South Nation
CONSERVATION
de la Nation Sud

SOUTH NATION CONSERVATION

FOREST MANAGEMENT PLAN

MARCH 2018

2018 – 2037 Forest Management Plan

for the

South Nation Forest

R.P.F Seal

Prepared by:

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EXECUTIVE SUMMARY

SOUTH NATION CONSERVATION

South Nation Conservation (SNC) is one of 36 Conservation Authorities in Ontario. Established in 1947 under the *Conservation Authorities Act of Ontario*, SNC has a strong history in watershed management and leadership in applying sustainable natural resource practices.

SNC's mission is to ensure that the management of natural occurrences, natural resources, and human activities results in the protection or improvement of natural resources.

THE SNC FOREST

The SNC Forest was established in 1961, in partnership with the Province of Ontario, under the *Agreement Forest Act*. Managed in partnership with the Ontario Ministry of Natural Resources and Forestry for 40 years and then through SNC's own 20-year management plan, produced in 1998.

To further ensure forest sustainability good management practices, SNC obtained certification by the Forest Stewardship Council (FSC) under the Eastern Ontario Model Forest's (EOMF) group certificate (RA-COC-000232) in 2005. Yearly audits are performed to retain this certification.

FOREST ADMINISTRATION

In addition to SNC Forest Policy, the SNC Forest is administered in compliance with several legislative and voluntary protocols, including:

- The Managed Forest Tax Incentive Program
- The Conservation Lands Tax Incentive Program
- Eastern Ontario Model Forest – Forest Certification Policies and Procedures Manual
- Forest Stewardship Council Canada – Certification Standard for the Great Lakes/St. Lawrence Region
- Heritage Conservation Easement Agreements
- Utility Easements

There are 43 individual pieces of legislation that may affect forest operations and management.

FOREST RESOURCES

SNC owns and manages 11,633 acres of land. Organized by function, the land includes: productive forest (7345 acres); protected forest (1,540 acres); wetlands (1,629 acres); flood control (836 acres); parks (192 acres); habitat restoration (57 acres) and other lands (34 acres). The Forest Management Plan applies primarily to the productive and protected forest area.

Soil provides the water, nutrients and medium of support for tree growth, and is derived from parent material of differing composition. Outwash sand plains and glacial tills over fractured bedrock are the dominant land form in the forest, containing 25 distinct soil types with nearly 72% of soils comprised of fine to coarse sands and sandy loams.

The range of parent material and soils provides for a rich biologically diverse forest. More than 792 species of plants and animals have been documented to inhabit 51 distinct ecological communities and numerous watercourses within the SNC Forest.

FOREST MANAGEMENT

The forest is organized into forest units with species of similar of biological characteristics to which the same silvicultural prescriptions can be applied. An allowable harvest area (AHA) is determined for each forest unit. The AHA is one method of ensuring long-term sustainability of the forest. The total AHA for the forest is 265 acres; an increase from the previous AHA of 100 acres in the previous management period.

During the preparation of prescriptions, natural and cultural heritage values are identified as areas of concern (AOC) and prescriptions are adjusted to protect those values. Cultural heritage values include recreational opportunities and archaeological features. The forest receives more than 100,000 visitors annually. Natural heritage values include plants, animals and ecological communities, including 12 species at risk. Most information regarding natural and cultural values is gained through First Nation, research and community group partnerships.

FOREST MONITORING

Forest monitoring ensures management actions are sustainable. In addition to previous techniques SNC plans to monitor forest regeneration; review local volume tables, and implement electronic data management. SNC will continue to monitor forest operations in an accurate and accessible way, monitor use of the forest and its impact, and continue to gather additional information on natural and cultural values with our partners.

ECONOMIC BENEFIT

The SNC Forest provides direct revenue through sale of forest products while maintaining natural and cultural heritage features of the forest. Average income from forest operations is $35,000 annually. Under proposed management recommendations revenue will increase.

KEY RECOMMENDATIONS

1. Increase the forest area following SNC Land Securement Strategy.

2. Increase the Allowable Harvest Area for all forest units, particularly hardwoods. This is the result of overall increases to the forest area and the completion of critical first thinnings in conifer plantations.

3. Enhancement of forest inventory procedures to document improved forest health and growth, forest regeneration and biodiversity.

4. Maintain or enhance partnerships with municipalities, First Nations, non-governmental organizations, research community, public agency and Federal/Provincial government.

5. Maintain or enhance protection of cultural and natural heritage values within the SNC Forest.

1 INTRODUCTION

South Nation Conservation (SNC) is one of 36 Conservation Authorities in Ontario. Established in 1947 under the *Conservation Authorities Act of Ontario*, SNC has a strong history in watershed management and leadership in applying sustainable natural resource practices.

The SNC mission is to ensure that the management of natural occurrences, natural resources, and human activities results in the protection or improvement of water resources. This mission included the establishment of the SNC Forest in 1961, in partnership with the Province of Ontario, under the *Agreement Forest Act*.

The SNC Forest has been managed for nearly 60 years; the first four decades in partnership with the Ontario Ministry of Natural Resources & Forestry. SNC authored its first 20-year management plan in 1998.

To further ensure the sustainability of the Forest and demonstrate good management practices, SNC obtained certification by the Forest Stewardship Council (FSC) under the umbrella of the Eastern Ontario Model Forest's (EOMF) group certificate (SW-FM / COC-000232) in 2005. To retain this certification, management of the Forest must conform to the most current version of "Eastern Ontario Model Forest – Forest Certification Policies and Procedures Manual" and "Forest Stewardship Council Canada – Certification Standard for the Great Lakes / St. Lawrence Region."

2 PLAN ADMINISTRATION

2.1 PLAN PREPARATION DETAILS

The purpose of the Forest Management Plan (FMP) is to maintain a balance between the ecological, economic and socio-cultural benefits of the forest within an administrative framework of regulatory and legal obligations. The FMP plan defines the management objectives and strategies to meet SNC Forest Policy (BD-166/12). The current approved forest management policies closely align with the Forest Stewardship Council (FSC) forest certification principles and criteria.

2.2 PLANNING CYCLE

The FMP has been prepared for the 20-year strategic planning period starting January 1, 2018 and ending December 31, 2037. Operational plans are prepared every five years including a summary of the previous five-year activities. Annual operating plans are prepared for budgetary purposes.

Under FSC certification, the SNC Forest is subject to annual compliance audits and five-year re-certification audits. Operational summaries are provided for these audits. High Conservation Values (HCV) are updated and reported annually.

The Managed Forest Tax Incentive Program (MFTIP) requires five-year progress reporting of operational activities and a new program application, including a landowner report and activity summary, every ten years (*Assessment Act, R.S.O 1990, c. A. 31).*

Significant changes in the forest or forest management objectives can be made at any time by addendum to the FMP.

2.3 PUBLIC CONSULTATION

Under administrative policy, the SNC Board of Directors may establish standing committees to study and report on specific matters. The Forestry Committee, was initiated more than twenty years ago to provide direct and ongoing input to SNC forestry programs including management of the SNC Forest. The committee role is:

- To promote and advocate for South Nation Conservation and its role in watershed management
- To provide stakeholder feedback and/or expert knowledge regarding implementation of programs and services under the committee's mandate
- To make recommendations to the Board on policies and programs that relate to their mandate

The Forestry Committee has provided input into the preparation of this plan. The Forestry Committee includes representatives of municipal and Provincial government, industry, agriculture, recreational interests, landowners and landowner associations. Quarterly committee meetings are open to the public and meeting minutes are published on the SNC website.

2.4 UNITS OF MEASUREMENT

All areas presented are based on Municipal Property Assessment Corporation (MPAC) and presented in Imperial Units (acres) and converted to metric units as necessary.

All forest management measurements are determined in metric units (SI).

3 PROPERTY INFORMATION

3.1 PROPERTY OWNER INFORMATION

REGISTERED PROPERTY OWNER	
Name	South Nation River Conservation Authority
Address	38 Victoria Street Finch, ON K0C 1K0
Telephone	613-984-2948
E-mail	info@nation.on.ca

3.2 PLAN AUTHOR INFORMATION

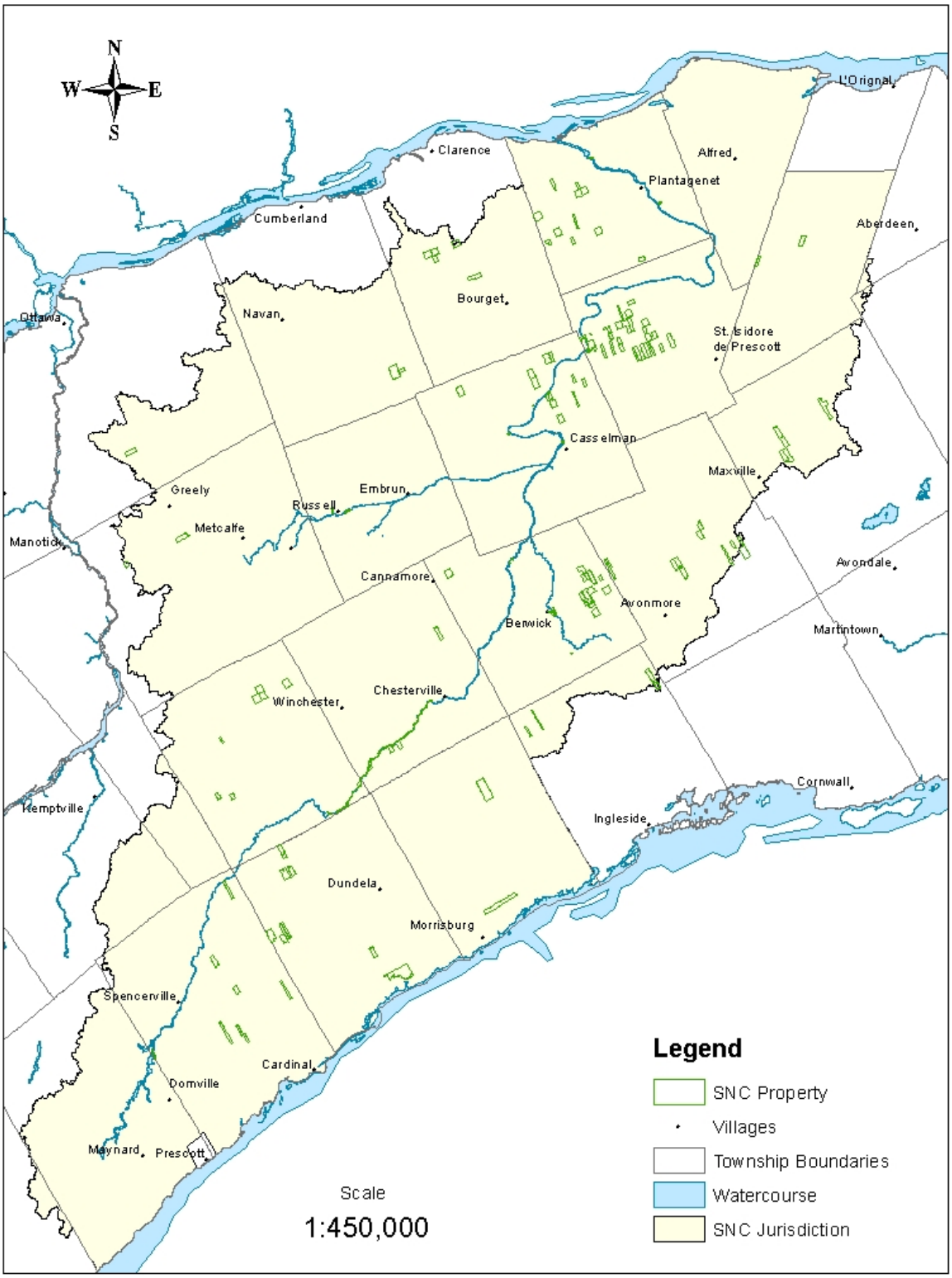
PLAN AUTHOR INFORMATION	
Name	Pat Piitz, R.P.F.
Address	38 Victoria Street Finch, ON K0C 1K0
Telephone	613-984-2948 ext. 306
E-mail	ppiitz@nation.on.ca

3.3 LOCATION & GENERAL DESCRIPTION

The SNC Forest is contained within the jurisdictional area of South Nation Conservation. South Nation Conservation is in eastern Ontario and generally bounded by the cities of Ottawa, Brockville and Cornwall. The SNC jurisdiction includes all the lands of the South Nation River watershed with headwaters near Brockville and draining northeast to the Ottawa River. The jurisdiction also includes lands within Augusta Township, the Township of Edwardsburgh-Cardinal and Township of South Dundas which extend southward from the South Nation River watershed to the St. Lawrence River. All the land within the Municipality of Alfred-Plantagenet and Nation Municipality are also include within the jurisdiction.

SNC owns land within nearly all its member municipalities. SNC Forest is highly fragmented across the jurisdiction but several Figure 1 shows the general location and distribution of the SNC Forest.

FIGURE 1: GENERAL LOCATION OF SNC FOREST PROPERTIES



3.4 PROPERTY CLASSIFICATION

Land ownership is one method SNC uses to attain its goal to ensure that the management of natural occurrences, natural resources, and human activities results in the protection or improvement of water resources. SNC owns 163 parcels of land including natural areas and developed infrastructure.

Natural areas include forest and wetlands. Forests are defined as an area of land occupied by a community of trees and other woody vegetation, growing closely together and managed for timber production and other forest products, or maintained under woody vegetation for such indirect benefits such as site protection, wildlife habitat or recreation. Productive forest is an area of forest, where the primary management objective is the protection of non-timber, cultural or natural heritage values. Protection forest is an area of forest, where the primary management objective is protection of site or high conservation values.

Wetlands are an area of land inundated by water, either permanently or seasonally, where aquatic plants, adapted to the unique hydric soils, prevail.

Developed infrastructure includes the land area associated with the SNC administrative office, landscaped parks and boat launches, dams, dykes, hazard lands, and other lands associated with works of the Conservation Authority.

Table 1 provides SNC land ownership by organizational function. Natural areas include productive forests (7,345 acres), protected forest (1,540 acres) and wetlands (1,629 acres). Developed infrastructure accounts for 1,119 acres, including flood control and hazard lands (836 acres); parks (192 acres); habitat restoration (57 acres) and various other lands (34 acres).

The Forest Management Plan applies primarily to the productive and protected forest area.

Table 1

SNC Property Classification

CLASSIFICATION	AREA	
	Acres	Hectares
Productive Forest	7,345	2,972
Protection Forest	1,540	624
Wetlands	1,629	659
Flood Control	836	338
Parks	192	78
Habitat Restoration	57	23
Other Lands	34	14
Total	**11,633**	**4,708**

3.5 PROPERTY TAX PROGRAMS

South Nation Conservation participates in two property tax incentive programs, the Managed Forest Tax Incentive Program (MFTIP) and the Conservation Land Tax Incentive Program (CLTIP). Individual properties are registered to one or both programs based on the eligibility requirements of the respective tax incentive program. Although a property may be registered under both tax incentive programs, the specific area associated with each program is unique. Several properties are not eligible for any tax incentive programs and are assessed at the full residential tax rate.

3.5.1 Managed Forest Tax Incentive Program

The Managed Forest Tax Incentive Program (MFTIP) is a voluntary tax incentive program applicable to forested land 4 hectares (9.88 acres) or greater, and subject to an approved forest management plan. Under the MFTIP, participating landowners have the forested portion of their property reassessed and classified as Managed Forest and taxed at 25 percent of the municipal tax rate set for residential properties. Table 2 shows SNC managed forest properties, property assessment number, plan registration number and eligible area under MFTIP.

Table 2
South Nation Forest
Managed Forest Tax Incentive Program Eligible Area

SNC Compartment	MPAC Assessment No.	Current Plan Number	Total Area (acres)	Eligible Area (acres)
1	050600600749400	H9816	135.67	135.67
2	050600600746400	H9816	80.06	80.06
3	050600600746400	H9816	50.00	50.00
4	050600600747200	H9816	80.00	80.00
5	050600600841000	H9816	86.50	86.50
7	050600600843800	H9816	50.00	50.00
	050600600846000	H9816	96.63	96.63
8	070170103019200	H9816	54.00	54.00
9	070170102510300	H9816	40.00	40.00
11	050600600523400	H9816	88.67	88.67
12	041100900602000	H9816	75.00	75.00
13	041100900530000	H9816	50.00	50.00
14	021202601408600	H9816	50.00	50.00
15	021202601408600	H9816	50.00	50.00
16	041101600666000	H9816	50.00	50.00
17	041101600666000	H9816	50.00	50.00
18	021202601311800	H9816	57.00	57.00
19	021202601311800	H9816	50.00	50.00
20	041101600663000	H9816	40.00	40.00
21	041101600782000	H9816	79.71	79.71
22	070170103504901	H9816	50.00	50.00
23	041100900532000	H9816	50.00	50.00

Table 2 (cont'd)
South Nation Forest
Managed Forest Tax Incentive Program Eligible Area

SNC Compartment	MPAC Assessment No.	Current Plan Number	Total Area (acres)	Eligible Area (acres)
23	041100900532000	H9816	50.00	50.00
24	041101600924000	H9816	48.04	48.04
25	041101600657000	H9816	100.00	100.00
25	041101600660000	H9816	100.00	100.00
26	051101600823000	n/a	100.00	0.00
27	021202601409100	H9816	50.00	50.00
28	021200100104400	H9816	100.00	100.00
29	011101101167000	H9816	180.56	180.56
30	041100900536000	H9816	33.12	33.12
31	021200100102000	H9816	97.50	97.50
32	023102000505400	H9816	50.00	50.00
33	023102000605400	H9816	46.14	46.14
34	051101100564000	H9816	50.00	50.00
35	021200100302210	H9816	45.00	45.00
36	021200100302210	H9816	49.00	49.00
37	021200100402010	H9816	96.00	96.00
38	021202601206800	H9816	25.00	25.00
39	021202601206000	H9816	50.00	16.50
40	021202601310800	H9816	100.00	100.00
41	021202601310800	H9816	145.00	145.00
42	021200100301200	H9816	49.08	49.08
43	021200100202400	H9816	100.00	100.00
44	021200100202400	H9816	100.00	100.00
45	031601600606600	H9816	100.00	100.00
46	021202601504200	H9816	50.00	50.00
47	040600602405000	H9816	50.00	50.00
48	023102000210300	H9816	50.00	50.00
49	021200100300700	H9816	50.00	50.00
50	021200100401400	H9816	50.00	50.00
51	011101101195400	H9816	100.00	100.00
52	011101101195400	H9816	100.00	100.00
53	021200100501805	H9816	108.34	108.34
54	011101101115000	H9816	110.00	110.00
55	011101101115000	H9816	125.00	125.00
56	041100900376000	H9816	50.00	50.00
	041100900377500	H9816	89.29	89.29
57	021200100101700	H9816	50.00	50.00
58/59	031601600802400	H9816	195.78	97.68
60	031601600604600	H9816	100.00	69.70

Table 2 (cont'd)
South Nation Forest
Managed Forest Tax Incentive Program Eligible Area

SNC Compartment	MPAC Assessment No.	Current Plan Number	Total Area (acres)	Eligible Area (acres)
61	070170104506101	H9816	51.00	51.00
	070170104506301	H9816	51.00	51.00
62	070170103019701	H9816	110.00	110.00
63	021202601206300	H9816	98.61	51.66
64	021202601310800	H9816	100.00	100.00
65	040600602412000	H9816	50.00	50.00
66	021202601503600	H9816	125.00	125.00
67	041100900301000	H9816	100.00	100.00
68	041100900380000	H9816	100.00	100.00
69	023102000305700	H9816	100.00	100.00
70	023102000306000	H9816	100.00	100.00
	023102000306100	H9816	30.00	30.00
71	023100000405700	H9816	120.00	120.00
72	023102000604100	H9816	100.00	100.00
73	023102000506300	H9816	100.00	100.00
74	023102000606200	H9816	47.40	47.40
75	021202601310200	H9816	100.00	100.00
76	021202601406800	H9816	83.30	83.30
77	021202601406800	H9816	50.00	50.00
78	021202601406800	H9816	75.00	75.00
79	021202601409500	H9816	75.00	75.00
80	021202601505000	H9816	100.00	100.00
81	021202601505000	H9816	50.00	50.00
82	070170102511200	H9816	87.50	87.50
83	023102000903900	H9816	49.00	49.00
84	021202601404500	H9816	39.00	39.00
85	021202601504800	H9816	100.00	100.00
86	021202601504800	H9816	100.00	100.00
87	021202601505000	H9816	50.00	50.00
88	021202601504600	H9816	50.00	50.00
89	051101101223000	H9816	100.00	100.00
90	051101101223000	H9816	100.00	100.00
91	051101101223000	H9816	100.00	100.00
92	051101101232400	n/a	100.00	0.00
93	041101600865500	H9816	67.28	67.28
94	050600600899200	H9816	122.89	122.89
97	041101600924000	H9816	100.00	71.58
98/99	040600602084000	New	192.76	15.98
100	041100900374500	H9816	147.07	147.07

Table 2 (cont'd)
South Nation Forest
Managed Forest Tax Incentive Program Eligible Area

SNC Compartment	MPAC Assessment No.	Current Plan Number	Total Area (acres)	Eligible Area (acres)
101	041100900533500	H9816	121.11	121.11
102	041100900372500	H9816	81.68	81.68
103	041100900299000	H9816	49.18	49.18
104	050600100082000	H9816	103.28	11.34
	050600100079010	H9816	187.21	184.75
105	031601600802400	New	50.78	50.78
106	051101100952800	12148	21.90	21.90
107	061450010114600	H9816	47.08	47.08
109	041101600700000	H9816	97.00	97.00
110-E	041101600799000	H9816	97.10	97.10
110-W	041101600800000	H9816	89.10	89.10
111	051101600125000	H9816	54.42	27.20
113	051101100303000	H9816	4.56	4.56
	051101100083000	H9816	27.24	27.24
114	051101600129000	New	49.84	48.84
117	041100901158000	H9816	104.00	104.00
123	051101600104400	New	38.84	38.84
145	050600600152500	H9816	11.76	11.76
	050600600153000	H9816	445.52	445.52
147	050600100660800	H9816	397.31	397.31
149	041100900358000	New	12.62	12.62
150	061450010122500	H9816	200.00	200.00
156	070170103514704	H9816	99.00	99.00
157	051101100479000	H9816	56.00	56.00
159	070170103031701	H9816	30.74	19.5
160	051101601189002	H9816	17.24	17.24
161	041101600822000	New	105.70	105.70
162	021200100306000	New	17.26	17.26
163	031601600802300	New	50.00	50.0
Total			**10,605.87**	**9,857.96**

3.5.2 Conservation Land Tax Incentive Program

The Conservation Land Tax Incentive Program (CLTIP) encourages the protection of significant natural heritage features through property tax relief. Requirements for CLTIP are set forth under the *Assessment Act* and *Ontario Regulation 282/98* and administered by the Ontario Ministry of Natural Resources and Forestry.

Table 3 indicates that SNC has 14 properties registered under CLTIP with an eligible area of 1,016.50 acres (411.36 hectares). These properties are all Provincially Significant Wetlands (PSW) and/or Area of Natural & Scientific Interest – Life Sciences(ALS).

Table 3
South Nation Forest
Conservation Land Tax Incentive Program Eligible Areas

Property No.	MPAC Assessment No.	Conservation Lands Type[1]	Total Area (acres)	Eligible Area (acres)
26	051101600823000	C1W	100.00	100.00
39	021202601206000	C3W	50.00	33.50
58/59	031601600802400	C3W	246.56	98.10
60	031601600604600	C3W	100.00	30.30
63	021202601206300	C3W	98.61	46.95
92	051101101232400	C1W	100.00	100.00
98/99	040600602084000	C3W	192.76	176.78
104	050600100820000	PSW	103.28	91.94
	050600100079100	PSW	187.21	2.46
119	061460007001800	PSW	100.00	99.36
122	021201200404300	ALS/C1W	100.00	100.00
146	021201200509400	ALS/C1W	50.00	50.00
152	021202601206700	C3W	25.00	23.75
155	061470004519500	PSW	115.80	52.12
159	070170103031701	PSW	30.74	11.24
Total			**1,599.96**	**1,016.50**

3.6 EASEMENTS

3.6.1 Conservation Easements

In 2009, SNC began acquiring SNC Forest lands under the Natural Spaces Land Acquisition and Stewardship Program (NSLAP) administered by the Ontario Heritage Trust (OHT). Lands acquired under NSLAP include many of the natural heritage features identified in this plan and

[1] C1W-Class 1 Wetland; C3W-Class 3 Wetland; PSW-Provincially Significant Wetland; ALS-Area of Natural & Scientific Interest (Life Sciences)

are protected under registered Heritage Conservation Easement Agreements (HCEA) to the interest of the Ontario Heritage Trust.

The HCEAs restrict operational activities that may harm the natural heritage features identified in a Baseline Documentation Report (BDR) of the property.

Table 4 provides a list of the SNC Forest lands subject to conservation easement.

Table 4
South Nation Forest
Lands Subject to Conservation Easement Agreements

Property No.	MPAC Assessment No.	Property Name	Total Area (acres)
98	040600602084000	Newington Bog	192.76
99			
100	041100900374500	MacMillan Road East	147.07
101	041100900533500	Warwick Forest	121.11
102	041100900372500	MacMillan Road West	81.68
103	041100900299000	MacMillan Road South	49.18
104	050600100082000	Seven Ponds Forest	103.28
	050600100079010		187.21
145	050600600153000	Two Creeks Forest	445.52
	050600600152500		11.76
150	061450010122500	Garland Side Road	200.00
Total			**1,539.57**

3.6.2 Ontario Wetland Care Program

In 2009, SNC and partnering First Nation communities, began restoration of wetland areas within its managed forest properties. The work was undertaken and supported under the auspices of the Ontario Wetland Care Program (OWCP). The purpose of this project was to restore and enhance native populations of wild rice on classified and unclassified wetlands occurring on SNC forest management lands.

Wetland management supported by the OWCP is subject to a 20-year easement to protect the restored wetland values. Table 5 provides a list of 40 SNC forest management properties subject to easement under the Ontario Wetland Care Program. The current easement agreement expires in November 2029.

Under the Ontario Wetland Care Program, there are no restrictions to sustainable forestry and recreation activities.

Table 5
South Nation Forest
Land Subject to Ontario Wetland Care Program Easements

Property No.	Easement Holder	Wetland Name	Area (acres)	Area (ha.)
2	Ducks Unlimited	Unnamed	80.06	32.4
3	Ducks Unlimited	Unnamed	50.00	20.2
9	Ducks Unlimited	Unnamed	40.00	16.2
14	Ducks Unlimited	Unnamed	50.00	20.2
15	Ducks Unlimited	Unnamed	50.00	20.2
18	Ducks Unlimited	Unnamed	57.00	23.1
19	Ducks Unlimited	Unnamed	50.00	20.2
22	Ducks Unlimited	Unnamed	50.00	20.2
26	Ducks Unlimited	Morewood Bog	100.00	40.5
27	Ducks Unlimited	Unnamed	50.00	20.2
28	Ducks Unlimited	Wolf Creek Swamp	100.00	40.5
29	Ducks Unlimited	Baltic Corner Swamp	180.56	73.1
31	Ducks Unlimited	Unnamed	97.50	39.5
43	Ducks Unlimited	Unnamed	100.00	40.5
44	Ducks Unlimited	Unnamed	100.00	40.5
51	Ducks Unlimited	Unnamed	100.00	40.5
52	Ducks Unlimited	Unnamed	100.00	40.5
54	Ducks Unlimited	Unnamed	110.00	44.5
55	Ducks Unlimited	Unnamed	120.00	48.6
58/59	Ducks Unlimited	Hammond Swamp	195.78	79.2
60	Ducks Unlimited	Hammond Swamp	100.00	40.5
62	Ducks Unlimited	Unnamed	110.00	44.5
63	Ducks Unlimited	Pendleton Swamp	98.61	39.9
68	Ducks Unlimited	Unnamed	100.00	40.5
69	Ducks Unlimited	Dickenson Creek Swamp	100.00	40.5
70	Ducks Unlimited	Dickenson Creek Swamp	130.00	52.6
71	Ducks Unlimited	Dickenson Creek Swamp	120.00	48.6
73	Ducks Unlimited	Dickenson Creek Swamp	100.00	40.5
76	Ducks Unlimited	Riceville Swamp	83.30	33.7
77	Ducks Unlimited	Unnamed	50.00	20.2
78	Ducks Unlimited	Riceville Swamp	75.00	30.4
80	Ducks Unlimited	Crown 29 Swamp	100.00	40.5
81	Ducks Unlimited	Crown 29 Swamp	50.00	20.2
82	Ducks Unlimited	Unnamed	87.50	35.4
87	Ducks Unlimited	Unnamed	50.00	20.2
89	Ducks Unlimited	Winchester Swamp	100.00	40.5
90	Ducks Unlimited	Winchester Swamp	100.00	40.5
91	Ducks Unlimited	Winchester Swamp	100.00	40.5
92	Ducks Unlimited	Winchester Swamp	100.00	40.5
Total			**3,535.31**	**1,430.7**

3.6.3 Utility Easements

Several forest properties are subject to utility easement agreements registered on title. Table 6 provides a list of affected properties. Regular maintenance activities are conducted by the easement holder. The easement holder coordinates these activities with the SNC Forest manager. Forest operations are restricted by the easement.

Table 6
South Nation Forest
Lands Subject to Utility Easements

Property No.	Easement Holder	Purpose	Status	Duration
7	Hydro One	Utility Corridor	Registered	Permanent
29	Hydro One	Utility Corridor	Registered	Permanent
33	Hydro One	Utility Corridor	Registered	Permanent
58	Hydro One	Utility Corridor	Registered	Permanent
63	Hydro One	Utility Corridor	Registered	Permanent
67	Hydro One	Utility Corridor	Registered	Permanent
140	TransCanada Pipeline	Utility Corridor	Registered	Permanent

3.7 LEGISLATION

The SNC Forest is managed in compliance with current legislation and there have been no instances of non-compliance. A list of applicable legislation affecting forest management operations is provided below:

- Aggregate Resources Act
- Assessment Act
- Beds of Navigable Waters Act
- Bees Act
- Boundaries Act
- Clean Water Act
- Climate Change Mitigation and Low-carbon Economy Act
- Conservation Authorities Act
- Conservation Land Act
- Conveyancing and Law of Property Act
- Dangerous Goods Transportation Act
- Drainage Act
- Employment Standards Act
- Endangered Species Act
- Environmental Assessment Act
- Environmental Bill of Rights
- Environmental Protection Act
- Fire Protection and Prevention Act
- Fish and Wildlife Conservation Act
- Forest Fires Prevention Act
- Forestry Act
- Forestry Workers Lien for Wages Act
- Heritage Hunting and Fishing Act
- Invasive Species Act
- Lakes and Rivers Improvement Act
- Lands Title Act
- Line Fences Act
- Municipal Act
- Occupational Health & Safety Act
- Occupier's Liability Act
- Off-Road Vehicles Act
- Ontario Heritage Act
- Ontario Trails Act
- Pesticides Act
- Planning Act
- Plant Diseases Act
- Professional Foresters Act
- Road Access Act
- Trespass to Property Act
- Weed Control Act
- Wild Rice Harvesting Act
- Wilderness Areas Act
- Workplace Safety and Insurance Act

4 SNC FOREST POLICY

South Nation Conservation is committed to the concept of sustainable development and an ecosystem-based approach in the planning and managing of its forest resources.

4.1 LEGISLATIVE COMPLIANCE

The management of the South Nation Forest shall comply with all South Nation Conservation policies and all applicable local municipal, provincial and federal laws, including ratified international conventions and obligatory codes of practice relating to the transportation and trade of forest products within and from the South Nation Forest.

This shall include:

- To maintain a list of legislative compliance requirements for forest management activities.
- To maintain a list of legal agreements and contractual obligations on the SNC Forest.

4.2 SUSTAINABILITY

The South Nation Forest shall be managed to provide a range of products and services that will maintain or enhance the long-term economic viability and the range of environmental and social benefits.

This shall include:

- To provide for the conservation and restoration of natural forest ecosystems in a landscape context.
- To identify, protect and preserve rare, threatened and endangered species of flora and fauna.

4.3 FOREST PRACTICES

South Nation Conservation will employ silvicultural practices that are ecologically appropriate for the vegetation, species, sites and management objectives that maintain and/or enhance long-term forest diversity, health and productivity of the South Nation Forest.

This shall include:

- To employ silvicultural practices that will maintain or increase fiber capital of the forest.
- To employ silvicultural practices that will maintain or increase forest annual growth.
- To maintain or improve forest health through protection against fire, insects and disease.

4.4 IMPACT OF FOREST PRACTICES

South Nation Conservation forest operations will be evaluated for impacts on community relations, human health, and the natural environment, in addition to compliance with current laws and regulations.

This shall include:

- SNC will ensure that protection of public health and safety is an integral part of its forest operations.
- SNC will ensure compliance with SNC Health & Safety Policies.
- SNC will provide training for SNC employees and volunteers.
- SNC will modify forestry operations to minimize environmental and aesthetic impacts.
- SNC will ensure the well-being of the forest ecosystem shall be a priority in the planning and implementation of all forest operations.
- SNC will maintain an emergency response plan.
- SNC will encourage scientific forest research.

4.5 CONSULTATION

South Nation Conservation will provide opportunities for the public, local communities and First Nations affected by the management of the South Nation Forest to provide advice on forest management.

This shall include:

- To establish and maintain a standing committee on forestry with representation of industry, government, science and the public.
- To provide adjacent landowners with notification prior to the commencement of forestry operations.
- To provide all South Nation Conservation employees the opportunity to provide feedback on forest management decisions and policy formulation.
- To provide local communities and local organizations the opportunity to participate in forest management planning prior to any final forest management decisions.
- To make summary information on forest management plans and activities available to the public.

4.6 FIRST NATIONS

South Nation Conservation shall identify and uphold indigenous peoples' legal and customary rights of ownership, use and management of land, territories and resources affected by management activities.

This shall include:

- To develop forest management partnerships with local First Nation communities
- To participate in the Eastern Ontario First Nation Working Group

4.7 FOREST POLICY REVIEW

South Nation Conservation shall review the forest policy and incorporate new objectives and knowledge.

4.8 AUDITS

South Nation Conservation shall conduct audits of forest management to ensure consistency with the forest policy and shall make the results of those audits available to the public.

This shall include:

- SNC will conduct internal operational audits of all forestry operations.
- SNC will participate in annual surveillance audits of the forest certification body as may be required.
- SNC will participate in five-year compliance audits of the forest certification body as may be required.

4.9 EFFECTIVENESS

South Nation Conservation shall administer and manage the forest to provide effective attainment of all the objectives utilizing professional standards.

4.10 FOREST PROTECTION

South Nation Conservation shall protect the South Nation Forest from unauthorized or illegal resource use, settlement or other illegal activities.

4.11 FOREST CERTIFICATION

The management of the South Nation Forest shall adhere to the most current Forest Stewardship Council Principles and Criteria and related policies and standards.

4.12 NATIVE PLANT AND ANIMAL COMMUNITIES

The management of the South Nation Forest shall employ methods to maintain or restore natural conditions through the promotion of native plant and animal communities.

4.13 HIGH CONSERVATION VALUES

South Nation Conservation shall identify High Conservation Values and shall develop strategies and/or actions, through engagement with affected stakeholders, to maintain and/or enhance those values using a precautionary approach.

4.14 USE OF CHEMICALS

Management of the South Nation Forest shall employ integrated pest management and silviculture systems that avoid, or aim at eliminating, the use of fertilizers and chemical pesticides.

5 PHYSICAL FEATURES

5.1 TOPOGRAPHY

Topography in the South Nation jurisdiction is highly influenced by bedrock valley systems. The landscape is undulating to rolling with well-formed drumlins and till ridges; intervening low areas are commonly floored with level clay deposits or swamps.

The central part of the region is dominated by the generally flat Winchester clay plain, but till protrudes through the clay cover in many places and there are quite a few low drumlins. The Edwardsburg sand plain, which lies west of the Winchester clay plain, has level to gently undulating topography developed predominantly on shallow water marine deposits derived from older glaciofluvial sediments.

The area is relatively flat with a gradual decline in elevation of 84 metres from the western extent to the confluence with the Ottawa River in the east.

5.2 BEDROCK GEOLOGY

The bedrock underlying the South Nation watershed is primarily limestone, with localized occurrences of shale, laid down during the Ordovician age. There are few bedrock exposures except where streams and rivers have scoured away the surface deposits.

5.3 SURFICIAL GEOLOGY

The parent materials in the South Nation watershed are sand and clay deposits originating from the Champlain Sea which once covered most of Eastern Ontario. Pockets of glacial tills and post-glacial alluviums are common in the Leeds & Grenville, Stormont, Dundas & Glengarry and in the City of Ottawa, but much less common in Prescott and Russell.

5.4 PHYSIOGRAPHY

Table 7 shows distribution of the forest by physiographic unit. Nearly 80% of the SNC Forest lies on outwash sand plains or glacial tills over fractured bedrock. The forest is regionally important for ground water recharge.

Table 7
South Nation Forest
Area by Physiographic Unit

Physiographic Unit	Area (ha.)	Percent
Glengarry Till Plain	3,004.08	44.5
Prescott-Russell Sand Plains	1,750.02	25.9
Winchester Clay Plains	690.12	10.2
Edwardsburgh Sand Plain	680.83	10.1
Ottawa Valley Clay Flats	530.25	7.8
North Gower Drumlin Field	98.84	1.5
Total	**6,754.14**	**100.0**

The Glengarry Till Plain and North Gower Drumlin Field comprised of well-sorted glacial tills account for 46% of the SNC Forest. The Glengarry Till Plain is undulating to rolling and consists of drumlins of deep (8 – 30 meters) stony loamy tills with clay flats. The North Gower Drumlin Field consists of well-drained drumlins over poorly drained clays.

The Prescott-Russell Sand Plain and Edwardsburgh Sand Plain account for 36% of the forest area. The Prescott-Russell Sand Plain is comprised of deep (9 meters) well-drained alluvial deposits of fine to coarse sands. The Edwardsburgh Sand Plain are largely level acidic sands over bedrock or boulder clay.

The Winchester Clay Plains and Ottawa Valley Clay Flats account for 10.2% and 7.8%, respectively, of the forest area. The Winchester Clay Plain is dominated by poorly drained clays with till protrusions, low drumlins, bars and beaches. The Ottawa Valley Clay Flats are also dominated by clays with rock or sand ridges.

There are no SNC Forest compartments within the Smith's Falls Limestone Plain, a significant physiographic unit within the SNC jurisdiction.

5.5 SOILS

Soil provides the water, nutrients and medium of support for tree growth, and is derived from parent material of differing composition, either in place or through transport by water, ice, or wind, creating distinct soil types. Physical properties (texture and structure), chemical properties (pH) and moisture regimes of soil influence forest composition, tree growth and operating conditions during forest management.

Soils are classified in a taxonomic system based on soil morphology. Table 8 provides a summary and brief description of soils occurring on the SNC Forest and other SNC-owned land. This summary is based on the Canadian System of Soil Classification and published in the Canadian Soil Information System (CanSIS) (MacDonald. 1992).

There are 25 distinct soil types occurring on the SNC Forest. Nearly 72 per cent of the SNC Forest occurs on fine to coarse sands and sandy loams, Achigan Sands are dominant at 33.9 per cent. Soils within the SNC Forest can support a diverse and productive forest. Poorly drained and clay soils can impose the most significant barriers to forest management activities.

Almost 19.1 per cent of the land base is considered not soil, with undifferentiated organic material comprising the largest component. This group contains many biologically significant areas, such as forest compartments within the Alfred Bog.

5.6 HYDROLOGY

The SNC Forest is located within the jurisdiction of South Nation Conservation, which includes the South Nation River basin, several smaller watersheds that flow directly to the St. Lawrence River, and several watercourses which flow directly to the Ottawa River.

The South Nation River flows north-easterly to the Ottawa River and drops 80 metres over a length of 180 kilometers. Main tributaries of the South Nation River include: Bear Brook, North Indian Creek, Wolf Creek, Castor River, Hess Creek, Payne River, Moose Creek and the Scotch River.

Table 8
Summary of SNC Forest Soils

SOIL NAME	DESCRIPTION	AREA (acres)	AREA (ha.)	PERCENT (%)
Achigan Sand	Imperfectly drained, fine to very fine sands, strongly acidic	3,941.83	1,595.20	33.9
Rubicon Sand	Imperfectly drained coarse to very coarse sand, acidic to neutral	215.06	87.03	1.9
Upland Sand	Rapidly drained, coarse to very coarse sand, acidic to neutral	171.76	69.51	1.5
St. Samuel Fine Sand	Poorly drained, coarse sand, moderately acidic to neutral	188.94	76.46	1.6
St. Thomas Sand	Well-drained, coarse sand to gravelly coarse sand, moderately acidic to neutral	559.40	226.38	4.8
Allendale Sandy Loam	Poorly drained, fine sandy loam to very fine sand, strongly calcareous	343.97	139.20	3.0
Cheney Sandy Loam	Poorly drained, fine to coarse gravelly sandy loams, strongly acidic	1,485.13	601.01	12.8
Mountain Sandy Loam	Imperfectly drained, fine to coarse sandy loam, moderately acidic to neutral	77.64	31.42	0.7
Lyons Sandy Loam	Poorly drained, medium very fine sandy loam to gravelly silty loam, moderately to very strongly calcareous	105.84	42.83	0.9
Grenville Loam	Well-drained, very fine sandy loam to gravelly sandy loam, very strongly calcareous	374.24	151.45	3.2
Castor Loam	Imperfectly drained, sandy clay loam to very fine sandy loam with gravel, very strongly calcareous	67.48	27.31	0.6
Kars Gravelly Loam	Well-drained, very coarse sand to very coarse gravelly sand, very strongly calcareous	262.18	106.10	2.3
Osgoode Loam	Poorly-drained very fine sandy loam to gravelly silty loam, strongly calcareous	355.29	143.78	3.1
Matilda Loam	Imperfectly drained, medium very fine sandy loam to gravelly silty loam, moderately to very strongly calcareous	162.13	65.61	1.4
Carsonby Loam	Poorly drained, medium very fine sandy loam to gravelly silty loam, moderately acidic to neutral	1.38	0.56	0.0
Farmington Loam	Well-drained, fragmental mixture of boulders, sand, silt and clay, moderately to very strongly calcareous	25.53	10.33	0.2
Carp Clay Loam	Imperfectly drained, moderately fine sandy clay loam to gravelly loam, moderately to very strongly calcareous	220.02	89.04	1.9
Morrisburg Clay Loam	Imperfectly drained, moderately fine sandy clay loam to gravelly clay loam, moderately to strongly calcareous	239.62	96.97	2.1
North Gower Clay Loam	Poorly drained, fine sandy clay to gravelly sandy clay, moderately to very strongly calcareous	43.59	17.64	0.4
Osnabrook Clay Loam	Poorly drained, moderately fine sandy clay loam to cobble clay loam, moderately to very strongly calcareous	255.63	103.45	2.2
Wolford Clay Loam	Poorly drained, moderately fine sandy clay to gravelly sandy clay loam, weakly calcareous	32.84	13.29	0.3
Bearbrook Clay	Poorly drained, sandy clay to gravelly clay, moderately acidic to neutral	69.24	28.02	0.6
Brandon Clay	Poorly drained, moderately fine sandy clay to gravelly clay, moderately acidic to neutral	170.95	69.18	1.5
Belmeade Clay	Very poorly drained, fine sandy clay to gravelly sandy clay, weakly calcareous	2.57	1.04	0.0
Wendover Clay	Imperfectly drained, fine silty clay to gravelly silty clay, moderately acidic to neutral	23.35	9.45	0.2
Other (Not Soil)	Undifferentiated eroded mineral material or undifferentiated organic material or water	2,237.71	905.57	19.1
TOTAL		**11,633.30**	**4,707.83**	**100.0**

5.7 CLIMATE

The general climate of the SNC Forest is typical of eastern Ontario and can be described as humid continental, influenced by the seasonal weather patterns of the Great Lakes and the Atlantic Ocean. In the summer, weather patterns vary in type and direction. Southern systems bring in hot, humid conditions from the Gulf of Mexico while northern systems bring cool, humid air from northern Canada. Prevailing winds are from the west. In general, the climate of the area is one of extreme temperatures with cold, heavy snowfall winters and warm summers with adequate rainfall. Climate normal and averages shown in Table 9 are typical for the watershed. Temperature varies as much as 40°C between winter and summer. Precipitation amounts are relatively constant throughout the year.

Table 9

Climate Normals And Averages
Morrisburg
1981 -2010

Daily Average Annual Temperature	6.6 °C
Winter Mean Daily Temperature	-6.5 °C
Summer Mean Daily Temperature	18.3 °C
Extreme High Temperature	37.8 °C
Extreme Low Temperature	-40.0 °C
Average Last Spring Frost	May 15th
Average First Fall Frost	September 15th
Frost-free Period	133 days
Growing Period	> 170 days
Mean Annual Precipitation	85.4 mm
Mean Annual Rainfall	69.8 mm
Mean Annual Snowfall	15.7 cm
Mean Summer Rainfall	92.5 mm

A recent review of climate trends within the SNC jurisdiction predicts that climate will continue to change during the management plan period. (SNC. 2017) These changes include an increase in mean annual and mean monthly temperature, increase in extreme high temperatures, increase in frost-free period, increase to length of growing period, increase in mean annual rainfall, decrease in mean annual snowfall, and increase in frequency and intensity of extreme weather events.

In a warmer climate, more frequent extreme weather events (droughts, floods, wind storms, etc.) will have an impact on the SNC Forest. Impacts on the forest may include stress on the vegetation,

wildlife and other factors affecting growth, health, and altered relationships between native tree species; greater competition from invasive species and probable increased disease and pest issues. The single biggest loss during the last 20-year management period was the 1998 ice storm in which 52.5 hectares of forest were lost over 16 forest compartments. Next was the loss to Dutch Elm Disease, Emerald ash borer and other diseases.

6 FOREST MANAGEMENT HISTORY

6.1 HISTORY OF THE SOUTH NATION FOREST

Prior to European settlement, the South Nation watershed was covered almost entirely by forest. Although both Algonquin and Iroquois First Nations occupied portions of the watershed, their impact on the forests were generally minimal and the forest developed primarily in response to site conditions and natural disturbances. Eastern Ontario has been heavily disturbed since settlement and there are few, if any, remnants of forest that could be described as a pre-settlement forest condition.

Prior to settlement and logging the Crown generally ordered surveys of townships. Most of the South Nation watershed was surveyed in the late 1700's and, as such, the notes that surveyors were required to document their observations provide the best glimpse of the forests that covered the watershed prior to being altered by logging and settlement. These notes suggest that upland sites were dominated by sugar maple, beech, elm and basswood or white pine, spruce and hemlock. Lowland sites were dominated by cedar, tamarack, elm and ash. Other common but less abundant species included balsam fir, yellow and white birch, poplar, ironwood, soft maple, white oak, willow and red pine. The surveyors' notes document significant diversity in species combinations within the townships they surveyed. (EOMF. 1993)

6.2 ORIGINS OF THE SOUTH NATION FOREST

Forest history in the South Nation River watershed is relatively recent compared to forest related activities in Europe. As little as 160 years ago, one could find vast stretches of forests producing over 50 species. Prior to 1830's, logging was only found on small scale operations. Farmers would clear enough land for crops and sell their timber to dealers who would raft it to Quebec. By the 1850's a major producing area for square timber was established in Chesterville. Up and into the 1860's, squared timber was cut in the Scotch River Basin and floated down the South Nation River to the Ottawa River, down the St. Lawrence and on to Quebec City. The Bearbrook and Castor rivers were other streams used to drive timber. The later decades of the 19th century saw the value of lumber peak in the United Counties of Prescott and Russell and the United Counties of Stormont, Dundas and Glengarry. The early years of the 20th century showed a steady decline in logging operations as the forests were depleted of valuable timber and the industry moved up the Ottawa Valley.

Following the timber era, land was cleared for agriculture. This, combined with large fires, reduced significant portions of the watershed to desert like conditions. In the 1920's, in recognition of the connection between the loss in forest cover and water quality and quantity as well as wind and water erosion, the Department of Lands and Forests (now the Ontario Ministry of Natural Resources and Forestry) initiated the Agreement Forest Program. Under this program upper and lower tier municipalities and conservation authorities acquired degraded properties from private landowners and these lands were managed by the Department of Lands and Forests. The South

Nation River Conservation Authority was formed in 1947 and the South Nation Basin Study prepared in 1948 recommended that the Conservation Authority become involved in reforestation and the creation of an Authority forest. In 1961, South Nation Conservation entered into the Agreement Forest Program with the provincial government. Under this program, South Nation Conservation began to increase its forest holdings. South Nation Conservation has acquired land for a variety of purposes including reforestation, wetland protection, wildlife habitat and works of the authority. The Authority continues to add property to the South Nation Forest through various mechanisms and funding sources.

6.3 Management of the South Nation Forest

Most of the properties that were acquired were abandoned farm land, the primary focus of early management of the SNC Forest was primarily tree planting and tending of those plantations. Due to the stage of development of the Forest, minimal management was performed elsewhere until 1997, when SNC began to take a more active role in managing its forest resources under the guidance of OMNR. At this point revenue began to be generated from the Forest.

In 1999, a change in provincial government priorities resulted in the end of the Agreement Forest Program and OMNR returned the full responsibility of forest management to SNC in 2000. In return for releasing OMNR from its responsibilities for management of the Forest, the OMNR forgave the accumulated debt incurred to date in land acquisition and management of the Forest provided the properties continue to be managed in accordance with the Provincial interest and in accordance with the Forestry Act.

When SNC took over full control of forest management, it seized the opportunity to tailor the management strategy to suit SNC's mandate. The South Nation Forest forms part of a network of publicly-owned lands providing outdoor recreational opportunities for the people of eastern Ontario. Sustainable timber supplies for the local economy, protection and conservation of environmentally sensitive lands and extensive wildlife habitat and animal migration corridors are included among the benefits. SNC has recognized that a landscape level, ecosystem-based approach was the best method to balance the social, environmental and economic values of the Forest.

7 CURRENT FOREST CONDITION

7.1 Landscape Level Significance

A site region is comprised of landform-vegetation associations specific to the climate and physiography of the region. The South Nation Forest is located within the Great Lakes – St. Lawrence Forest Region and lies within the Mixed-wood Plains Ecozone, more specifically within site region 6E-12 (Crins et. al. 2009). Site Region 6E-12 is the second most densely populated ecozone in Ontario which results in a highly fragmented and disturbed forest. Ecological communities found within the SNC Forest contribute to maintaining the diversity and integrity of ecosystems at a regional level.

A landscape analysis (Davis. 2006) was completed to identify landform-vegetation associations within the SNC Forest that contribute to ecodistrict minimum representation thresholds. Within each ecodistrict, the minimum representation threshold is at least 1% or 50 hectares of each landform-vegetation association. Landform-vegetation associations with less protection than this minimum is identified as gaps in representation. Table 10 summarizes critical Site Region 6E-12

Table 10
South Nation Forest
Summary of Site Region 6E-12 Critical Landform-Vegetation Elements

LV Code	Landform	Vegetation	Area (hectares)				
			South Nation Forest		Eco-Region 6E-12		
			Total	Protected[1]	Total	Protected[2]	Requirement
16-135	Glaciomarine Deposits (Coarse)	Thicket Swamp	21.518	21.447	2,351.02	71.06	50.00
16-160	Glaciomarine Deposits (Coarse)	Marsh	23.035	12.944	1,379.30	25.90	50.00
16-90	Glaciomarine Deposits (Coarse)	Forest	19.745	4.490	1,062.58	21.96	50.00
17-131	Glaciomarine Deposits (Fine)	Treed Swamp	10.551	0.304	8,081.30	21.82	80.81
17-135	Glaciomarine Deposits (Fine)	Thicket Swamp	0.286	0.286	635.80	1.12	50.00
17-160	Glaciomarine Deposits (Fine)	Marsh	0.202	0.113	826.85	10.84	50.00
17-90	Glaciomarine Deposits (Fine)	Forest	1.008	-	625.07	1.28	50.00
17-92	Glaciomarine Deposits (Fine)	Mixed Forest	3.106	0.290	2,896.58	8.10	50.00
17-93	Glaciomarine Deposits (Fine)	Deciduous Forest	15.168	-	7,327.44	31.61	73.27
18-135	Alluvial & Fluvial Deposits	Thicket Swamp	3.595	2.498	257.00	3.80	50.00
18-160	Alluvial & Fluvial Deposits	Marsh	7.405	6.404	482.76	8.68	50.00
18-90	Alluvial & Fluvial Deposits	Forest	1.927	-	113.60	2.12	50.00
18-91	Alluvial & Fluvial Deposits	Coniferous Forest	0.281	-	135.34	6.62	50.00
18-92	Alluvial & Fluvial Deposits	Mixed Forest	17.266	5.402	727.47	21.98	50.00
18-93	Alluvial & Fluvial Deposits	Deciduous Forest	29.888	29.888	2,509.81	69.91	50.00
19-160	Organic Deposits	Marsh	21.786	20.816	2,793.40	41.94	50.00
19-90	Organic Deposits	Forest	2.706	0.752	216.00	4.61	50.00
19-91	Organic Deposits	Coniferous Forest	0.180	-	232.76	8.21	50.00
19-92	Organic Deposits	Mixed Forest	5.690	1.997	716.67	20.66	50.00
19-93	Organic Deposits	Deciduous Forest	2.761	0.916	797.22	17.77	50.00
20-131	Eolian Sand Dunes	Treed Swamp	0.982	-	606.64	0.99	50.00
20-92	Eolian Sand Dunes	Mixed Forest	0.231	-	443.77	0.27	50.00
20-93	Eolian Sand Dunes	Deciduous Forest	10.277	-	316.53	10.42	50.00
2-131	Mesozoic to Paleozoic Bedrock	Treed Swamp	13.737	10.734	3,496.61	14.49	50.00
2-135	Mesozoic to Paleozoic Bedrock	Thicket Swamp	0.654	0.654	166.50	0.74	50.00
2-160	Mesozoic to Paleozoic Bedrock	Marsh	0.135	0.135	124.34	0.90	50.00
2-91	Mesozoic to Paleozoic Bedrock	Coniferous Forest	9.713	-	1,771.54	14.24	50.00
2-92	Mesozoic to Paleozoic Bedrock	Mixed Forest	4.478	-	2,996.14	6.19	50.00
2-93	Mesozoic to Paleozoic Bedrock	Deciduous Forest	14.900	.015	3,279.17	12.44	50.00
5-131	Colluvium	Treed Swamp	0.158	0.158	669.46	0.86	50.00
5-90	Colluvium	Forest	0.405	-	90.47	1.12	50.00
5-92	Colluvium	Mixed Forest	0.909	-	297.40	2.34	50.00
5-93	Colluvium	Deciduous Forest	6.948	-	1,521.79	16.83	50.00
7-135	Fine Ground Moraine	Thicket Swamp	6.544	5.012	1,666.55	22.30	50.00
7-90	Fine Ground Moraine	Forest	4.923	1.289	1,345.03	15.50	50.00
7-91	Fine Ground Moraine	Coniferous Forest	13.310	2.367	3,074.13	43.88	50.00

[1] Protected status through registered conservation easement, unregistered conservation easement or voluntary third-party assistance program. Not included in Eco-Region total.
[2] Includes only those areas regulated or zoned specifically for natural heritage protection (e.g. Provincial Parks, National Parks, Conservation Reserves, etc.)

landform-vegetation associations and the area of these ecosystems occurring within the South Nation Forest. The current area of each landform-vegetation association within Site Region 6E-12 protected through regulation or zoning specifically for natural heritage and the regional requirement is provided.

The SNC Forest includes 36 landform-vegetation associations considered critical within Site Region 6E-12. The available land area within all landform-vegetation associations far exceeds any contribution from the SNC Forest. However, nearly half of the 276.4 hectares of landform-vegetation associations within the SNC Forest are protected by registered or unregistered conservation easements and third-party assistance programs.

The ecosystem gap analysis results were incorporated into the SNC GIS to establish compartment level relationships. Forest managers can make forest management decisions and evaluate the effect on landscape-level ecosystem representation. The detailed ecosystem gap analysis is provided in Appendix C.

7.2 Ecological Communities

The South Nation Forest contains 51 ecological communities. An ecological community or biocenosis is a group or association of different organisms that form a closely integrated community. The Ecological Land Classification (ELC) for Southern Ontario (Lee et. al. 1998) has been used to classify the SNC Forest in terms of its ecological communities. Table 11 provides a list of forested ecological communities within the SNC Forest and their associated area.

In the context of the forest management plan, these communities refer to recurring patterns of plant species identified by the dominant plant species. The ecological communities have been grouped into three natural forest types: coniferous, deciduous and mixed forest types. Plantation forests have been group separately.

Mixed and deciduous forest types occupy the majority of the SNC Forest area. There are 13 mixed forest types and 26 deciduous forest types, which account for 547.7 hectares 5,200.8 hectares, respectively.

There are six coniferous forest types occurring in the South Nation Forest.

There are 26 deciduous forest types account for more than half the forest area.

There are 13 mixed forest types.

Plantations account for nearly one third of the SNC Forest or 1,164.40 hectares. Established during the 1960’s and 1970’s, these conifer plantations have been the major focus of forest management during the last management period.

Based on current inventories, the SNC Forest does not contain any of the 13 rarest forest types listed for southern Ontario (OMNR.2000). However, ecological communities found within the SNC Forest contribute to maintaining the diversity and integrity of ecosystems at a regional level.

Table 11
South Nation Forest
Ecological Communities (Forests)

ELC Code	Ecological Community	Area (acres)	Area (hectares)
Plantations			
CUP3-1	Red Pine Coniferous Plantation Type	576.4	233.27
CUP3-2	White Pine Coniferous Plantation Type	372.3	150.67
CUP3-3	Scotch Pine Coniferous Plantation Type	18.3	7.41
CUP3-4	Jack Pine Coniferous Plantation Type	43.8	17.73
CUP3-5	Tamarack-European Larch Coniferous Plantation Type	151.9	61.47
CUP3-8	White Spruce Coniferous Plantation Type	1,714.5	693.86
Sub-Total		**2,877.2**	**1,164.40**
Coniferous Forest Types			
SWC1-2	White Cedar – Conifer Mineral Coniferous Swamp Type	19.7	8.0
SWC3-2	White Cedar – Conifer Organic Coniferous Swamp Type	15.6	6.3
FOC2-2	Dry – Fresh White Cedar Coniferous Forest Type	3.2	1.3
FOC3-1	Fresh – Moist Hemlock Coniferous Forest Type	11.4	4.6
FOC4-1	Fresh – Moist White Cedar Coniferous Forest Type	242.8	98.3
FOC4-3	Fresh–Moist White Cedar–Balsam Fir Coniferous Forest Type	49.6	20.1
Sub-Total		**342.3**	**135.5**
Deciduous Forest Types			
SWD2-1	Black Ash Mineral Deciduous Swamp Type	67.6	27.4
SWD3-1	Red Maple Mineral Deciduous Swamp Type	175.4	71.0
SWD3-2	Silver Maple Mineral Deciduous Swamp Type	76.7	31.0
SWD4-1	Willow Mineral Deciduous Swamp Type	0.5	.2
SWD6-1	Red Maple Deciduous Swamp Type	186.3	75.4
SWD7-1	White Birch – Poplar Organic Swamp Type	79.0	32.0
SWD7-2	Yellow Birch Organic Swamp Type	53.6	21.7
FOD3-1	Dry – Fresh Poplar Deciduous Forest Type	1029.1	416.5
FOD3-2	Dry – Fresh White Birch Deciduous Forest Type	330.2	133.6
FOD4-2	Dry – Fresh White Ash Deciduous Forest Type	34.6	14.0
FOD5-1	Dry – Fresh Sugar Maple Deciduous Forest Type	33.6	13.6
FOD5-2	Dry – Fresh Sugar Maple – Beech Deciduous Forest Type	3.6	1.5
FOD5-3	Dry – Fresh Sugar Maple – Oak Deciduous Forest Type	7.0	2.8
FOD5-4	Dry – Fresh Sugar Maple – Ironwood Deciduous Forest Type	5.2	2.1
FOD5-6	Dry – Fresh Sugar Maple – Basswood Deciduous Forest Type	35.0	14.2
FOD5-7	Dry – Fresh Sugar Maple – Black Cherry Deciduous Forest Type	13.5	5.5
FOD5-8	Dry – Fresh Sugar Maple – White Ash Deciduous Forest Type	44.0	17.8
FOD5-9	Dry – Fresh Sugar Maple – Red Maple Deciduous Forest Type	188.2	76.2
FOD6-1	Fresh – Moist Sugar Maple -Lowland Ash Deciduous Forest Type	295.1	119.4
FOD6-4	Fresh – Moist Sugar Maple – White Elm Deciduous Forest Type	20.8	8.4
FOD6-5	Fresh – Moist Sugar Maple – Hardwood Deciduous Forest Type	1600.7	647.8
FOD6-6		36.8	14.9
FOD7-1	Fresh – Moist White Elm Lowland Deciduous Forest Type	18.4	7.4
FOD7-2	Fresh – Moist Ash Lowland Deciduous Forest Type	219.2	88.7
FOD8-1	Fresh – Moist Poplar Deciduous Forest Type	556.1	225.0
FOD8-2		90.6	36.7
Sub-Total		**5,200.8**	**2,104.7**
SWM1-1	White Cedar – Hardwood Mineral Mixed Swamp Type	3.4	1.4
SWM2-1	Red Maple – Conifer Mineral Mixed Swamp Type	76.8	31.1
SWM5-1	Red Maple – Conifer Organic Mixed Swamp Type	20.9	8.5
FOM3-1	Dry – Fresh Hardwood – Hemlock Mixed Forest Type	64.2	26.0
FOM3-2	Dry – Fresh Sugar Maple – Hemlock Mixed Forest Type	16.8	6.8
FOM4-1	Dry – Fresh White Cedar – White Birch Mixed Forest Type	22.7	9.2
FOM4-2	Dry – Fresh White Cedar – Poplar Mixed Forest Type	18.4	7.4
FOM5-2	Dry – Fresh Poplar Mixed Forest Type	33.9	13.7
FOM6-1	Fresh – Moist Sugar Maple – Hemlock Mixed Forest Type	14.8	6.0
FOM6-2	Fresh – Moist Hemlock – Hardwood Mixed Forest Type	8.5	3.4
FOM7-2	Fresh – Moist White Cedar – Hardwood Mixed Forest Type	170.3	68.9
FOM8-1	Fresh – Moist Poplar Mixed Forest Type	24.9	10.1
FOM8-2	Fresh – Moist White Birch Mixed Forest Type	72.1	29.2
Sub-Total		**547.7**	**221.6**
Total		**8,968.0**	**3,625.8**

7.3 Old Growth

Old growth ecosystems are characterized by the presence of old trees and their associated plants, animals and ecological processes. They show little or no evidence of human disturbance (Uhlig et. al. 2001).

Many criteria can be used as indicators of old growth conditions. These may include:

- Large old trees for species and site;
- Complex stand structure characterized by wide variation in tree size and spacing, with multiple canopy layers and canopy gaps;
- Large dead standing and accumulations of downed woody debris, pits and mounds,
- Specific composition of the forest community described through the occurrence or changing abundance of certain associated species (e.g. herbaceous plants, lichens and other bryophytes or wildlife species)
- Few or no signs of human disturbance
- Net growth equal to or less than zero,
- Age of dominant species exceeding average natural disturbance interval for ecosystem; and
- Forest system near or in late succession or “climax” stage.

In Ontario, a practical approach was developed to determine old growth forest based on measurable forest stand (ecosystem) characteristics by ecosite and forest region. These measures are age-of-onset and forest duration. Age-of-onset refers to the minimum age at which a forest stand begins to be dominated by trees approaching their maximum sizes and ages. Duration refers to an estimate of the persistence (in years) from the age-of-onset and the age at which dominant species occupy. Old growth age-of-onset and forest duration definitions for ecosites within Site Region 6E-12 are provided in Table 12.

Derived from current inventory of the SNC Forest, Table 13 shows age-class distribution by forest type. A very small proportion of the South Nation Forest has attained age-of-onset for old growth. The Fresh-Moist Hemlock Forest Type and Fresh-Moist Cedar-Balsam Fir Forest Type have the only area that has attained old growth age-of-onset.

During the current management period additional forest area will enter an age-of-onset condition.

Table 12
Old Growth Age-of-Onset and Forest Duration for Site Region 6E-12[4]

Ecosites	General Species Association	Common Soil and Site Description	Associated Vegetation and Stand Structure Characteristics	Old Growth Age-of-Onset (yrs)	Old Growth Stand Duration (yrs)
FOC1	White Pine Red Pine Jack Pine	Dry to fresh, shallow over bedrock, sandy to coarse loamy soils	Conifer dominated, with oak species; Ce, Bw, He, Bf, and Ms may occur; shrubs include blueberries, juniper, serviceberries and sweet fern.	Pw - 120	Pw – 450+
FOC2	White Cedar Red Cedar	Dry to fresh, shallow over bedrock, sand to coarse loamy soils	Conifer dominated, with oak and pine species; Iw and Hi may occur; shrubs include blueberries, bush honeysuckle and service berries; may be second growth on old farm fields	Ce – 110	Ce – 1,000+
FOC3 FOC4	White Cedar Hemlock	Fresh to moist, sandy to fine loamy soils	Conifer dominated; Pw, Bf and some hardwoods may occur.	Ce – 110 He – 140	Ce – 1.000+ He – 600+
FOM1 FOM2 FOD1	Oak-Pine Oak-Hardwood	Dry to fresh, shallow over bedrock, sandy to coarse loamy soils	Oak-pine mixedwoods; Mh, Ms, Bd, Aw, and Iw may occur (FOM1,2)	Or – 120 Ow – 120	Or – 200+ Ow – 200+
FOD4 to 6	Tolerant Hardwoods Mid-Tolerant Hardwoods	Dry to moist, wide range of soil textures	Hardwood dominated, with any of Mh, Be, Iw, Bd, Ash, Oaks, Hi, Hackberry.	Mh – 120 Be – 120 Bd - 120	Mh – 200+ Be – 300+ Bd – 200+
FOM3 to 7	Tolerant Hardwood -Conifer Mixedwood	Dry to moist, wide range of soil textures	Mixedwoods with an of Mh, Ms, He, Or, Ce, Po, Bw and By.	Mh – 120 He - 140	Mh – 200+ He – 600+
FOM7-9	Lowland Transitional Deciduous	Fresh to moist, sandy to clayey soils, often adjacent to riparian zones	Hardwood dominated, with Ew, Bd, Black Walnut, Ash, Po, Willows, Black Maple	Ash - 120	Ash – 200+
SWD1-7 SWM1-6	Lowland Hardwoods and Mixedwoods (forested wetlands)	Moist mineral, peaty phase to wet organic soils	Hardwood dominated ecosites with Msilver, Ab, Ag, Black Willow, Hackberry Swamp White oak, Bur Oak, Swamp Maple, Ew, By, Poplars; Mixedwoods with Ce and hardwwods (rish in hervs and ferns).	Obur – 120 Msilver – 120 Ash – 120	
BOT1 FET1 SWC1-4	Lowland Conifers (forested werlands)	Moist mineral, peaty phase to wet organic soils	Conifer dominated wetlands, with Sb, L, Ce, Other conifers; includes treed bogs (Sphagnum), fens (brown moss) or swamps (may be herb, fern and shrub rich).	Insufficient data	Insufficient data

[4] Adapted from Old Growth Forest Definitions for Ontario. OMNR. 2001

Table 13
South Nation Forest
Distribution of Forest Vegetation Types by Age Class

Ecosite Code	Forest Type Code	Forest Type	Age Class (Years) Distribution by Area (Ha.)						
			0-20	20-40	40-60	60-80	80-100	100-120	120+
FOC1	None								
FOC2	FOC2-2	Dry – Fresh White Cedar Coniferous Forest		3.6	4.2				
FOC3	FOC3-1	Fresh – Moist Hemlock Coniferous Forest			3.8		7.5	**14.8**	
FOC4	FOC4-1	Fresh – Moist White Cedar Coniferous Forest		4.4	29.3	137.1	66.6		
	FOC4-3	Fresh–Moist White Cedar–Balsam Fir Coniferous Forest			7.3	14.1	21.7	**8.7**	
FOD3	FOD3-1			17.3	407.3	517.7	13.9		
	FOD3-2			12.6	217.7	99.1			
FOD4	FOD4-2	Dry – Fresh White Ash Deciduous Forest		18.5				16.2	
	FOD4-7						29.6	99.9	
FOD5	FOD5-1	Dry – Fresh Sugar Maple Deciduous Forest			28.2	5.2			
	FOD5-2	Dry – Fresh Sugar Maple – Beech Deciduous		3.6					
	FOD5-3	Dry – Fresh Sugar Maple – Oak Deciduous Forest				7.0			
	FOD5-4	Dry – Fresh Sugar Maple – Ironwood Deciduous Forest			5.2				
	FOD5-6	Dry – Fresh Sugar Maple – Basswood Deciduous Forest			17.0	17.2			
	FOD5-7	Dry – Fresh Sugar Maple – Black Cherry Deciduous Forest	0.5		13.0				
	FOD5-8	Dry – Fresh Sugar Maple – White Ash Deciduous Forest			12.8	30.0	1.2		
	FOD5-9	Dry – Fresh Sugar Maple – Red Maple Deciduous Forest			86.4	101.9		3.1	
	FOD5-10						29.6	96.8	
FOD6	FOD6-1	Fresh – Moist Sugar Maple -Lowland Ash Deciduous Forest							
	FOD6-4	Fresh – Moist Sugar Maple – White Elm Deciduous Forest							
	FOD6-5	Fresh – Moist Sugar Maple – Hardwood Deciduous Forest			592.6	889.3	136.6		
	FOD6-6								
FOM3	FOM3-1	Dry – Fresh Hardwood – Hemlock Mixed Forest							
	FOM3-2	Dry – Fresh Sugar Maple – Hemlock Mixed Forest						15.8	
FOM4	FOM4-1	Dry – Fresh White Cedar – White Birch Mixed Forest			12.1		10.6		
	FOM4-2	Dry – Fresh White Cedar – Poplar Mixed Forest							
FOM5	FOM5-2	Dry – Fresh Poplar Mixed Forest			23.4				
FOM6	FOM6-1	Fresh – Moist Sugar Maple – Hemlock Mixed Forest							
	FOM6-2	Fresh – Moist Hemlock – Hardwood Mixed Forest			8.0				
FOM7	FOM7-2	Fresh – Moist White Cedar – Hardwood Mixed Forest							
FOM8	FOM8-1	Fresh – Moist Poplar Mixed Forest							
	FOM8-2	Fresh – Moist White Birch Mixed Forest							

7.4 Forest Interior Habitat

Forests in southern Ontario have become increasingly broken and fragmented which affects the quality of habitat available for forest-dependent wildlife species. The term 'forest interior' refers to habitat that is deep within a forest, at least 100 metres from the forest edge and away from the influence of environmental changes. The forest interior is buffered against extreme weather, outside disturbances and predators. Forest edges are more susceptible to drying winds, warmer temperatures, invasive plants, and disturbances outside the forest. There is usually a higher density of predators in forest edge areas.

The SNC Forest accounts for 1,283.7 hectares of the total interior forest within the SNC jurisdiction.

7.5 Core Interior Forest

Core forests are large contiguous unbroken blocks of woodlands. The South Nation Forest, with other community forests (Larose, SDG, and Leeds-Grenville) account for the largest contiguous interior forest areas within the SNC jurisdiction. There are 64 SNC Forest compartments that contribute to core interior forest areas greater than 200 hectares.

Forests with greater than 250 acres of forest interior habitat are considered to provide habitat for forest-dependent wildlife. However, those forests with more than 500 acres of forest interior habitat are the most valuable. These forests are healthier, contain greater biodiversity and support larger and more stable populations of wildlife species.

7.6 Forest Units

For strategic planning purposes the forest is divided into working groups or forest units with similar biological characteristics. Forest units are a key piece of information that foresters use to make both landscape and site level management decisions and are a basic planning unit of forest inventories. These biological characteristics influence the silvicultural techniques the forest manager can use to achieve specific management objectives (i.e. timber production).

Silvicultural systems are designed to emulate the natural disturbance regimes to which the varied forest types have become adapted. Single-tree and group selection emulate mortality of single trees or groups of trees that would normally succumb to age, wind, insects or disease. Shelterwood systems emulate ground fires that clear the understory and cause partial mortality of the overstory, allowing a new, relatively even-aged stand to develop ultimately replacing the original. Clearcutting emulates the larger scale, stand replacing disturbances such as severe wind storms and intense forest fires. Each system has variations to address specific site characteristics and the composition of the tree species involved. More details on silvicultural systems and how they are applied can be found in the OMNR silvicultural guides.(Ontario.

Forest units within the South Nation Forest, both productive and protected forest areas, are shown in Table 14.

Table 14
South Nation Forest by Forest Unit

Forest Unit	Total Forest		Protected		Productive	
	Area (acres)	Area (hectares)	Area (acres)	Area (hectares)	Area (acres)	Area (hectares)
Red Pine	584.6	236.6	9.4	3.8	575.2	232.8
White Pine	309.5	125.3	6.2	2.5	303.3	122.7
White Spruce	1,723.3	697.4	42.2	17.1	1,681.1	680.3
White Cedar	519.0	210.0	80.9	32.7	438.1	177.3
Eastern Hemlock	9.9	4.0	0.0	0.0	9.9	4.0
Other Conifer	293.5	118.8	58.5	23.7	235.0	95.1
Sub-Total	**3,439.8**	**1,392.0**	**197.2**	**79.8**	**3,242.6**	**1,312.2**
Tolerant Hardwoods	377.7	152.8	76.1	30.8	301.6	122.1
Lowland Hardwoods	3,083.0	1,247.6	753.1	304.8	2,329.9	942.9
Intolerant Hardwoods	2,583.9	1,045.7	430.0	174.0	2,153.9	871.7
Sub-Total	**6,044.6**	**2,446.1**	**1,259.2**	**509.6**	**4,785.4**	**1,936.7**
Non-Productive Areas	58.3	23.6	-	-	-	-
Wetlands	83.2		83.2		-	-
Non-Forest Areas	1034.4	418.6	-	-	-	-
Sub-Total	**1,175.9**	**442.2**	**83.2**	**0.0**	**0.0**	**0.0**
Total	**10,660.3**	**4,280.3**	**1,539.6**	**589.4**	**8,028.0**	**3,248.9**

7.7 List of Species

The range of parent material and soils provides for a rich biologically diverse forest. More than 792 species of plants and animals have been documented to inhabit 51 distinct ecological communities and numerous watercourses within the SNC Forest.

Observations were compiled from natural heritage inventories Ecological Land Classification (ELC) methodology was the standard used for plant inventories associated with several First Nation related projects: The Black Ash Project (SNC. 2006); The Medicinal Plant Project (SNC.2008); and The Culturally Significant Species Project (SNC. 2003).

Appendix A provides a list of plant species that have been observed within the South Nation Forest. A list of observed wildlife species is provided in Appendix B.

8 NATURAL AND CULTURAL HERITAGE VALUES

The purpose of this section of the forest management plan is to identify natural and cultural values so they can be maintained or enhanced during management of the forest and provide the basis for identification of candidate sites for SNC's Legacy Forest Program. The Legacy Forest Program was developed to communicate the ecological importance of forest and publicly identify the oldest forest in the absence of any heritage forests.

Forest values considered outstanding and critically important because of their high environmental, biodiversity, or landscape values are termed High Conservation Values (HCV). FSC defines six categories of HCV. They include:

Category 1: Forest areas containing globally, regionally or nationally significant concentrations of biodiversity values.

Category 2: Forest areas containing globally, regionally or nationally significant large landscape level forests, contained within, or containing the management unit, where viable populations of most if not all naturally occurring species exist in natural patterns of distribution and abundance.

Category 3: Forest areas that are in or contain rare, threatened or endangered ecosystems.

Category 4: Forest areas that provide basic services of nature in critical situations (e.g. watershed protection, erosion control).

Category 5: Forest areas fundamental to meeting basic needs of local communities (e.g. subsistence, health).

Category 6: Forest areas critical to local communities' traditional cultural identity (areas of cultural, ecological, economic or religious significance identified in cooperation with such local communities).

During forest management planning, silvicultural prescriptions shall include identification of areas of concern within the areas of forest operations. An Area of Concern (AOC) is an area adjacent to an identified value that may be affected by some (or all) aspects of forest management activity (OMNR. 2000). High Conservation Values are updated annually and published in the five-year forest operating plans.

8.1 Wetlands

8.1.1 Provincially Significant Wetlands

Provincially Significant Wetlands (PSW) are areas identified by the Province of Ontario under a science-based ranking system known as the Ontario Wetland Evaluation System (OWES). The OWES provides a standardized framework to assess wetland functions and societal values. Wetlands are evaluated relative to one another. The highest-ranking wetlands are provincially significant. Provincially significant wetlands are identified and protected under this plan and shown in Table 15.

TABLE 15
South Nation Forest
Summary of Provincially Significant Wetlands (PSW)

Total PSW in SNC Jurisdiction (ha.)	21,554.2
Total PSW in SNC Forest (ha.)	561.0
Percentage	2.6 %

Provincially Significant Wetlands by Forest Compartment

Morewood Bog	
Total Area of PSW (ha.)	554.0
Total Area of PSW in Forest Compartment(s) (ha.)	40.1
Percentage of PSW in Forest Compartment(s) (%)	7.2
Forest Compartment	**Area (ha.)**
26	40.1

Wolf Creek Swamp	
Total Area of PSW (ha.)	128.6
Total Area of PSW in Forest Compartment(s) (ha.)	39.3
Percentage of PSW in Forest Compartment(s) (%)	30.6
Forest Compartment	**Area (ha.)**
28	39.3

Pendleton Swamp	
Total Area of PSW (ha.)	214.6
Total Area of PSW in Forest Compartment(s) (ha.)	52.3
Percentage of PSW in Forest Compartment(s) (%)	24.4
Forest Compartment	**Area (ha.)**
38	2.3
39	13.5
63	26.9
152	9.6

Hoasic Creek Wetland	
Total Area of PSW (ha.)	3,970.1
Total Area of PSW in Forest Compartment(s) (ha.)	43.8
Percentage of PSW in Forest Compartment(s) (%)	1.1
Forest Compartment	**Area (ha.)**
47	0.0
104	38.9
147	4.9

Hammond Swamp	
Total Area of PSW (ha.)	277.8
Total Area of PSW in Forest Compartment(s) (ha.)	55.1
Percentage of PSW in Forest Compartment(s) (%)	19.8
Forest Compartment	**Area (ha.)**
58	5.8
59	33.8
60	8.4
105	7.1

Winchester Swamp	
Total Area of PSW (ha.)	2,268.1
Total Area of PSW in Forest Compartment(s) (ha.)	167.2
Percentage of PSW in Forest Compartment(s) (%)	7.3
Forest Compartment	**Area (ha.)**
89	40.5
90	38.6
91	39.8
92	40.5

Alfred Bog	
Total Area of PSW (ha.)	1,715.8
Total Area of PSW in Forest Compartment(s) (ha.)	60.2
Percentage of PSW in Forest Compartment(s) (%)	3.5
Forest Compartment	**Area (ha.)**
122	40.2
146	20.0

Newington Bog	
Total Area of PSW (ha.)	564.0
Total Area of PSW in Forest Compartment(s) (ha.)	37.2
Percentage of PSW in Forest Compartment(s) (%)	6.6
Forest Compartment	**Area (ha.)**
98	17.7
99	19.5

Leitrim Wetland	
Total Area of PSW (ha.)	245.7
Total Area of PSW in Forest Compartment(s) (ha.)	40.2
Percentage of PSW in Forest Compartment(s) (%)	16.4
Forest Compartment	**Area (ha.)**
119	40.2

West Osgoode Wetland	
Total Area of PSW (ha.)	33.6
Total Area of PSW in Forest Compartment(s) (ha.)	21.1
Percentage of PSW in Forest Compartment(s) (%)	62.8
Forest Compartment	**Area (ha.)**
155	21.1

South Nation River Wetland	
Total Area of PSW (ha.)	341.6
Total Area of PSW in Forest Compartment(s) (ha.)	4.5
Percentage of PSW in Forest Compartment(s) (%)	1.3
Forest Compartment	**Area (ha.)**
159	4.5

8.1.2 Locally Significant Wetlands

Using the science-based ranking process of the OWES, wetlands that do not meet Provincial significance requirements are deemed “Evaluated-Other” under the OWES. Shown in Table 16, municipalities and local planning authorities may consider these wetlands as locally significant.

Table 16
South Nation Forest
Summary of Locally Significant Wetlands (Lsw)

Total LSW in SNC Jurisdiction (ha.)	3,945.7
Total LSW in SNC Forest (ha.)	77.7
Percentage (%)	2.0

Locally Significant Wetlands by Forest Compartment

Baltic Corner Swamp (Class 6)	
Total Area of LSW (ha.)	161.4
Total Area of LSW in Forest Compartment(s) (ha.)	19.9
Percentage of LSW in Forest Compartment(s) (%)	12.3
Forest Compartment	**Area (ha.)**
29	19.9

Dickenson Creek Swamp (Class 6)	
Total Area of LSW (ha.)	316.5
Total Area of LSW in Forest Compartment(s) (ha.)	14.5
Percentage of LSW in Forest Compartment(s) (ha.)	4.6
Forest Compartment	**Area (ha.)**
69	0.5
70	6.3
71	0.7
73	7.0

Riceville Swamp (Class 5)	
Total Area of LSW (ha.)	41.4
Total Area of LSW in Forest Compartment(s) (ha.)	23.1
Percentage of LSW in Forest Compartment(s) (%)	55.8
Forest Compartment	**Area (ha.)**
76	19.9
78	3.2

Crown 29 Swamp (Class 7)	
Total Area of LSW (ha.)	64.7
Total Area of LSW in Forest Compartment(s) (ha.)	20.2
Percentage of LSW in Forest Compartment(s) (%)	31.2
Forest Compartment	**Area (ha.)**
80	10.6
81	9.6

8.2 AREAS OF NATURAL AND SCIENTIFIC INTEREST

Under the *Planning Act*, the Ontario Ministry of Natural Resources and Forestry may designate areas of land and water containing natural landscapes or features having life science or earth science values for protection. Table 17 shows designated and candidate ANSIs within the South Nation Forest and the relative contribution to the landscape within the SNC jurisdiction. The SNC Forest contains portions of eight ANSIs. The total area of ANSIs within the SNC Forest is 396.3 hectares representing 1.8% of the total area of ANSIs within the SNC jurisdiction.

Table 17
South Nation Forest
Summary of Areas of Natural & Scientific Interest (ANSI)

Total ANSIs in SNC Jurisdiction	21,930.3 hectares
Total ANSIs in SNC Forest	396.3 hectares
Percentage	1.8%

ANSI by Forest Compartment

Forest Compartment	Name	Significance	Area (ha.)
104	Hoasic Creek Forest	Provincial	68.7
122	Alfred Bog	Provincial	40.5
146	Alfred Bog	Provincial	20.2

CANDIDATE ANSI BY FOREST COMPARTMENT

Forest Compartment	Name	Significance	Area (ha.)
28	Larose Wetland	Regional	32.8
89	Winchester Bog	Regional	40.5
90	Winchester Bog	Regional	38.6
91	Winchester Bog	Regional	39.8
92	Winchester Bog	Regional	45.3
98	Newington Bog	Regional	17.3
106	Hallville Forest	Regional	3.9
119	Albion Road Wetland	Provincial	43.7
147	Hoasic Creek Wetland	Regional	5.0

8.3 WILDLIFE

8.3.1 Species

The SNC Forest provides habitat for a wide variety of animals. Wildlife observations are compiled from annual trapping reports, surveys and birding observations. Observations have included pre-harvest and post-harvest monitoring under the National Forest Bird Monitoring Network to assess impacts on bird populations.

8.3.2 Habitat

8.3.2.1 Deer

In winter deer move to traditional ranges known as “deer yards” where confers such as hemlock, cedar, pine and spruce provide shelter from deep accumulation of snow and cold winter temperatures. The deer create a network of trails leading from the protection of the deer yards to areas of adjacent food sources. Deer yards enable deer to survive harsh winter conditions.

The SNC Forest includes 325.1 hectares of known deer yards or 3.6% of the regional total. Table 18 shows the distribution of deer yards by SNC Forest compartment.

Table 18
Deer Yards

Summary of Deer Yards

Total Deer Yard Area in SNC Jurisdiction	8,922.4 hectares
Total Deer Yard Area in SNC Forest	325.1 hectares
Percentage	3.6 %

Deer Yards by Forest Compartment

Forest Compartment	Area (ha.)
5	17.9
7	26.7
15	9.5
19	11.8
25	14.8
26	6.6
27	21.5
28	48.4
31	0.0
56	12.9
68	9.0
79	31.1
89	35.0
90	10.2
91	2.3
98	3.8
142	64.8

8.3.2.2 Moose

The SNC Forest provides a variety of habitat required by Moose. Early winter habitat is primarily made up of mature or over-mature, open canopy, mixed-wood stands with less than 60 per cent tree cover. Late winter habitat includes denser stands of upland mature conifer with good overhead cover.
Table 19 provides a summary of moose early wintering area in the SNC Forest. The SNC Forest provides 4.3% of the early moose wintering area in the SNC jurisdiction.

Table 19
South Nation Forest
Moose Early Wintering Area

Summary of Moose Early Wintering Area

Total Wintering Area within SNC Jurisdiction	40,658.5 hectares
Total Wintering Area within SNC Forest	1,716.6 hectares
Percentage	4.2 %

Moose Early Wintering Areas by Forest Compartment

Forest Compartment	Area (ha.)	Forest Compartment	Area (ha.)
14	20.2	64	39.3
15	19.3	66	51.5
18	20.0	69	40.5
19	11.8	70	40.5
27	21.5	70-A	12.1
28	40.5	71	48.5
31	49.7	72	37.2
32	20.8	73	40.5
33	15.5	74	17.6
35	17.8	75	39.0
36	18.8	76	33.7
37	39.0	77	20.9
38	10.1	78	30.4
39	20.0	79	31.1
40	39.4	80	40.5
41	58.0	81	20.2
42	17.8	85	37.4
43	43.6	86	46.0
44	52.7	87	22.3
45	31.8	88	23.0
46	18.4	105	20.6
48	21.2	120	1.0
49	18.6	122	39.9
50	20.2	142	78.0
53	43.4	144	1.1
57	25.2	146	21.3
58	44.2	152	9.6
59	39.8	162	7.0
60	6.0	163	20.7
63	39.9		

8.3.2.3 Waterfowl

The South Nation Watershed is located within the Atlantic Flyway. During the bi-annual migration of waterfowl, an extensive population of ducks and geese stop to rest and refuel in staging areas such as the South Nation Watershed. Agricultural land provides waterfowl with easy access to food and energy required to complete their migratory passage. The South Nation River, its tributaries, and wetlands provide brood nesting areas and natural forage for local populations of waterfowl.

Wetlands provide waterfowl with the necessary means for reproduction: food and water. South Nation Conservation partners with various groups such as Delta Waterfowl, Ducks Unlimited, and various fish and game groups within the watershed to complete conservation oriented project. In the past few years, SNC has strategically targeted wetland features on its properties, and installed over 60 nesting structures such as Wood Duck boxes and hen houses. As well, SNC has committed to improving the biodiversity of our wetlands by enhancing native vegetation by sowing Wild Rice.

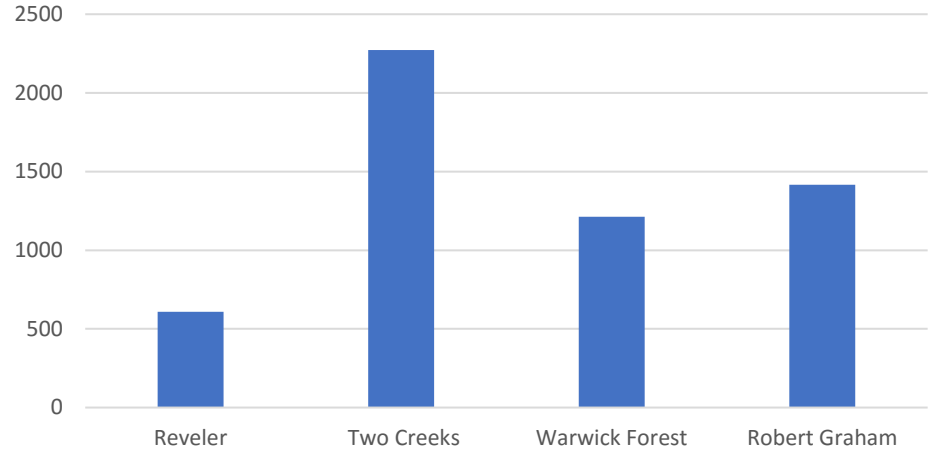
9 CULTURAL HERITAGE

9.1 Recreation

SNC land is open year-round providing recreational opportunities for birding, hiking, geocaching, snowshoeing, cross-country skiing and horseback riding. SNC welcomes over 100,000 visitors.

In 2013, SNC began monitoring use of its land by installing car and trail counters. This data provides accurate insight into visitor attendance and trail usage' Four trails, located on managed forest areas, Two Creeks Forest (SNC 145), Robert Graham (SNC 1), Warwick Forest (SNC 101) and Reveler Conservation Area (SNC 117), receive nearly six thousand visitors annually. Figure2 shows trail visitations for SNC managed trails.

Figure 2
Trail Visitation by Managed Trail



9.2 Snowmobile

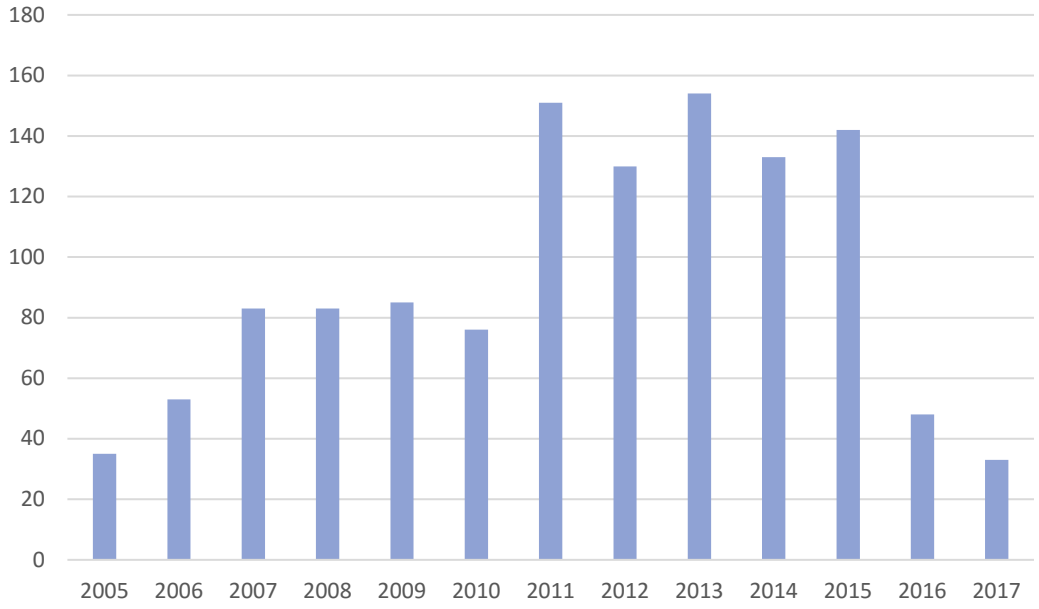
10.3 km 28 properties

9.3 Hunting

Year-round hunting is allowed on most SNC Forest properties and letters of permission are required. Figure 3 shows the number of hunters by year during the management period. Revenues generated from issue permission are modest and generally less than $5,000 annually.

Although current changes are proposed regarding hunting on SNC properties.

Figure 3
Number of Hunters by Year



9.4 Trapping

Trapping is permitted on SNC properties. Properties are allocated to trappers through letters of permission and subject to a fee. Control of nuisance wildlife is also a condition of the letter of permission.

Trapping is regulated under the Fish & Wildlife Conservation Act administered by OMNRF. SNC receives copies of annual harvest reports required under the regulations.

9.5 Community Relations

Community relations are maintained through the Forestry Committee, a standing committee of South Nation Conservation, which reviews forest management activities and provides advice on

local forestry issues. The Forestry Committee includes various stakeholders including representatives of industry, local government, landowners and non-governmental organizations.

SNC also maintains standing committees on Fish & Wildlife and Communications which can provide advice on related matters. A mandatory Health & Safety Committee provides advice on health and safety issues for staff, volunteers and the public.

Community engagement is achieved through active volunteer groups

Forest Stewards

SNC partners with over 20 individual volunteers under the SNC Forest Stewards Program. Forest stewards reflect a wide range of individuals from residents, hunters and naturalists who assist staff in the management of the forest by monitoring assigned properties near where they live. Forest Stewards have been assigned to monitor 41 SNC Forest properties

Volunteers of Oak Valley Pioneer Park

Oak Valley Pioneer Park Conservation Area was panted with over 800 nut-bearing trees and shrubs managed by a group of volunteers under a letter of understanding with SNC.

9.6 First Nation Relations

SNC is a founding member of the Eastern Ontario First Nation (EOFN) Working Group which provides a forum to discuss traditional and cultural values in the context of forest management. During the management period, SNC has partnered with the Mohawk Council of Akwesasne, the Algonquins of Ontario, and local First Nation non-governmental organisations to undertake forest-related projects to include First Nation values in forest management activities and input traditional knowledge. These projects include: the Black Ash Project; the Medicinal Plant Project; the Culturally Significant Species Project; the Turtle Project and Wild Rice Project

SNC will continue to participate in the EOFN working group and seek opportunities to partner with First Nation communities.

10 REPORT OF ACTIVITIES

The Managed Forest Tax Incentive Program requires ten-year summaries to be included in forest management planning documents. A summary of operational activities in the last ten-year reporting period are provided in Table 20.

Table 20
South Nation Forest
Report of Activities - Operating Period January 1, 2008 to December 31, 2017

Comp.	Stand	Activity	Proposed Quantity	Actual Quantity	Comments
1	All	Property Inspection - August 4, 2010	1	1	
1	All	Property Inspection - November 5, 2011	1	1	
1	All	Property Inspection - August 2, 2012	1	1	
1	All	Trail Maintenance	1,705 m.	1025 m.	
2	All	Property Inspection - September 5, 2010	1	1	
2	All	Property Inspection - October 24, 2011	1	1	
2	All	Property Inspection - August 2, 2012	1	1	
3	All	Property Inspection - September 5, 2010	1	1	
3	All	Property Inspection - October 24, 2011	1	1	
3	All	Property Inspection - August 2, 2012	1	1	
4	All	Property Inspection - November 12, 2010	1	1	
4	All	Property Inspection - October 24, 2011	1	1	
4	All	Property Inspection - August 2, 2012	1	1	
4	b	Operational Cruise - Nov. 25, 2009	18.6 ha	18.6 ha	
4	b	Harvest Plan - October 6, 2010	18.6 ha	18.6 ha	Expected harvest volume 442.4 m^3
4	b	Tree Marking - November 2010	18.6 ha	16.1 ha	

Table 17 (continued)
South Nation Forest
Report of Activities - Operating Period January 1, 2008 to December 31, 2017

Comp.	Stand	Activity	Proposed Quantity	Actual Quantity	Comments
4	b	Harvest - 1st Thinning - 1 in 3 row removal	16.1 ha	15.1 ha	Contract awarded August 2011; expiry extended to March 31, 2014
5	b,c	Tree Planting Inspection - May 10, 2009	1	1	150 Red Oak planted May 8, 2008
7	a,c	Operational Cruise - September 2009	16.6 ha	16.6 ha	
7	a,c	Harvest Plan - October 6, 2010	16.6 ha	16.6 ha	Expected harvest volume 548.1 m^3
7	a,c	Tree Marking - November 2010	16.6 ha	16.6 ha	
7	a,c	Harvest - 1st Thinning - 1 in 3 row removal	16.6 ha		Contract awarded August 2011; expiry extended March 31, 2014
8	d	Tree Planting-Culture Species	170	170	number of trees planted; By, Bw, Ab
8	all	Inventory - Aug. 1, 2012	20.2 ha	20.2 ha	
9	b	Harvest Plan- September 2009	6.1 ha	6.1 ha	Expected harvest volume 254.2 m^3
9	b	Tree Marking - Winter 2010	6.1 ha	6.1 ha	
9	b	Harvest - 1st Thinning - 1 in 3 row removal	6.1 ha		Contract awarded August 2011; expiry extended March 31, 2014
11	c	Property Inspection - encroachment	1	1	
13	c	Trail Maintenance - Winter 2012	154.6 m	154.6 m	
20	all	Inventory - July 23, 2012	20.2 ha	20.2 ha	
21	a	Forest Values Assessment	2.4 ha	2.4 ha	
22	e	Tree Planting-Culture Species	240	240	Number of trees planted; By, Bw, His
27	all	Site Inspection - Summer 2012	43.3 ha	43.3 ha	
29	all	Inventory - July 5, 2012	16.2 ha	16.2 ha	
32	c	Maple Syrup Operations - March 2013	4.0 ha	4.0 ha	
38	b	Forest Values Assessment	5.4 ha	5.4 ha	
38	all	Site Inspection - Summer 2012	21.4 ha	21.4 ha	

Table 17 (continued)
South Nation Forest
Report of Activities - Operating Period January 1, 2008 to December 31, 2017

Comp.	Stand	Activity	Proposed Quantity	Actual Quantity	Comments
38	all	Site Inspection - June 23, 2010	1	1	
38	all	Inventory - July 20, 2012	20.2 ha	20.2 ha	
38	all	Inventory - July 25/26, 2012	76.8 ha	76.8 ha	
38	35c/36c/37b	Harvest Planning - July 30, 2012	18.2 ha	18.2 ha	Expected volume 1192.9 m3
38	35c/36c/37b	Tree Marking - September 2012	18.2 ha	18.2 ha	Under contract to Certified tree marker
45	35c/36c/37b	Harvest - 1st Thinning - 1 in 3 row removal	18.2 ha		Contract Awarded November 2012; expiry March 31, 2014
54	a	Tree Planting-Culture Species	260	260	Number of trees planted; Ab, By
56	a	Treatment Block Prescription	1.7 ha	1.7 ha	
56	a	Crop Tree Release - winter 2011	1.7 ha	1.7 ha	Black Ash Strategy
56	all	Inventory - July 30, 2012	10.1 ha	10.1 ha	
56	c	Harvest Planning - July 30, 2012	4.5 ha	4.5 ha	Expected volume 456.4 m^3
62	c	Tree Marking - September 2012	4.5 ha	4.5 ha	Certified tree marker
65	c	Harvest	nil	nil	Contract cancelled.
67	40a/41ab/63a/64a	Harvest Plan - October 6, 2010	37.7 ha	37.7 ha	Expected volume 5,646.9 m^3
68	40a/41ab/63a/64a	Tree Marking - Winter 2010	37.7 ha	37.7 ha	
72	40a/41ab/63a/64a	Harvest - Winter 2013	37.7 ha	37.7 ha	Contract Awarded August 2011
75	40a/41ab/63a/64a	Harvest Inspection - February to March, 2013	37.7 ha	37.7 ha	Contract completed. Actual volume 6,520.0 m^3
77	all	Inventory - July 31, 2012	40.5 ha	40.5 ha	
82	a	Tree Planting - stream crossing restoration	50	50	Highbush Cranberry - native grasses
82	51b/52a	Harvest Plan - August 13, 2009	23.9 ha	23.9 ha	Contract awarded August 2011. Expected volume 1,006.3 m^3
82	51b/52a	Tree Marking - Winter 2010	23.9 ha	23.9 ha	

Table 17 (continued)
South Nation Forest
Report of Activities - Operating Period January 1, 2008 to December 31, 2017

Comp.	Stand	Activity	Proposed Quantity	Actual Quantity	Comments
82	51b/52a	Harvest	23.9 ha		Contract expired March 31, 2013
93	All	Inventory - July 13, 2012	40.5 ha	40.5 ha	
94	a,b,c	Harvest Planning - August 24, 2010	6.1 ha	6.1 ha	Culturally Significant Species - crop tree release
14/15	a,b,c	Crop tree release - Winter 2011	6.1 ha	6.1 ha	Completed as planned
16/17	a,b,c	FSC Audit - April 13, 2011	1	1	
18/19	all	Inventory - June 21, 2012	56.7 ha	56.7 ha	
18/19	all	Inventory - June 19, 2012	40.5 ha	40.5 ha	
35/36/37	e	Tree Planting-Culture Species	300	300	Number of trees planted; Ab, By
35/36/37	all	Inventory - July 3, 2012	40.5 ha	40.5 ha	
35/36/37	all	Inventory - July 4, 2012	40.5 ha	40.5 ha	
35/36/37	f	Tree Planting-Culture Species	175	175	Number of trees planted; Ab, By, Bw, His
40/41/63/64	all	Inventory - July 20, 2012	40.5 ha	40.5 ha	
40/4163/64	b	Site Inspection - Trespass Investigation	1	1	
40/41/63/64	a	Tree Planting-Culture Species	120	120	Number of trees planted; By, Bw
40/41/63/64	a	Tree Marking Audit- April 2009	20.2 ha	20.2 ha	
51/52	a	FSC Audit - April 12, 2011	1	1	In compliance with FSC Certificate
51/52	a	Harvest - Winter 2012	20.2 ha	20.2 ha	Contract completed. Expected Volume 2,222.6 Actual volume 1,225.7 m3
51/52	a	Harvest Inspection - Jan. 28 to March 24, 2012	20.2 ha	20.2 ha	Contract awarded November 2008; expired March 31, 2012
51/52	all	Inventory - July 6, 2012	27.2 ha	27.2 ha	
70A	all	Drainage Maintenance - August 2009	122.9 ha	122.9 ha	Under Municipal Drainage Act.
All	all	Hunting permissions issued	100	92	
All	all	Hunting permissions issued	100	68	

Table 17 (continued)
South Nation Forest
Report of Activities - Operating Period January 1, 2008 to December 31, 2017

Comp.	Stand	Activity	Proposed Quantity	Actual Quantity	Comments
All	all	Hunting permissions issued	100	158	
All	all	Hunting permissions issued	100	129	
All	all	Hunting permissions issued	100	19	As of June 30th, 2013
All	all	Trapping permission issued	2	2	
All	all	Trapping permission issued	2	5	
40/41/63/64	a	Harvest completion	3,401.9 m^3	3,944.9 m^3	
35/36/37	a, b	Harvest completed	1,192.9 m^3	1,145.8 m^3	
21	a	Harvest completed	509.5 m^3	292.0 m^3	
12, 56		Harvest completed	1,405.8 m^3	1,141.2 m^3	
1	a	Harvest in progress	2,990.0 m^3	401.0 m^3	Actual to date
4,7,9	a	Harvest completed	3,028.0 m^3	2,561.0 m^3	
13,23,30	a	Harvest to date	2,170.2 m^3	839.9 m^3	Contract terminated

11 RECOMMENDATIONS

1. Increase the forest area following SNC Land Securement Strategy.

2. Increase the Allowable Harvest Area for all forest units, particularly hardwoods. This is the result of overall increases to the forest area and the completion of critical first thinnings in conifer plantations.

3. Enhancement of forest inventory procedures to document improved forest health and growth, forest regeneration and biodiversity.

4. Maintain or enhance partnerships with municipalities, First Nations, non-governmental organizations, research community, public agency and Federal/Provincial government.

5. Maintain or enhance protection of cultural and natural heritage values within the SNC Forest.

12 REFERENCES

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13 LIST OF STAKEHOLDERS

Federal

Fisheries & Oceans Canada
Environment Canada
Natural Resources Canada

Province

Ontario Ministry of Natural Resources & Forestry
Ontario Ministry of the Environment & Climate Change

Municipalities

United Counties of Leeds-Grenville
United Counties of Stormont, Dundas and Glengarry
United Counties of Prescott-Russell
Alfred-Plantagenet
Clarence-Rockland
City of Ottawa
North Grenville
North Stormont
North Dundas
North Glengarry
South Dundas
South Stormont
Edwardsburgh-Cardinal
Elizabethtown-Kitley
Nation
Russell

First Nations

Algonquins of Pikwakanagan
Algonquins of Shabot Obaadjiwan
Mohawk Council of Akwesasne

Agencies/Corporations

Hydro One
Ontario Power Generation
Trans-Canada Pipelines
Great Circle Solar
Patagonia

Recreation

Ontario Federation of Snowmobile Clubs – District 1
Ontario Federation of Anglers and Hunters
Ottawa Valley Arabian Horse Association
Delta Waterfowl

Ducks Unlimited
Eastern Chapter Society of Ontario Nut Growers
Plenty Canada
Ontario Heritage Trust
Ottawa Field Naturalists
Bishop Mills Natural History Centre
Leeds-Grenville Stewardship Council
Boise Est
National Defence Headquarters Fish & Game Club
Russel Fish & Game Club
Boy Scouts of Canada

Foundations

RBC Bluewater Foundation
Shell Environmental Fund
TD Friends of the Environment Foundation
Trillium Foundation

Appendix A

Plant Species List

Trees

Abies balsamea	Balsam Fir
Acer nigrum	Black Maple
Acer rubrum	Red Maple
Acer pennsylvanicum	Striped Maple
Acer saccharinum	Silver Maple
Acer saccharum	Sugar Maple
Acer spicatum	Mountain Maple
Betula alleghaniensis	Yellow Birch
Betula papyrifera	White Birch
Betula populifolia	Grey Birch
Betula pumila	Dwarf Birch
Carpinus caroliniana	Blue-beech
Carya cordiformis	Bitternut Hickory
Carya ovata	Shagbark Hickory
Crataegus punctata	Hawthorn
Crataegus sp.	Hawthorn
Fagus grandifolia	American Beech
Fraxinus americana	White Ash
Fraxinus nigra	Black Ash
Fraxinus pennsylvanica	Green Ash
Juglans cinerea	Butternut
Jugland nigra	Black Walnut
Larix laricina	Tamarack
Malus sp.	Apple Trees
Ostrya virginiana	Ironwood
Picea abies	Norway Spruce
Picea glauca	White Spruce
Picea mariana	Black Spruce
Picea rubens	Red Spruce
Pinus banksiana	Jack Pine
Pinus resinosa	Red Pine
Pinus sylvestris	Scot's Pine
Pinus strobus	White Pine
Populus x sp.	Hybrid Poplar
Populus balsamifera	Balsam Poplar
Populus deltoides	Eastern Cottonwood
Populus grandidentata	Large-Toothed Aspen
Populus tremuloides	Trembling Aspen
Prunus nigra	Canada Plum
Prunus pennsylvanica	Pin Cherry
Prunus serotina	Black Cherry
Prunus virginiana	Choke Cherry
Quercus alba	White Oak
Quercus macrocarpa	Bur Oak
Quercus rubra	Red Oak
Robinia pseudoacacia	Black Locust
Salix sp.	Willow
Salix bebbiana	Beaked Willow
Salix discolor	Pussy Willow
Salix exigua	Sandbar Willow
Salix fragilis	Crack Willow
Salix interior	Sandbar Willow
Salix lucida	Shining Willow
Sorbus americana	Mountain Ash
Thuja occidentalis	Eastern White Cedar
Tilia americana	Basswood
Tsuga canadensis	Hemlock
Ulmus americana	White Elm
Ulmus rubra	Slippery Elm
Ulmus thomasii	Rock Elm

Shrubs

Alnus incana	Speckled Alder
Alnus viridis	Green Alder
Amelanchier arborea	Downy Serviceberry
Amelanchier laevis	Smooth Serviceberry
Amelanchier sanguinea	Shadbush Serviceberry
Cephalanthus occidentalis	Buttonbush
Cornus alternifolia	Alternate Leaf Dogwood
Cornus canadensis	Bunchberry
Cornus obliqua	Silky Dogwood
Cornus rugosa	Round-leaved Dogwood
Cornus stolonifera	Red Osier Dogwood
Corylus cornuta	Beaked Hazel
Diervilla lonicera	Bush Honeysuckle
Dirca palustris	Leatherwood
Ilex verticillate	Winterberry
Ledum groenlandicum	Labrador Tea
Lonicera canadensis	Canada Honeysuckle
Lonicera dioica	Red Honeysuckle
Lonicera tatarica	Tartarian Honeysuckle
Kalmia angustifolia	Sheep Laurel
Kalmia polifolia	Bog Laurel
Mitchella repens	Partridgeberry
Myrica gale	Sweet Gale
Nemopanthus mucronatus	Mountain Holly
Parthenocissus vitacea	Virginia Creeper
Rhamnus alnifolia	Alder-leaved Buckthorn
Rhamnus cathartica	Common Buckthorn
Rhamnus frangula	Glossy Buckthorn
Rhus radicans	Poison Ivy
Rhus typhina	Staghorn Sumac
Ribes americanum	Wild Black Currant
Ribes cynosbati	Prickly Gooseberry
Ribes glandulosum	Skunk Currant
Ribes hirtellum	Wild Goosberry
Ribes lacustre	Swamp Currant

Shrubs (continued)

Ribes triste Wild Currant
Rubus allegheniensis Blackberry
Rubus canadensis Smooth Blackberry
Rubus hispidus Swamp Dewberry
Rubus idaeus Red Raspberry
Rubus odoratus Purple Flowering Raspberry
Rubus pubescens Dewberry
Rubus setosus Bristly Blackberry
Sambucus canadensis Common Elderberry
Sambucus pubens Red Elderberry
Spiraea alba Meadowsweet
Spirea latifolia Broad-Leaved Meadowsweet
Spiraea tomentosa Pink Spirea, Steeplebush
Symphoricarpos albus Snowberry
Syringa vulgaris Lilac
Taxus Canadensis Canada Yew
Vaccinium angustifolium Lowbush Blueberry
Vaccinium myrtilloides Velvet-Leaved Blueberry
Vaccinium oxycoccos Small Cranberry
Viburnum acerifolium Maple-Leaved Viburnum
Viburnum alnifolium Hobble-bush
Viburnum cassinoides Wild Raisin
Viburnum lentago Nannyberry
Viburnum recognitum Southern Arrow-wood
Viburnum trilobum Highbush Cranberry
Vitis riparia Wild Grape
Zanthoxylum americanum Prickly Ash

Forbs

Achillea millefolium Yarrow
Acorus calamus Sweet Flag
Acatea pachypoda White Baneberry
Actaea rubra Red Baneberry
Agrimonia gryposepala Agrimony
Agrimonia striata Woodland Agrimony
Alisma triviale Water Plantain
Ambrosia artemisiifolia Ragweed
Amphicarpaea bracteata Hog Peanut
Anaphalis magaritacea Pearly Everlasting
Andromeda glaucophylla Bog Rosemary
Anenome canadensis Canada Anenome
Anenome virginiana Thimbleweed
Angelica atropurpurea Angelica
Antennaria neglecta Field Pussytoes
Apocynum androsaemifolium Spreading Dogbane
Aralia nudicaulis Wild Sarsaparilla
Aralia racemosa Spikenard
Arctium lappa Greater Burdock
Arctium minus Burdock
Arethusa bulbosa Dragon's Mouth
Arisaema triphyllyum Jack in the Pulpit
Aronia melanocarpa Black Chokeberry
Artemesia vulgaris Mugwort
Asarum canadense Wild Ginger
Asclepias incarnata Swamp Milkweed
Asclepias syriaca Milkweed
Aster acuminatus Whorled Aster
Aster cordifolius Heart-Leaved Aster
Aster lanceolatus Panicled Aster
Aster lateriflorus Calico Aster
Aster macrophyllus Large-leaved Aster
Aster nemoralis Bog Aster
Aster novae-angliae New England Aster
Aster puniceus Purple-Stemmed Aster
Aster umbellatus Flat-topped Aster
Bazzania tilobata Three-Lobed Liverwort
Bidens cernua Nodding Beggar Ticks
Bidens frondosa Devil's Beggar Ticks
Boehmeria cylindrica False Nettle
Brachyeltrum erectum Bearded Shorthusk
Calla palustris Water Arum
Callitriche verna Marsh Water Starwort
Calopogon tuberosus Swamp Pink
Caltha palustris Marsh Marigold
Calystegia sepium Hedge Bindweed
Cardamine diphylla Two-Leaved Toothwort
Caulophyllum thalictroides Blue Cohosh
Centaurium pulchellum Centaury
Cerastium fontanum Mouse-Eared Chickweed
Ceratophyllum demersum Coontail
Chamaedaphne calyculata Leatherleaf
Chelone glabra Turtlehead
Chimaphila umbellata Prince's Pine
Chrysanthemum leucanthemum Ox-Eye Daisy
Chrysosplenium americanum Golden Saxifrage
Cichorium intybus Chicory
Cicuta bulbifera Bulb-Bearing Water Hemlock
Cicuta maculata Spotted Water-hemlock
Circaea alpine Dwarf Enchanter's Nightshade
Circaea lutetiana Enchanter's Nightshade
Cirsium arvense Canada Thistle
Cisium muticum Swamp Thistle
Cirsium vulgare Bull Thistle
Claytonia caroliniana Spring Beauty
Clematis virginiana Old Man's Beard
Clintonia borealis Blue Bead Lily
Convolvulus arvensis Field Bindweed
Coptis trifolia Goldthread
Coronilla varia Crown Vetch

Forbs (continued)

Cypripedium acaule Pink Lady's Slipper
Cypripedium spp. Lady's Slipper
Dalibarda repens Dewdrop
Daucus carota Queen Anne's Lace
Desmodium canadense Showy Tick-Trefoil
Desmodium glutinosum Pointed-Leaved Tick-Trefoil
Dicentra Canadensis Dutchman's Breeches
Drosera rotndifolia Round-Leaved Sundew
Echinocystis lobata Wild Cucumber
Epifagus virginiana Beech Drops
Epilobium angustifolium Fireweed
Epilobium ciliatum Tall Willow-herb
Epilobium coloratum Purple-leaved Willow-herb
Epilobium hirsutum Hairy Willow-herb
Epipactis helleborine Helleborine
Erigeron annuus Daisy Fleabane
Erigeron philadelphicus Philelphia Fleabane
Erigeron strigosus Lesser Daisy Fleabane
Erysimum cheiranthoides Wormseed Mustard
Erythronium americanum Trout-Lily
Eupatorium maculatum Joe-Pye-Weed
Eupatorium perfoliatum Boneset
Eupatorium rugosum White Snakeroot
Euphorbia maculata Milk Purslane
Eurybia macrophyllus Large-Leaved Aster
Fagopyrum sagittatum Buckwheat
Fragaria vesca Woodland Strawberry
Fragaria virginiana Wild Strawberry
Galeopsis tetrahit Hemp Nettle
Galium aparine Cleavers
Galium asprellum Rough Bedstraw
Galium palustre Marsh Bedstraw
Galium trifidum Small Bedstraw
Galium triflorum Woodland Bedstraw
Gaultheria hispidula Creeping Snowberry
Gaultheria procumbens Wintergreen
Gentiana andrewsii Bottle or Closed Gentian
Geranium robertianum Herb Robert
Geum aleppicum Yellow Avens
Geum canadense White Avens
Geum laciniatum Rough Avens
Geum macrophyllum Large-Leaved Avens
Geum rivale Water Avens
Glechoma hederacea Ground Ivy
Hackelia virginiana Virginia Stickseed
Hemerocallis fulva Day-Lily
Hepatica acutiloba Sharp-lobed Hepatica
Hieracium aurantiacum Orange Hawkweed
Hieracium canadense Canada Hawkweed
Hieracium piloselloides Yellow Hawkweed
Humulus lupulus Hops
Hydrophyllum virginianum Virginia Waterleaf
Hypericum canadense Canada St. John's-wort
Hypericum ellipticum Pale St. John'swort
Hypericum mutilum Dwarf St. John's-wort
Hypericum perforatum Common St. Johnswort
Hypericum punctatum Spotted St. John's Wort
Impatiens capensis Jewelweed
Inula helenium Elecampane
Iris versicolor Wild Iris, Blue Flag
Lactuca biennis Tall Blue Lettuce
Lactuca canadensis Wild Lettuce
Lactuca serriola Prickly Lettuce
Laportea canadensis Wood Nettle
Leucanthemum vulgare Ox-eye Daisy
Lilium philadelphicum Wood Lily
Linaria vulgaris Butter-and-Eggs
Lindernia dubia False Pimpernel
Linnaea borealis Twinflower
Liparis loeselii Bog Twayblade
Lobelia cardinalis Cardinal Flower
Lobelia inflate Indian Tobacco
Lotus corniculatus Bird's Foot Trefoil
Ludwigia palustris Water Purslane
Lycopus americanus Water Horehound
Lycopus uniflorus Northern Bugleweed
Lysimachia ciliata Fringed Loosestrife
Lysimachia terrestris Swamp Candles
Lythrum salicaria Purple Loosestrife
Maianthemum canadense Canada Mayflower
Marasmius strictipes Orange Yellow Marasmius
Malaxis unifolia Green Adder's Mouth Orchid
Medeola virginiana Indian Cucumber
Medicago lupulina Black Medick
Melilotus alba White Sweet Clover
Mentha arvensis Wild Mint
Mertensia paniculate Northern Bluebells
Mimulus ringens Monkey Flower
Mitella diphylla Mitrewort
Mitella nuda Naked Mitrewort
Moneses uniflora One-Flowered Wintergreen
Monotopa hypoithys Pinesap/False Beechdrops
Monotopa uniflora Indian Pipe
Nepeta cataria Catnip
Oenothera biennis Evening Yellow Primrose
Osmorhiza claytonia Wooly Sweet-Cicely
Oxalis acetosella Wood Sorrel

Forbs (continued)

Oxalis dillenii Common Wood Sorrel
Oxalis stricta Yellow Wood Sorrel
Parthenoccisus inserta Inserted Virginia Creeper
Parthenoccisus vitacea Virginia Creeper
Pastinaca sativa Wild Parsnip
Penthorum sedoides Ditch Stonecrop
Penstemon digitalis Foxglove Beard-tongue
Petasites palmatus Northern Sweet Coltsfoot
Physalis heterophylla Clammy Ground-Cherry
Pilea pumila Clearweed
Plantago major Common Plantain
Plantago rugellii Red-Stemmed Plaintain
Platanthera blephariglottis White-Fringed Orchid
Platanthera lacera Ragged-Fringed Orchid
Platanthera psycodes Purple-Fringed Orchid
Podophyllum peltatum Canada Mayapple
Pogonia ophioglossoides Rose Pogonia
Polygonatum pubescens Solomon's Seal
Polygonum amphibium Water Smartweed
Polygonum arifolium Halberd-Leaved Tearthumb
Polygonum aviculare Knotweed
Polygonum convolvulus Black Bindweed
Polygonum hydropiper Water Pepper
Polygonum lapathifolium Nodding Smartweed
Polygonum persicaria Lady's Thumbprint
Polygonum saggitatum Arrow-Leaved Tearthumb
Polygonum scandens False Buckwheat
Polydodium virginianum Common Polypody
Potentilla anserina Silverweed
Potentilla argentea Silver/Hoary Cinquefoil
Potentilla norvegica Rough Cinquefoil
Potentilla recta Rough-fruited cinquefoil
Potentilla simplex Common Cinquefoil
Prenanthes altissima Tall White Lettuce
Prunella vulgaris Heal-all
Pyrola asarifolia Bog Wintergreen
Pyrola elliptica Shinleaf
Pyrola rotundifolia Round-Leaved Pyrola
Ranunculus abortivus Small-Flowered Crowfoot
Ranunculus acris Buttercup
Ranunculus pensylvanicus Bristly Crowfoot
Ranunculus recurvatus Hooked Crowfoot
Ranunculus sceleratus Cursed Buttercup
Rorippa palustris Yellow Cress
Rosa spp. Wild Rose
Rudbeckia hirta Brown-eyed Susan
Rumex acestosella Sheep Sorrel
Rumex crispus Curled Dock
Sanguinaria canadensis Bloodroot
Sanicula canadensis Short-Styled Snakeroot
Sanicula marilandica Black Snakeroot
Saponaria officinalis Soapwort or Bouncing Bet
Sarracenia pupuracens Pitcher-Plant
Scutellaria galericulata Marsh Skullcap
Scutellaria lateriflora Mad-dog Skullcap
Sedum telephioides Live-forever
Silene vulgaris Bladder Campion
Sium suave Water Parship
Smilacina racemose False Solomon's Seal
Smiliacina trifolia Three-Leaved Solomon's Seal
Smilax herbacea Carrion Flower
Solanum dulcamara Bittersweet Nightshade
Solidago altissima Tall Goldenrod
Solidago caesia Blue-stem Goldenrod
Solidago canadensis Canada Goldenrod
Solidago flexicaulis Zigzag Goldenrod
Solidago graminifolia Grass-leaved Goldenrod
Solidago juncea Early Goldenrod
Solidago nemoralis Gray Goldenrod
Solidago rugosa Rough-Stemmed Goldenrod
Solidago spp. Goldenrod spp.
Sonchus arvensis Sow Thistle
Stachys hispida Smooth Hedge Nettle
Stachys palustris Woundwort
Stachys tenuifolia Common Hedge Nettle
Stellaria longifolia Long-Leaved Stitchwort
Steptopus amplexifolius White Twisted Stalk
Streptopus roseus Rose-Twisted Stalk
Symplocarpus foetidus Skunk Cabbage
Tanacetum vulgare Tansy
Taraxacum officinale Dandelion
Thalictrum diocium Early Meadow Rue
Thalictrum pubescens Tall Meadow Rue
Tiarella cordifolia Foamflower
Tragopogon dubius Meadow Goat's Beard
Triadenum fraseri Marsh St. John's Wort
Trientalis borealis Starflower
Trifolium pretense Red Clover
Trifolium repens White Clover
Trillium erecrum Red Trillium
Trillium grandiflorum White Trillium
Trillium undulatum Painted Trillium
Triosteum perfoliatum Wild Coffee
Typha latifolia Cattail
Urtica dioica Stinging Nettle
Uvularia grandiflora Yellow Bellwort
Uvularia sessifolia Wild Oats
Valeriana officinalis Valerian

Forbs (continued)

Verbascum thapsis	Common Mullein
Verbena hastate	Blue Vervain
Verbena urticifolia	White Vervain
Veronica officinalis	Marsh Speedwell
Vicia cracca	Purple Vetch
Viola blanca	Sweet White Violet
Viola conspersa	Dog Violet
Viola pubescens	Downy Yellow Violet
Viola renifolia	Kidney-leaved Violet
Viola spp.	Violet
Waldsteinia fragarioides	Barren Strawberry

Grass/Sedges

Agropyron repens	Quack Grass
Agrostis perennans	Autumn Bent Grass
Agrostis stolonifera	Creeping Bent Grass
Calamagrostis canadensis	Canada Bluejoint
Carex aquatilis	Aquatic Sedge
Carex arctata	Drooping Wood Sedge
Carex bebbi	Bebb's Sedge
Carex bromoides	Brome Hummock Sedge
Carex comosa	Bristly Sedge
Carex crinita	Fringed Sedge
Carex cristatella	Crested Sedge
Carex debilis	White-edge Sedge
Carex deweyana	Dewey's Sedge
Carex disperma	Two-Seeded Sedge
Carex gracillima	Graceful Sedge
Carex granularis	Meadow Sedge
Carex hystericina	Porcupine Sedge
Carex interior	Inland Sedge
Carex intumescens	Shining Bladder Sedge
Carex lacustris	Lakebank Sedge
Carex leptalea	Bristle-Stalked Sedge
Carex lupulina	Hop Sedge
Carex ovales group	Sedge
Carex pedunculata	Long-stalked Sedge
Carex projecta	Spreading Sedge
Carex pseudo-cyperus	Cyperus-Like Sedge
Carex radiata	Stellate Sedge
Carex rosea	Rolled-up Sedge
Carex scoparia	Broom Sedge
Carex stipata	Awl-fruited Sedge
Carex stricta	Stiff Sedge
Carex trisperma	Three-Fruited Sedge
Carex vulpinoidea	Fox Sedge
Cinna arundinacea	Stout Woodreed
Cinna latifolia	Nodding Woodreed
Danthonia spicata	Poverty Oat Grass
Dulichium arundinaceum	Three Way Sedge
Echinochloa crusgali	Common Barnyard Grass
Echinochloa microstachya	Small-Spiked Barnyard Grass
Elymus virginicus	Virginia Wild Rye
Eriophorum spp.	Cottongrass spp.
Festuca suberticillata	Nodding Fescue
Glyceria borealis	Northern Manna Grass
Glyceria canadensis	Rattlesnake Manna Grass
Glyceria grandis	Tall Manna Grass
Glyceria melicaria	Long Manna Grass
Glyceria striata	Fowl Manna Grass
Juncus effusus	Soft Rush
Leersia oryzoides	Rice-Cut Grass
Leersia virginica	White Grass
Milium effusum	Wild Millet
Muhlenbergia mexicana	Mexican Satin Grass
Panicum capillare	Witch Grass
Panicum dichotomiflorum	Panic Grass
Panicum implicatum	Hairy Panic Grass
Panicum tuckermanii	Tuckerman's Witch Grass
Phalaris arundinacea	Reed Canary Grass
Phleum pratense	Timothy Grass
Phragmites australis	Southern Reed Grass
Poa alsodes	Woodland Meadow Grass
Poa annua	Annual Meadow Grass
Poa compressa	Canada Bluegrass
Poa palustris	Swamp Bluegrass
Poa pratensis	Kentucky Bluegrass
Rhynchospora alba	White Beakrush
Schizachne pupurascens	False Melic Grass
Scirpus atocintus	Black-Girdled Bulrush
Scirpus atrovirens	Black Bulrush
Scirpus cyperinus	Wool-grass
Scirpus microcarpus	Small-Fruited Bulrush
Scirpus validus	Soft-Stemmed Bulrush
Torreyochloa pallida	Fernald's Manna Grass

Fungi

Fungi species were not inventoried.

Ferns and Allies

Adiantum pedatum	Maidenhair Fern
Athyrium filix-femina	Lady Fern
Athyrium thelypterioides	Silvery Spleenwort
Botrychium multifidum	Grape Fern
Botrychium oneidense	Blunt-lobed Grape Fern
Botrychium simplex	Least Grape Fern

Ferns and Allies (continued)

Botrychium virginianum Rattlesnake Fern
Cystopteris bulbifera Bulblet Fern
Cystopteris fragilis Fragile Fern
Dennstaedtia puctilobula Hay-Scented Fern
Deparia acrostichoides Silvery Glade Fern
Diplazium pycnocarpon Narrow-Leaved Glade Fern
Dryopteris carthusiana Spinulose Wood Fern
Dryopteris cristata Crested Wood Fern
Dryopteris intermedia Evergreen Wood Fern
Dryopteris marginalis Marginal Wood Fern
Equisetum arvense Field Horsetail
Equisetum hyemale Scouring Rush
Equisetum laevigatum Smooth Scouring Rush
Equisetum palustre Marsh Horsetail
Equisetum pretense Meadow Horsetail
Equisetum sciroides Dwarf Scouring Rush
Equisetum sylvaticum Wood Horsetail
Gymnocarpium dryopteris Oak Fern
Matteuccia struthiopteris Ostrich Fern
Onoclea sensibilis Sensitive Fern
Osmunda cinnamomea Cinnamon Fern
Osmunda claytoniana Interrupted Fern
Osmunda regalis Royal Fern
Polystichum acrostichoides Christmas Fern
Pteridium aquilinum Bracken Fern
Thelypteris noveboracensis New York Fern
Thelypteris palustris Marsh Fern
Thelypteris phegopteris Northern Beech Fern

Mosses and Lichens

Cladonia chlorophaea False Pixie Cup Lichen
Cladonia coniocraea Powder Horn Lichen
Climacium dendroides Northern Tree Moss
Dendrolycopodium dendroideum Prickly Tree Clubmoss
Dicarnum polysetum Wavy-Leaved Moss
Dicarnum scoparium Broom Moss
Diphasiastrum complanatum Northern Ground Cedar
Huperzia lucidula Shining Firmoss
Pleuozium schreberi Schreber's Moss
Polytrichum commune Common Haircap Moss
Polytrichum juniperinum Juniper Moss
Hylocomium splendens Feather Moss
Leucobryum glaucum Pin Cushion Moss
Lycopodium annotinum Stiff Clubmoss
Lycopodium clavatum Common Clubmoss
Lycopodium digitatum Southern Ground Cedar
Lycopodium lucidulum Shining Clubmoss
Lycopodium obscurum Flat-Branched Clubmoss
Lycopodium tristachyum Blue Ground Cedar
Parmelia sulcata Waxpaper Lichen
Peltigera canina Dog's Tooth Lichen
Pleurosium schreberi Schreber's Moss
Ptilium crista-castrensis Plume Moss
Rhodobryum roseum Rose Moss
Sphagnum capillifolium Red Sphagnum
Sphagnum girgensohnii Green Peat Moss
Sphagnum magellanicum Midway Peat Moss
Sphagnum warnstorfii Warnstorf's Peat Moss
Sphagnum wulfianum Wulf's Peat Moss
Spinulum annotinum Bristly Clubmoss
Tetraphis pellucida Pellucid Four-Toothed Moss
Thuidium delicatulum Common Fern Moss

Macrophytes (Aquatic Plants)

Brasenia schreberi Water Shield
Butomus umbellatus Flowering Rush
Cicuta bulbifera Bub-bearing Water Hemlock
Cicuta maculate Spotted Water Hemlock
Eleocharis acicularis Needle Spike-Rush
Eleocharis compressa Flattened Spike-Rush
Eleocharis ovata Spike-Rush
Hydrocharis morsus-ranae Frog's-bit
Hydrocotyle Americana Water Pennywort
Juncus dudleyi Dudley's Rsuh
Juncus effuses Soft Rush
Nymphaea oforata Fragrant White Water Lily
Pontederea cordata Pickerelweed
Potamogeton gramineus Grassleaf Pondweed
Potamogeton natans Floating Pondweed
Sagittaria latifolia Arrowhead
Scheuchzeria palustris Podgrass
Sparganium chlorcarpum Green Bur-reed
Sparganium emersum Common Burreed
Sparganium eurycarpum Large-Fruited Burreed
Typha latifolia Common Cattail
Urtricularia vulgaris Common Bladderwort
Zizania aquatica Southern Wild Rice

APPENDIX B

WILDLIFE SPECIES LIST

Mammals

Alces alces	Moose
Canis latrans	Eastern Coyote
Castor canadensis	Beaver
Didelphis virginiana	Opossum
Erethizon dorsatum	Porcupine
Glaucomys volans	Southern Flying Squirrel
Lepus americanus	Snowshoe Hare
Lontra canadensis	River Otter
Lynx canadensis	Canada Lynx
Lynx rufus	Bobcat
Mephitis mephitis	Striped Skunk
Martes americana	American Marten
Martes pennanti	Fisher
Mustela ermina	Short-Tailed Weasel
Mustela frenata	Long-Tailed Weasel
Mustela nivalis	Least Weasel
Neovison vison	American Mink
Odocoileus virginianus	White-Tailed Deer
Ondatra zibethicus	Muskrat
Procyon lotor	Racoon
Sciurus carolinensis	Eastern Grey Squirrel
Sylvilagus floridanus	Eastern Cottontail
Tamias striatus	Eastern Chipmunk
Tamiascirus hudsonicus	American Red Squirrel
Ursus americanus	American Black Bear
Vulpes vulpes	Red Fox

Birds

Accipiter cooperii	Cooper's Hawk
Accipiter gentillis	Northern Goshawk
Accipiter striatus	Sharp-Shinned Hawk
Agelaius phoeniceus	Red-winged Blackbird
Aix sponsa	Wood Duck
Anas crecca	Green-Winged Teal
Anas rubripes	American Black Duck
Anas platyrhynchos	Mallard
Anthus rubescens	American Pipit
Ammodramus henslowii	Henslow Sparrow
Ardea herodias	Great Blue Heron
Bombycilla cedrorum	Cedar Waxwing
Bombycilla garrulous	Bohemian Waxwing
Bonasa umbellyus	Ruffed Grouse
Botaurus lentiginosus	American Bittern
Branta canadensis	Canada Goose
Buteo jamaicensis	Red-Tailed Hawk
Buteo lineatus	Red-shouldered Hawk
Butorides virescens	Green Heron
Cardinalis cardinalis	Northern Cardinal
Carduelis flammea	Common Redpoll
Carduelis pinus	Pine Siskin
Carduelis tristis	American Goldfinch
Carpodacus mexicanus	House Finch
Carpodacus purpureus	Purple Finch
Cathartes aura	Turkey Vulture
Catharus fuscescens	Verry
Catharus guttatus	Hermit Thrush
Certhia americana	Brown Creeper
Charadrius vociferous	Killdeer
Chlidonias neger	Black Tern
Circus cyaneus	Northern Harrier
Cistothorus palustris	Marsh Wren
Colaptes auratus	Northern Flicker
Contopus virens	Eastern Wood-Pewee
Corvus brachyrhynchos	American Crow
*Corvus corax*Common	Raven
Cyanocitta cristata	Blue Jay
Dendroica caerulescens	Black-Throated Blue Warbler
Dendroica coronate	Yellow-Rumped Warbler
Dendroica palmarum	Palm Warbler
Dendroica petechia	Yellow Warbler
Dendroica pensylvanica	Chestnut-sided Warbler
Dendroica pinus	Pine Warbler
Dendroica striata	Blackpoll Warbler
Dendroica virens	Black-Throated Green Warbler
Dendroica vire	Black-throated Green
Dolichonyx oryzivorus	Bobolink
Dryocopus pileatus	Pileated Woodpecker
Dumetella carolinensis	Gray Catbird
Empidonax alnorum	Alder Flycatcher
Empidonax minimus	Least Flycatcher
Empidonax traillii	Willow Flycatcher
Eremophila alpestris	Horned Lark
Euphagus carolinus	Rusty Blackbird
Falco columbarius	Merlin
Geothlypis trichas	Common Yellowthroat
Hirundo rustica	Barn Swallow
Hylocichla mustelina	Wood Thrush
Icterus galbula	Baltimore Oriole
Junco hyemalis	Dark-Eyed Junco
Loxia leucoptera	White-Winged Crossbill
Meleagris gallopavo	Wild Turkey
Melospiza lincolnii	Lincoln's Sparrow
Melospiza melodia	Song Sparrow
Melospiza georgiana	Swamp Sparrow
Mniotilta varia	Black-and-white Warbler

Birds (continued)

Molothrus ater	Brown-Headed Cowbird

Myiarchus crinitus Great Crested Flycatcher
Passer domesticus House Sparrow
Passerculus sandwichensis Savannah Sparrow
Passerella iliaca Fox Sparrow
Passerina cyanea Indigo Bunting
Perdix perdix Gray Partridge
Pheucticus ludovicianus Rose-breasted Grosbeak
Picoides pubescens Downy Woodpecker
Picoides villosus Hairy Woodpecker
Piranga olivacea Scarlet Tanager
Pinicola enucleator Pine Grosbeak
Poecile atricappilus Black-capped Chickadee
Plectrophenax nivalis Snow Bunting
Pooecetes gramineus Vesper Sparrow
Regulus calendula Ruby-Crowned Kinglet
Regulus satrapa Golden-Crowned Kinglet
Quiscalus quiscula Common Grackle
Sayornis phoebe Eastern Phoebe
Setophaga ruticilla American Redstart
Seiurus aurocapilla Ovenbird
Sialia sialis Eastern Bluebird
Sitta canadensis Red-Breasted Nuthatch
Sitta carolinensis White-breasted Nuthatch
Sphyrapicus varius Yellow-bellied Sapsucker
Spizella pallid Clay-Colored Sparrow
Spizella passerina Chipping Sparrow
Spizella pusilla Field Sparrow
Sturnella magna Eastern Meadowlark
Sturnum vulgaris European Starling
Tachycineta bicolor Tree Swallow
Toxostoma rufum Brown Thrasher
Troglodytes aedon House Wren
Turdus migratorius American Robin
Tyrannus tyrannus Eastern Kingbird
Vermivora peregrine Tennessee Warbler
Vermivora ruficapilla Nashville Warbler
Vireo solitarius Blue-headed Vireo
Vireo gilvus Warbling Vireo
Vireo olivaceus Red-eyed Vireo
Wilsonia canadensis Canada Warbler
Zenaida macroura Mourning Dove
Zonotrichia albicollis White-Throated Sparrow
Zonotrichia leucophrys White-Crowned Sparrow

Reptiles & Amphibians

Bufo americanus American Toad
Chelydra serpentine Snapping Turtle
Chrysemys picta Painted Turtle
Hyla versicolor Gray Treefrog
Lithobates pipiens Northern Leopard Frog
Notophthalmus viridescens Eastern Newt
Plethodon cinereus Red-Backed Salamander
Rana sylvatica Wood Frog
Rana clamitans Green Frog
Thamnophis sirtalis Common Garter Snake

Insects

Aeshna canadensis Canada Darner
Agapostemon pura Sweat Bee
Asilid sp. Robber Fly
Bittacomorpha clavipes Phantom Crane Fly
Boloria silene Silver-bordered Fritillary
Bombus sp. Bumblebee
Bombus ternarius Red-banded Bumblebee
Cercyonis pegala Common Wood-nymph
Ceresa sp. Buffalo Treehopper
Chauliognathus pensylvanicus Pennsylvania Leatherwing
Chrysopus sp. Deer Fly
Collas philodice Clouded Sulphur
Culicid spp. Mosquito spp.
Danaus plexippus Monarch (Caterpillars)
Dolichovespula maculata Bald-faced Hornet
Enallagma sp. Bluet
Enodia anthedon Northern Pearly-Eye
Epitheca cynosura Common Baskettail
Eristalis tenax Hover Fly
Euphyes vestris Dun Skipper
Galerucella calmariensis Loosestrife Leaf Beetle
Gomphus sp. Clubtail sp.
Harmonia axyridis Asian Lady Beetle
Ischnura verticalis Eastern Forktail
Libellula julia Chalk-fronted Corporal
Libellula lydia Common Whitetail
Libellula quadrimaculata Four-Spotted Skimmer
Limenitis arthemis White Admiral
Lygus lineolaris Tarnished Plant Bug
Megachilid sp. Leafcutter Bee
Nehalennia irene Sedge Sprite
Noctua pronuba Large Yellow Underwing
Panorpid sp. Scorpion Fly
Philaenus spumarius Meadow Spittlebug
Pieris rapae Cabbage White
Phymata sp. Ambush Bug
Polistes fuscatus Paper wasp
Satyrium acadicum Acadian Hairstreak
Speyeria cybele Great Spangled Fritillary
Sympetrum obtrusum White-faced Meadowhawk

Insects (continued)

Stenotus sp. Plant Bug

Tabanus sp.	Horse Fly
Thymelicus lineola	European Skipper
Toxomerus geminatus	Hover Fly
Toxomerus marginatus	Hover Fly
Trichodezia albovittata	White-striped Black
Vanessa atalanta	Red Admiral
Vespula maculifrons	Eastern Yellowjacket
Xanthotype urticaria	False Crocus Geometer

Spiders

Araniella displicata	Six-spotted Orb Weaver
Pisaurina mira	Nursery Web Spider
Misumena vatia	Goldenrod Spider

Fish

Ambloplites rupestris	Rock Bass
Ameriurus nebulosus	Brown Bullhead
Catostoums commersoni	Common White Sucker
Culaea inconstans	Brook Stickleback
Cyprinus carpio	Common Carp
Etheostoma nigrum	Johnny Darter
Percina caprodes	Logperch
Esox lucius	Northern Pike
Etheostoma exile	Iowa Darter
Etheostoma olmstedi	Tesselated Darter
Exoglossum maxillingua	Cutlip Minnow
Hybognathus hankinsoni	Brassy Minnow
Ictalurus natalis	Yellow Bullhead
Lepomis gibbosus	Pumpkinseed
Lepomis macrochirus	Bluegill
Luxilus cornutus	Common Shiner
Moxostoma valenciennesi	Greater Redhorse
Moxostoma macrolepidotum	Shorthead Redhorse
Micropterus dolomieui	Smallmouth Bass
Micropterus salmoides	Largemouth Bass
Neogobius melanostoma	Round Goby
Notemigonus crysoleucas	Golden Shiner
Notropis volucellus	Mimic Shiner
Notropis hundsonius	Spottail Shiner
Perca flavescens	Yellow Perch
Phoxinus eos	Northern Redbelly Dace
Phoxinus neogaeus	Finescale Dace
Pimephales notatus	Bluntnose Minnow
Pomoxis nigromaculatus	Black Crappie
Semotilus atromaculatus	Creek Chub
Semotilus corporalis	Fallfish
Umbra limi	Central Mudminnow

Appendix C

Detailed Ecosystem Gap Analysis

South Nation Forest
Site Region 6E-12 Critical Landform-Vegetation Elements

Property No.	Stand No.	Landform	Vegetation	Code	Area (ha.)	Area (acres)	Status	
2	b	Glaciomarine Deposits (Coarse)	Marsh	16-160	0.778	1.922	Limited	Easement
2	c	Glaciomarine Deposits (Coarse)	Forest	16-90	0.318	0.786		
3	a	Glaciomarine Deposits (Coarse)	Marsh	16-160	0.895	2.212		Easement
7	e	Glaciomarine Deposits (Coarse)	Forest	16-90	0.302	0.746		
8	f	Glaciomarine Deposits (Coarse)	Forest	16-90	0.411	1.016		
9	c	Glaciomarine Deposits (Coarse)	Marsh	16-160	2.046	5.056		Easement
9	b	Glaciomarine Deposits (Coarse)	Forest	16-90	0.464	1.147		
11	c	Glaciomarine Deposits (Coarse)	Forest	16-90	0.829	2.049		
12	b	Glaciomarine Deposits (Coarse)	Forest	16-90	0.854	2.110		
12	d	Glaciomarine Deposits (Fine)	Deciduous Forest	17-93	0.562	1.389		
13	b	Glaciomarine Deposits (Coarse)	Forest	16-90	0.066	0.163		
14	b	Glaciomarine Deposits (Coarse)	Forest	16-90	0.001	0.002		
14	b	Eolian Sand Dunes	Deciduous Forest	20-93	0.022	0.054		
15	a	Glaciomarine Deposits (Coarse)	Forest	16-90	0.253	0.625		
15	b	Glaciomarine Deposits (Coarse)	Marsh	16-160	0.109	0.269		Easement
17	a	Fine Ground Moraine	Coniferous Forest	7-91	0.026	0.064		
18	a	Alluvial & Fluvial Deposits	Mixed Forest	18-92	0.066	0.163		
18	e	Glaciomarine Deposits (Fine)	Mixed Forest	17-92	0.790	1.952		
18	a	Alluvial & Fluvial Deposits	Forest	18-90	0.616	1.522		
18	a	Glaciomarine Deposits (Coarse)	Forest	16-90	0.358	0.885		
18	a	Alluvial & Fluvial Deposits	Mixed Forest	18-92	6.434	15.899		
21	a	Glaciomarine Deposits (Coarse)	Forest	16-90	0.944	2.333		
21	b	Eolian Sand Dunes	Treed Swamp	20-131	0.510	1.260		
21	c	Eolian Sand Dunes	Deciduous Forest	20-93	4.974	12.291		
22	e	Glaciomarine Deposits (Coarse)	Marsh	16-160	1.620	4.003		
22	a	Glaciomarine Deposits (Coarse)	Forest	16-90	0.289	0.714		
23	d	Glaciomarine Deposits (Coarse)	Forest	16-90	0.294	0.726		
25	p	Fine Ground Moraine	Forest	7-90	0.777	1.920		
25	n	Fine Ground Moraine	Coniferous Forest	7-91	1.665	4.114		
27	a	Glaciomarine Deposits (Coarse)	Forest	16-90	0.909	2.246		
27	c	Glaciomarine Deposits (Coarse)	Marsh	16-160	1.398	3.455		Easement
28	f	Eolian Sand Dunes	Mixed Forest	20-92	0.037	0.091		
28	g	Eolian Sand Dunes	Treed Swamp	20-131	0.472	1.166		
28	d	Eolian Sand Dunes	Deciduous Forest	20-93	4.047	10.000		
28	k	Glaciomarine Deposits (Coarse)	Marsh	16-160	1.564	3.865		

South Nation Forest
Site Region 6E-12 Critical Landform-Vegetation Elements

Property No.	Stand No.	Landform	Vegetation	Code	Area (ha.)	Area (acres)	Status	
29	h	Organic Deposits	Deciduous Forest	19-93	0.408	1.008		
29	i	Organic Deposits	Mixed Forest	19-92	0.188	0.465		
29	i	Organic Deposits	Forest	19-90	0.405	1.001		
29	i	Organic Deposits	Marsh	19-160	6.795	16.791		Easement
29	e	Fine Ground Moraine	Thicket Swamp	7-135	0.595	1.470		Easement
29	b	Fine Ground Moraine	Forest	7-90	0.739	1.826		
31	b	Glaciomarine Deposits (Coarse)	Forest	16-90	0.214	0.529		
32	a	Organic Deposits	Coniferous Forest	19-91	0.180	0.445		
36	b	Glaciomarine Deposits (Fine)	Mixed Forest	17-92	0.020	0.049		
36	a	Glaciomarine Deposits (Fine)	Deciduous Forest	17-93	0.438	1.082		
37	e	Glaciomarine Deposits (Coarse)	Forest	16-90	0.390	0.964		
38	b	Glaciomarine Deposits (Fine)	Deciduous Forest	17-93	0.045	0.111		
40	a	Alluvial & Fluvial Deposits	Mixed Forest	18-92	1.142	2.822		
40	c	Eolian Sand Dunes	Deciduous Forest	20-93	0.243	0.600		
41	c	Alluvial & Fluvial Deposits	Mixed Forest	18-92	1.167	2.884		
43	a	Glaciomarine Deposits (Coarse)	Forest	16-90	0.014	0.035		
44	a	Glaciomarine Deposits (Coarse)	Forest	16-90	2.760	6.820		
45	b	Eolian Sand Dunes	Deciduous Forest	20-93	0.991	2.449		
47	a	Organic Deposits	Mixed Forest	19-92	0.178	0.440		
47	d	Fine Ground Moraine	Coniferous Forest	7-91	0.133	0.329		
47	c	Fine Ground Moraine	Thicket Swamp	7-135	0.021	0.052		
48	c	Colluvium (Coarse)	Mixed Forest	5-92	0.015	0.037		
49	b	Glaciomarine Deposits (Coarse)	Forest	16-90	1.102	2.723		
51	a	Fine Ground Moraine	Forest	7-90	0.021	0.052		
51	b	Alluvial & Fluvial Deposits	Mixed Forest	18-92	0.015	0.037		
51	b	Glaciomarine Deposits (Coarse)	Forest	16-90	0.076	0.188		
52	b	Glaciomarine Deposits (Coarse)	Marsh	7-91	1.424	3.519		Easement
54	b	Glaciomarine Deposits (Coarse)	Marsh	16-90	4.333	10.707		Easement
55	b	Organic Deposits	Mixed Forest	19-92	0.151	0.373		
55	b	Organic Deposits	Deciduous Forest	19-93	0.450	1.112		
55	b	Glaciomarine Deposits (Coarse)	Marsh	16-160	0.430	1.063		Easement
56	k, l,m,n,o	Fine Ground Moraine	Coniferous Forest	7-91	8.615	21.288		
56	h	Glaciomarine Deposits (Coarse)	Forest	16-90	0.019	0.047		
57	a	Glaciomarine Deposits (Coarse)	Forest	16-90	0.214	0.529		

South Nation Forest
Site Region 6E-12 Critical Landform-Vegetation Elements

Property No.	Stand No.	Landform	Vegetation	Code	Area (ha.)	Area (acres)	Status	
58	a	Glaciomarine Deposits (Coarse)	Thicket Swamp	16-135	0.048	0.119		Easement/CLTIP
58	d	Glaciomarine Deposits (Coarse)	Marsh	16-160	0.012	0.030		Easement/CLTIP
58	d	Glaciomarine Deposits (Coarse)	Forest	16-90	0.012	0.030		
59	d	Glaciomarine Deposits (Coarse)	Marsh	16-160	1.372	3.390		Easement/CLTIP
59	c	Glaciomarine Deposits (Coarse)	Thicket Swamp	16-135	21.399	52.878		Easement/CLTIP
60	b	Glaciomarine Deposits (Coarse)	Forest	16-90	0.596	1.473		
60	c	Colluvium (Coarse)	Treed Swamp	5-131	0.158	0.390		Easement/CLTIP
60	c	Colluvium (Coarse)	Deciduous Forest	5-93	0.256	0.633		
60	c	Colluvium (Coarse)	Mixed Forest	5-92	0.894	2.209		
61	a, c	Glaciomarine Deposits (Coarse)	Forest	16-90	0.943	2.330		
62	i	Glaciomarine Deposits (Coarse)	Forest	16-90	0.698	1.725		
63	c, f	Alluvial & Fluvial Deposits	Thicket Swamp	18-135	2.043	5.048		Easement/CLTIP
63	b	Alluvial & Fluvial Deposits	Marsh	18-160	0.380	0.939		Easement/CLTIP
63	d	Alluvial & Fluvial Deposits	Coniferous Forest	18-91	0.281	0.694		
63	a	Alluvial & Fluvial Deposits	Forest	18-90	0.681	1.683		
63	a	Alluvial & Fluvial Deposits	Mixed Forest	18-92	2.792	6.899		
63	a	Glaciomarine Deposits (Fine)	Treed Swamp	17-131	0.202	0.499		Easement/CLTIP
63	a	Glaciomarine Deposits (Fine)	Deciduous Forest	17-93	0.060	0.148		
63	e	Glaciomarine Deposits (Coarse)	Forest	16-90	0.573	1.416		
65	e	Organic Deposits	Forest	19-90	0.308	0.761		
65	d	Organic Deposits	Mixed Forest	19-92	0.952	2.352		
66	a, c, d	Glaciomarine Deposits (Coarse)	Forest	16-90	1.321	3.264		
67	a	Fine Ground Moraine	Forest	7-90	0.494	1.221		
67	a	Organic Deposits	Mixed Forest	19-92	0.157	0.388		
68	a	Organic Deposits	Mixed Forest	19-92	0.022	0.054		
68	f	Glaciomarine Deposits (Coarse)	Marsh	16-160	0.867	2.142		Easement
68	f, g	Organic Deposits	Marsh	19-160	7.415	18.323		Easement
69	c	Organic Deposits	Mixed Forest	19-92	0.068	0.168		
69	b	Glaciomarine Deposits (Coarse)	Forest	16-90	0.383	0.946		
70	f	Organic Deposits	Deciduous Forest	19-93	0.001	.002		
70	f	Organic Deposits	Marsh	19-160	0.045	0.111		Easement
70	f	Glaciomarine Deposits (Coarse)	Marsh	16-160	0.303	0.749		Easement
70-A	f, g	Organic Deposits	Deciduous Forest	19-93	0.896	2.214		
70-A	f, g	Organic Deposits	Mixed Forest	19-92	0.228	0.563		
70-A	f, g	Organic Deposits	Marsh	19-160	0.360	0.890		Easement

South Nation Forest
Site Region 6E-12 Uncommon Landform-Vegetation Elements

Property No.	Stand No.	Landform	Vegetation	Code	Area (ha.)	Area (acres)	Status	
70-A	f, g	Glaciomarine Deposits (Coarse)	Marsh	16-160	0.372	0.919		Easement
71	d	Glaciomarine Deposits (Coarse)	Forest	16-90	0.360	0.890		
72	a	Glaciomarine Deposits (Coarse)	Forest	16-90	0.413	1.021		
73	j	Glaciomarine Deposits (Coarse)	Marsh	16-160	2.080	5.140		Easement
74	d	Glaciomarine Deposits (Coarse)	Forest	16-90	0.248	0.613		
75	b	Glaciomarine Deposits (Coarse)	Forest	16-90	0.450	1.112		
76	b, c	Alluvial & Fluvial Deposits	Marsh	18-160	0.929	2.296		
76	c	Alluvial & Fluvial Deposits	Thicket Swamp	18-135	0.455	1.124		Easement
76	c, d, e	Glaciomarine Deposits (Coarse)	Marsh	16-160	1.436	3.548		Easement
77	a	Glaciomarine Deposits (Coarse)	Forest	16-90	0.032	0.079		
78	a	Glaciomarine Deposits (Coarse)	Forest	16-90	0.270	0.667		
78	f	Glaciomarine Deposits (Coarse)	Marsh	16-160	0.127	0.314		Easement
80	b	Glaciomarine Deposits (Coarse)	Marsh	16-160	0.692	1.710		Easement
80	c	Glaciomarine Deposits (Coarse)	Forest	16-90	0.243	0.600		
82	a, c, d	Glaciomarine Deposits (Coarse)	Forest	16-90	0.926	2.288		
83	d	Glaciomarine Deposits (Coarse)	Forest	16-90	0.405	1.001		
85	a	Glaciomarine Deposits (Coarse)	Forest	16-90	0.292	0.722		
87	b	Glaciomarine Deposits (Coarse)	Marsh	16-160	0.027	0.067		Easement
87	b	Glaciomarine Deposits (Coarse)	Forest	16-90	0.027	0.067		
89	c	Organic Deposits	Marsh	19-160	1.946	4.809		Easement
90	c	Fine Ground Moraine	Thicket Swamp	7-135	0.042	0.104		Easement
90	c	Organic Deposits	Deciduous Forest	19-93	0.068	0.168		
91	c	Organic Deposits	Deciduous Forest	19-93	0.022	0.054		
91	c, d	Fine Ground Moraine	Thicket Swamp	7-135	1.511	3.734		
92	a	Glaciomarine Deposits (Coarse)	Thicket Swamp	17-135	0.286	0.707		Easement
92	a	Glaciomarine Deposits (Coarse)	Treed Swamp	17-131	0.102	0.252		Easement
93	a	Eolian Sand Dunes	Mixed Forest	20-92	0.194	0.479		
93	c	Glaciomarine Deposits (Coarse)	Forest	16-90	0.315	0.778		
93	b	Glaciomarine Deposits (Coarse)	Marsh	16-160	0.924	2.283		
94	b	Glaciomarine Deposits (Coarse)	Marsh	16-160	0.226	0.558		
94	b	Glaciomarine Deposits (Fine)	Marsh	17-160	0.089	0.220		
94	b	Glaciomarine Deposits (Fine)	Mixed Forest	17-92	0.134	0.331		
98		Fine Ground Moraine	Forest	7-90	0.315	0.778	Protected	Conservation Easement
98		Glaciomarine Deposits (Coarse)	Forest	16-90	0.135	0.334	Protected	Conservation Easement
98		Organic Deposits	Deciduous Forest	19-93	0.104	0.257	Protected	Conservation Easement

South Nation Forest
Site Region 6E-12 Critical Landform-Vegetation Elements

Property No.	Stand No.	Landform	Vegetation	Code	Area (ha.)	Area (acres)	Status	
98		Fine Ground Moraine	Thicket Swamp	7-135	0.061	0.151	Protected	Conservation Easement
99		Organic Deposits	Forest	19-90	0.107	0.264	Protected	Conservation Easement
99		Organic Deposits	Deciduous Forest	19-93	0.115	0.284	Protected	Conservation Easement
99		Fine Ground Moraine	Forest	7-90	0.343	0.848	Protected	Conservation Easement
99		Fine Ground Moraine	Thicket Swamp	7-135	4.161	10.282	Protected	Conservation Easement
100	m	Fine Ground Moraine	Coniferous Forest	7-91	0.160	0.395	Protected	Conservation Easement
101	j	Fine Ground Moraine	Coniferous Forest	7-91	0.112	0.277	Protected	Conservation Easement
102	i	Mesozoic to Paleozoic Bedrock	Deciduous Forest	2-93	0.015	0.037	Protected	Conservation Easement
103	c	Fine Ground Moraine	Coniferous Forest	7-91	0.671	1.658	Protected	Conservation Easement
104	b, c	Organic Deposits	Deciduous Forest	19-93	0.697	1.722	Protected	Conservation Easement
104	c	Organic Deposits	Forest	19-90	0.150	0.371	Protected	Conservation Easement
104	f	Organic Deposits	Marsh	19-160	2.953	7.297	Protected	Conservation Easement
104	d	Fine Ground Moraine	Forest	7-90	0.203	0.502	Protected	Conservation Easement
104	d	Fine Ground Moraine	Thicket Swamp	7-135	0.153	0.378	Protected	Conservation Easement
104	c	Glaciomarine Deposits (Coarse)	Forest	16-90	0.022	0.054	Protected	Conservation Easement
105		Glaciomarine Deposits (Coarse)	Thicket Swamp	16-135	0.039	0.096		
106	b	Mesozoic to Paleozoic Bedrock	Mixed Forest	2-92	0.062	0.153		
106	a	Mesozoic to Paleozoic Bedrock	Deciduous Forest	2-93	7.174	17.727		
110	c	Fine Ground Moraine	Coniferous Forest	7-91	0.022	0.054		
111	c	Alluvial & Fluvial Deposits	Forest	18-90	0.539	1.332		
111	c	Glaciomarine Deposits (Fine)	Forest	17-90	0.052	0.128		
111	c	Glaciomarine Deposits (Fine)	Treed Swamp	17-131	2.092	5.169		
111	c	Glaciomarine Deposits (Fine)	Deciduous Forest	17-93	3.241	8.009		
113	a	Glaciomarine Deposits (Fine)	Deciduous Forest	17-93	1.395	3.447		
114	b	Glaciomarine Deposits (Fine)	Forest	17-90	0.325	0.803		
114	b	Glaciomarine Deposits (Fine)	Treed Swamp	17-131	0.710	1.754		
114	b	Glaciomarine Deposits (Fine)	Deciduous Forest	17-93	1.086	2.684		
115	a	Glaciomarine Deposits (Fine)	Mixed Forest	17-92	1.386	3.425		
115	a	Glaciomarine Deposits (Fine)	Deciduous Forest	17-93	0.130	0.321		
117	f	Mesozoic to Paleozoic Bedrock	Mixed Forest	2.92	1.418	3.504		
117	d, f	Mesozoic to Paleozoic Bedrock	Deciduous Forest	2-93	6.170	15.246		
119	a	Organic Deposits	Marsh	19-160	0.121	0.299		CLTIP
121	a	Glaciomarine Deposits (Fine)	Forest	17-90	0.338	0.835		
124	a	Glaciomarine Deposits (Fine)	Deciduous Forest	17-93	0.107	0.264		
145	i, j	Organic Deposits	Mixed Forest	19-92	1.997	4.935	Protected	Conservation Easement

South Nation Forest
Site Region 6E-12 Critical Landform-Vegetation Elements

Property No.	Stand No.	Landform	Vegetation	Code	Area (ha.)	Area (acres)	Status	
145	i, j	Organic Deposits	Forest	19-90	0.495	1.223	Protected	Conservation Easement
145	i, j	Fine Ground Moraine	Forest	7-90	0.428	1.058	Protected	Conservation Easement
147	d, i	Organic Deposits	Mixed Forest	19-92	1.710	4.226		
147	h	Organic Deposits	Forest	19-90	1.241	3.067		
147	z	Organic Deposits	Marsh	19-160	0.970	2.397		
147	c, d, e, h	Fine Ground Moraine	Forest	7-90	1.603	3.961		
147	e, f	Fine Ground Moraine	Coniferous Forest	7-91	0.894	2.209		
149		Glaciomarine Deposits (Fine)	Deciduous Forest	17-93	2.022	4.996		
150		Alluvial & Fluvial Deposits	Mixed Forest	18-92	5.402	13.349	Protected	Conservation Easement
150		Alluvial & Fluvial Deposits	Marsh	18-160	2.176	5.377	Protected	Conservation Easement
150		Alluvial & Fluvial Deposits	Deciduous Forest	18-93	29.888	73.855	Protected	Conservation Easement
150		Glaciomarine Deposits (Fine)	Mixed Forest	17-92	0.290	0.717	Protected	Conservation Easement
151		Glaciomarine Deposits (Fine)	Deciduous Forest	17-93	0.061	0.151		
154		Colluvium (Coarse)	Deciduous Forest	5-93	0.170	0.420		
155		Mesozoic to Paleozoic Bedrock	Treed Swamp	2-131	10.734	26.524		CLTIP
155		Mesozoic to Paleozoic Bedrock	Thicket Swamp	2-135	0.654	1.616		CLTIP
155		Mesozoic to Paleozoic Bedrock	Mixed Forest	2-92	0.771	1.905		
155		Mesozoic to Paleozoic Bedrock	Deciduous Forest	2-93	0.058	0.143		
155		Mesozoic to Paleozoic Bedrock	Marsh	2-160	0.135	0.334		CLTIP
155		Organic Deposits	Marsh	19-160	1.181	2.918		CLTIP
155		Organic Deposits	Mixed Forest	19-92	0.039	0.096		
156	c	Fine Ground Moraine	Coniferous Forest	7-91	0.202	0.499		
156	b c,e,f,g	Mesozoic to Paleozoic Bedrock	Treed Swamp	2-131	3.003	7.421		
156	e	Mesozoic to Paleozoic Bedrock	Deciduous Forest	2-93	0.129	0.319		
156	g	Mesozoic to Paleozoic Bedrock	Coniferous Forest	2-91	9.713	24.001		
156	g	Mesozoic to Paleozoic Bedrock	Mixed Forest	2-92	2.227	5.503		
157	a	Glaciomarine Deposits (Fine)	Deciduous Forest	17-93	0.021	0.052		
157	b	Fine Ground Moraine	Coniferous Forest	7-91	0.810	2.002		
159	b	Alluvial & Fluvial Deposits	Marsh	18-160	3.920	9.687		CLTIP
159	a	Glaciomarine Deposits (Fine)	Marsh	17-160	0.113	0.279		CLTIP
159	a	Glaciomarine Deposits (Fine)	Tree Swamp	17-131	4.691	11.592		
159	a	Glaciomarine Deposits (Fine)	Deciduous Forest	17-93	1.577	3.897		
163	a	Glaciomarine Deposits (Coarse)	Thicket Swamp	16-135	0.032	0.079		