diseases and Insects Nectria (target) canker on basswood.



Ten Year Management This is a young hardwood stand developing from a hawthorn invasion. Unfortunately, 40% of the stems are ash and will likely die over the next 5-10 years from EAB. It should be marked for an improvement / salvage harvest before the trees succumb to EAB and become too dangerous to cut. Access to this portion of the property is difficult because there is no bridge over Perch Creek.



VMU 12. Hawthorn Forest

ELC FOD4-2

Area 11.0 hectares

Soils Perth clay

Drainage Good to poor

History This area was cleared for agriculture including row crops. It eventually became pasture and started to reforest with hawthorns. This process has continued since the property was acquired by the county. The other tree species are beginning to eliminate the hawthorns and shrubs.

<i>Species Composition</i>	<i>Species</i>	<i>%</i>
	Hawthorn	50
	White and Green Ash	30
	Other Species	20

*bur oak, silver maple, common pear, white pine, cottonwood, white elm, Eastern red cedar, and European crab apple

Shrubs and Vines Gray dogwood, purging buckthorn, glossy buckthorn, prickly ash, highbush cranberry, silk dogwood, nannyberry and grape.

Herbaceous Plants Aster, golden rod, grasses and teasel

Diseases and Insects None recorded

Canopy Closure The canopy varies from 50%-100% closed.

Ten Year Management This VMU would benefit from buckthorn control if funding becomes available. It does not look like a “typical” forest but it is certainly good nesting and brood habitat for many species of wildlife. It is virtually impossible to cross the creek with equipment. There is no need for the public to have daily access to all of the land so this section need not be opened or maintained for public use. It may be necessary to erect a gate at Perch Creek to reduce or eliminate the use of ATVs which are causing erosion in at least two locations.





Figure 3-4. VMU12 in September 2008



VMU 13. Floodplain Forest

ELC FOD4-2

Area 13.6 hectares

Soils Perth clay and silty loam in lowlands

Drainage Good to poor

History This is a relatively large VMU which varies from hawthorn, to deciduous replacing hawthorn, to forest which has always been in forest.

Species	%
Green and white ash	40
hawthorn	15
Bur oak	10
White Elm	5
Silver Maple	5
Other Species	25

* European crab apple, feral pear, black walnut, hard maple, Manitoba maple, black cherry, cottonwood, basswood, bitter hickory, shagbark hickory, American beech and peachleaf willow

Basal Area Basal area readings varied from 12-26 and averaged 20.5 m²/ha

Size Class	POLEWOOD	SAWLOG CLASS				TOTAL
	Pole wood 10-24 cm	Small sawlog 26-36 cm	Medium sawlog 38-48 cm	Large sawlog 50-60 cm	X-Large sawlog 62 cm+	
AGS BA (m ² /ha)	8.25	4.75	3.25	1.75	0.5	18.5
UGS BA (m ² /ha)	1.0	0	0.5	0.0	0.5	2.0
Total BA (m ² /ha)	9.25	4.75	3.75	1.75	1.0	20.5

AGS - acceptable growing stock – trees which will be as valuable or more valuable in ten years than they are now.

UGS - unacceptable growing stock – trees which will be less valuable in ten years than they are now.

DBH (Diameter at Breast Height) 1.3m off the ground

Shrubs and Vines Grape, purging buckthorn, poison ivy, Virginia creeper, gray dogwood, American prickly ash, choke cherry, cane berries, sandbar willow, heartleaf willow

Herbaceous Plants Moneywort, grasses, goldenrod

Diseases None recorded



and Insects

Ten Year Management There are probably enough merchantable ash trees in this VMU to warrant a salvage cut. If such a harvest takes place it would be a good idea to try to remove ash from other VMUs as well as trees with disease or any exotic species which might have merchantable timber. Otherwise harvesting can be postponed for a few years.



Figure 3-5. A 44cm DBH pear tree.



VMU 14. Hawthorn Forest

ELC CUS1-1

Area 3.9 hectares

Soils Perth clay

Drainage Good to poor

History Following pasturing, this VMU has been invaded by hawthorns and green ash and to a lesser degree other woody species. It is converting to deciduous forest with green ash as the dominant species.

<i>Species Composition</i>	Species	%
	Hawthorn	40
	Green Ash	40
	Other species*	20

* red maple hard maple, white elm, bur oak

Basal Area Basal area readings varied from 10-26 and averaged 16 m²/ha

Size Class	POLEWOOD	SAWLOG CLASS				TOTAL
	Pole wood 10-24 cm	Small sawlog 26-36 cm	Medium sawlog 38-48 cm	Large sawlog 50-60 cm	X-Large sawlog 62 cm+	
AGS BA (m ² /ha)	15	1	0	0	0	16
UGS BA (m ² /ha)	0	0	0	0	0	0
Total BA (m ² /ha)	15	1	0	0	0	16

AGS - acceptable growing stock – trees which will be as valuable or more valuable in ten years than they are now.

UGS - unacceptable growing stock – trees which will be less valuable in ten years than they are now.

DBH (Diameter at Breast Height) 1.3m off the ground

Shrubs and Vines Purging buckthorn, European honeysuckle, poison ivy currant, gray dogwood, nannyberry, American prickly-ash and grape

Herbaceous Plants None recorded

Diseases and Insects None recorded



Ten Year Management This forest is in the process of converting from hawthorn to upland hardwoods. Unfortunately, 40% of the trees which are starting to replace the hawthorns are ash. Until EAB comes through the VMU, the only management should be the removal of invasive species.



VMU 15. Overgrown Farmyard

ELC CUS1-1

Area 3.2 hectares

Soils Loam to Perth clay

Drainage Good to poor

History This VMU was originally the building site for a farm operation. 40 % of the tree basal area is feral pear and apple from a former orchard. Shade trees around the old farmstead were Manitoba maple. These trees are currently contributing to the regeneration layer. There are several areas dominated by shrubs and some by meadow grasses and broad-leafed herbaceous plants. The closest ELC designation is for a moist white elm lowland deciduous forest. What it is in reality is a number of very small cultural thickets of different species which were all converting to elm or pear forest.

<i>Species Composition</i>	<i>Species</i>	<i>%</i>
	White Elm	40
	Pear	35
	Hawthorn	10
	European crabapple	5
	Other species*	10

*bur oak, walnut, trembling aspen, Manitoba maple and green ash,

Shrubs and vines American prickly-ash, staghorn sumac, Virginia creeper, grape, European honey suckle, purging buckthorn and gray dogwood

Basal Area Basal area readings varied from 0-24 and averaged 20 m²/ha

Size Class	POLEWOOD	SAWLOG CLASS				TOTAL
	Pole wood 10-24 cm	Small sawlog 26-36 cm	Medium sawlog 38-48 cm	Large sawlog 50-60 cm	X-Large sawlog 62 cm+	
AGS BA (m ² /ha)	13	5	1	0	0	19
UGS BA (m ² /ha)	0	1	0	0	0	1
Total BA (m ² /ha)	13	6	1	0	0	20

AGS - acceptable growing stock – trees which will be as valuable or more valuable in ten years than they are now.

UGS - unacceptable growing stock – trees which will be less valuable in ten years than they are now.

DBH (Diameter at Breast Height) 1.3m off the ground



Herbaceous Plants Grasses, goldenrod, burdock and asters

Diseases and Insects Dutch elm disease on white elm

Ten Year Management Remove invasive species from this VMU.

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4.0 General Management Strategies

There are no plans to alter the existing use through the term of this Management Plan. Native wildlife habitat will continue to be encouraged. Since most of the area is now planted, the main thrust during the next ten years will be the continued development of these plantations, as well as the natural reforestation into habitats dominated by native plants. Some measures will be taken to eradicate or control invasive exotics with phragmites as a top priority, followed by buckthorn and garlic mustard. ATV use will continue to be discouraged. Key management recommendations and priorities are summarized in Table 4-1 and 4-2.

Table 4-1. Recommended Management by Vegetation Management Unit

<i>Activity</i>	<i>VMU</i>	<i>Year(s)</i>	<i>Quantity</i>	<i>Notes</i>
Mowing	Front of 1, 2, 5	annual	0.8 hectares plus 1850 meters of trail	Contractor, 8-12 times year
Mowing to maintain fair- weather trails and open areas.	1, 2, 3 4, 5, 6, 8, 9	annual	3300 meters	SCRCA staff 1 once annually
Phragmites control	6, 8, 9, 13	2009	3 tank loads of herbicide	
Exotic plant monitoring	all	annual	As required	
Exotic plant control	all	2009-2018	As required	Phragmites first then buckthorn
Gate across ATV trail	13	2009	1	West side of creek.
Salvage harvest of ash	11, 13	2010-2012	.8 hectares	

Timber Harvesting

During the previous management period no consideration was given to timber harvesting. For this management plan the possibility of using timber harvesting as a tool to manipulate forest composition for the benefit of the environment or wildlife was investigated. Any revenues would be used for additional management on this or other properties under the agreement. It was noted that VMUs 11 and 13 contain 40% ash which will probably die. These areas should probably be marked as a salvage cut before EAB strikes and leaves 20-30 dead hazard trees per hectare. A lot of the large ash trees are near the Perch Creek Municipal Drain and if several fall into the creek in a short period they may dam it and require it to be dredged.

If a harvest occurs, all merchantable size exotic species should be marked for removal as well. In addition VMU 10 should be looked at to see if the stand can be improved by removing a few trees of species with low wildlife values or with significant disease. The two small meadows contain some significant sun-loving species and should be maintained for those species. Of particular interest is Riddell's goldenrod.

Invasive Species Control



The biggest issue with the wildlife ponds-as well as some other wet areas - will be invasive Phragmites. A control program began in 2007.

Table 4-2. Summary of Current Use and Projected Priorities

VMU #	Area (ha)	Current Use	Continue Current use? (y/n)	Goal Priority			
				Environmental Protection	Wildlife	Recreation	Forest products
1	3.2	Tree Pl	y	2	1	3	X
2	3.2	Tree Pl	y	3	2	1	X
3	3.4	Tree Pl	y	1	2	3	X
4	4.1	Tree Pl	y	1	2	3	X
5	6.9	Tree Pl	y	3	2	1	X
6	4.6	Tree Pl	y	2	1	3	X
7	1.6	Tree Pl	y	1	2	3	X
8	2.8	Meadow	y	1	3	2	X
9	4.8	Meadow	y	2	1	3	X
10	5.8	Forest	y	1	2	3	4
11	5.0	Forest	y	1	2	X	X
12	11.0	Forest	y	1	2	X	X
13	13.6	Forest	y	1	2	3	X
14	3.9	Forest	y	1	2	3	X
15	3.2	Forest	y	1	2	3	X

^xNot recommended

All Terrain Vehicles

One recreation issue, which was a concern in 1994 and is still a concern, is the ATV traffic on the property. ATVs are a major vector for invasive species and they are still causing serious erosion problems at the crossing of Perch Creek. Part of the problem of annual rutting of the trail system has been cleared up using fill from the ponds to raise and grade the lanes so the ATVs do not cause ruts on those sections anymore.

Approximately, 14 hectares east of Perch Creek are not accessible to the public or maintenance machinery most of the year. There are about 1,200 meters of trails in this area maintained without authorization by people using ATVs. There is no reason for public access to this area, but it should be inspected annually to ensure it is not being destroyed or used for other purposes than those intended.

Probably the best way to slow down or stop ATV use of the property is stop the traffic crossing the Perch Creek Drain. When Enbridge puts up a fence around their property to the north the only access will be through the drain. Much of the joy of riding appears to be tearing through water and mud and climbing steep slopes. Before a gate does go up the neighbors should be contacted to secure an access for monitoring and maintenance activities.





Figure 4-1. The ATV crossing of Perch Creek.

Recommendations adopted by Council October 19, 2011

1. Continue/strengthen environmental (including control of invasive species) and wildlife enhancement while allowing safe and passive use by the Public.
2. Restrict use as follows:
 - Dogs - must be leashed
 - Motorized vehicles (ATVs, dirt bikes, snowmobiles, etc.) - not permitted
 - Horseback riding - permitted on trails only at walking speed
 - Hunting - not permitted
 - Bicycles - permitted on trails only at recreational speeds (no extreme or bicycle-cross)
3. Focus on pedestrian use initially and consider multi-use trails in the future should demand warrant.
4. Erect signage with regards to: intended use, hours (daylight use only), ownership, property boundaries, interpretive areas, and trail designation.





Appendix A. Tree Species, 2008

<i>Abbr.</i>	<i>Common Name</i>	<i>Scientific Name</i>
Ag	Green Ash	<i>Fraxinus pennsylvanica</i>
Aw	White Ash	<i>Fraxinus americana</i>
Al	Largetooth Aspen	<i>Populus grandidentata</i>
At	Trembling Aspen	<i>Populus tremuloides</i>
Bd	Basswood	<i>Tilia americana</i>
Be	American Beech	<i>Fagus grandifolia</i>
Bn	Butternut	<i>Juglans cinerea</i>
	Catalpa	<i>Catapla speciosa</i>
Cw	White Cedar	<i>Thuja occidentalis</i>
Cb	Black Cherry	<i>Prunus serotina</i>
Pv	Choke Cherry	<i>Prunus virginiana</i>
Cm	Mazzard Cherry	<i>Prunus avium</i>
Kk	Kentucky Coffee Tree	<i>Gymnocladus dioicus</i>
Pd	Cottonwood	<i>Populus deltoides</i>
	European Crabapple	<i>Malus sylvestris</i>
Ea	American Elm	<i>Ulmus americana</i>
Es	Siberian Elm	<i>Ulmus pumila</i>
Ht	Hawthorn	<i>Crataegus spp.</i>
Hi	Big Shellbark Hickory	<i>Carya laciniosa</i>
Hb	Bitternut Hickory	<i>Carya cordiformis</i>
Hs	Shagbark Hickory	<i>Carya ovata</i>
Lb	Black Locust	<i>Robinia pseudoacacia</i>
Gt	Honey Locust	<i>Gleditsia triacanthos</i>
Mh	Hard (Sugar) Maple	<i>Acer saccharum</i>
Mm	Manitoba Maple	<i>Acer negundo</i>
Mr	Red Maple	<i>Acer rubrum</i>
Ms	Silver Maple	<i>Acer saccharinum</i>
Ob	Bur Oak	<i>Quercus macrocarpa</i>
Osw	Swamp White Oak	<i>Quercus bicolor</i>
	Feral Pear	<i>Pyrus communis</i>
Pr	Red Pine	<i>Pinus resinosa</i>
Pw	White Pine	<i>Pinus strobus</i>
Pc	Carolina Poplar	<i>Populus x canadensis</i>
Pl	White/Silver Poplar	<i>Populus alba</i>
Cr	Eastern Red Cedar	<i>Juniperus virginiana</i>
Sc	Colorado Spruce	<i>Picea pungens</i>
Sn	Norway Spruce	<i>Picea abies</i>
Wpl	Peach Leaf Willow	<i>Salix amygdaloides</i>



Appendix B. Shrubs and Vines, 2008

<i>Common Name</i>	<i>Scientific Name</i>
Common Blackberry	<i>Rubus Allegheniensis</i>
Glossy Buckthorn	<i>Rhamnus frangula</i>
Purging Buckthorn	<i>Rhamnus cathartica</i>
Butttonbush	<i>Cephalanthus occidentalis</i>
European Cranberry	<i>Viburnum Opulus</i>
Highbush Cranberry	<i>Viburnum trilobum</i>
Currant	<i>Ribes spp</i>
Gray Dogwood	<i>Cornus racemosa</i>
Red Osier Dogwood	<i>Cornus stolonifera</i>
Silky or Swamp Dogwood	<i>Cornus amomum</i>
Grape	<i>Vitus spp</i>
European Honey Suckle	<i>Lonicera tatarica</i>
Poison Ivy	<i>Rhus radicans</i>
Prickly-Ash	<i>Xanthoxylum americanum</i>
Rose	<i>Rosa spp</i>
Staghorn Sumac	<i>Rhus typhina</i>
Nannyberry Viburnum	<i>Viburnum lentago</i>
Virginia Creeper	<i>Parthenocissus vitacea</i>
Heart-Leaved Willow	<i>Salix cordata</i>
Sandbar Willow	<i>Salix exigua</i>



Appendix C. Herbaceous Plant List, 2008

*Woodland Herbaceous Plant and Species at Risk Survey
2008*

Common Name	Scientific Name
Agrimony	<i>Agrimonia gryposepala</i>
Garlic Mustard	<i>Alliaria petiolata</i>
Small White Aster	<i>Aster vimineus</i>
Bur Marigold	<i>Bidens cernua</i>
False Nettle	<i>Boehmeria cylindrica</i>
Sedge	<i>Carex spp</i>
Enchanters Nightshade	<i>Circaea lutetiana</i>
Wild Strawberry	<i>Fragaria virginiana</i>
Wild Geranium	<i>Geranium maculatum</i>
Avens	<i>Geum spp</i>
Dames Rocket	<i>Hesperis matronalis</i>
Spotted Jewelweed	<i>Impatiens capensis</i>
Moneywort	<i>Lysimachia nummularia</i>
Wood-sorrel	<i>Oxalis europaea</i>
Black Snakeroot	<i>Sanicula marilandica</i>
Virginia Knotwood	<i>Tovara virginiana</i>
Violets	<i>Viola spp</i>
Small flowered Gerardia	<i>Agalinis paupercula</i>
Thimble Weed	<i>Anemone cylindrica</i>
Spinulose Wood Fern	<i>Dryopteris carthusiana</i>
Sensitive Fern	<i>Onoclea sensibilis</i>
Pokeweed	<i>Phytolacea americana</i>
Clearweed	<i>Pilea pumila</i>
Mayapple	<i>Podophyllum peltatum</i>
Early Goldenrod	<i>Solidago juncea</i>
Riddells Goldenrod	<i>Solidago riddellii</i>
Marsh Fern	<i>Thelypteris palustris</i>
Blue Vervain	<i>Verbena hestata</i>
Golden Alexanders	<i>Zizia aurea</i>

* The surveyor, Larry Cornelis was looking for SAR species but recorded some others which he thought were important. It is how ever not a complete list of all the herbaceous plants we would expect to find on this property.



Appendix D. Newspaper Article: The Observer “Police to crack down on ATVs at Perch Creek management area”

Police to crack down on ATVs at Perch Creek management area
Local News

October 28, 2010



SHAWN JEFFORDS

The Observer

Sarnia police intend to crack down on off-road vehicle riders breaking the law by driving on one of the city's more popular trail systems.

Complaints have been received about prohibited all-terrain vehicles at the Perch Creek Habitat Management Area, where they are becoming a safety hazard, said Sarnia police Const. Bill Baines

"We're going to take a look at it. We hope to keep this habitat for its intended purpose," he said.

Trail users at the greenspace on Churchill Line have complained about the noise, habitat damage and deep trenches dug by the wheels of quads and dirt bikes.



Baines said the police service's Community Response officers will monitor the trails, but he acknowledged enforcement will be a challenge.

"Because it's a trail system it becomes more difficult (to patrol)," he said. " ... For us to get back in there presents a problem, other than on foot or on bicycles."

Ralph Coe, general manager of the St. Clair Conservation Authority, which oversees the management area, said he's concerned. He's pledging to work with police, neighbours and trail users to restrict unauthorized vehicles.

Local photographer and conservationist Glenn Ogilvie said as recently as a few weeks ago he and his wife were forced off the trail as two crews of riders zipped by.

Ogilvie said angry hikers are starting to take action on their own to prevent ATV users from riding the trails. He's found large branches he believes people are intentionally placing on the path to discourage ATVs.

"It's really becoming a safety hazard. Someone is going to get hurt if this continues," he said.

Ogilvie said he'd like to see a better provincial licensing system for ATV drivers and more enforcement in natural area. The damage done to Perch Creek is frustrating, he said.

"They just tear the place up. This is a marshy area to begin with. When it rains it just floods into the (tire) trenches."

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