

SIMCOE COUNTY FORESTS

2011-2030



Acknowledgements

Effective forest management planning can only be achieved when the experience, values, and opinions of a wide variety of interested parties come together to formulate a vision for the future. The knowledge and expertise of professionals must be combined with the needs and values of people who earn their living from the forest, those who recreate in it, and those who have a spiritual attachment to it. To all those who have contributed to this plan, the author is grateful.

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The foresight, dedication and commitment of many past individuals including managers, professional foresters, technicians, and others has resulted in today's Simcoe County Forests. Without their contribution this plan would not have been possible.

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1.1 Purpose and Scope

The wise use and stewardship of our forests is essential to our quality of life. Decisions made and actions taken today in the Simcoe County Forests (SCF) can affect a wide range of economic, environmental and social values both now and into the future.

Forest management planning has traditionally been conducted on a 20-year planning horizon due to the time required for forests to develop and grow. Forests are not static; long-range planning is vital to foresee trends and make adjustments to current operations as required.

Previous 20-year plans have been completed for the SCF in 1962 and 1983, and there have been many changes which have occurred since the last Forest Management Plan (FMP) was completed:

- The SCF was still an ‘Agreement Forest’ at that time, with all planning and operations conducted by the Ministry of Natural Resources;
- Expansion has continued with the addition of approximately 1,400 hectares;
- Many of the oldest plantation areas are at or nearing the end of rotation age;
- Invasive exotic species have been introduced;
- Enhanced protection of other ecological values is expected;
- Significant technological advances have occurred including Geographic Information Systems (GIS) technology;
- Changing timber values and market opportunities;
- Recreational use has continued to increase;
- Public perceptions and values have changed along with increased expectations of transparency;
- Increasing concerns with respect to liability;
- Reduced resources;
- Potential implications associated with climate change;
- The certification of woodlands is gaining momentum worldwide.

The SCF Recreation Policy was recently approved (July 2006) following extensive consultation, and as such is not included within the scope of this plan. The Recreation Policy Summary is provided in Appendix 8.1.

This Plan applies to all parcels of land currently owned by the County and identified as a ‘County Forest’ in addition to lands acquired in subsequent years. It is intended to complement the County of Simcoe Official Plan and ensure that the goals and objectives for the County Forests align with the strategic directions identified within the County’s Strategic Plan.

Introduction

1.1 Purpose and Scope *continued*

Forests must be seen as ecosystems, not just trees. Forest ecosystems, while dominated by trees, also include many other components including shrubs, herbs, mammals, birds, microscopic creatures, soil, air and water. As such, subsequent references to the forest will encompass all aspects of forest ecosystems which are all critical components of a healthy, functioning and sustainable ecosystem.

1.2 Historical Influences on Forest Development

1.2.1 Soils and Climate

The characteristics of today's forest ecosystems have been shaped by many factors since the retreat of the last glacier. Moisture and temperature comprise the climatic conditions which enable, or limit, the development and growth of living organisms. In a forest system, the soils which are such a critical component are a result of the interaction between the plants and animals, climate, and the geological materials. Just as the trees and forest are not static, the soils also change and develop over time.

Simcoe County is predominantly underlain by limestone and shale parent material, with the surface geology and soils formed largely by the action of ice and water following the last ice age:

- Much of the heavier and more fertile soils are the result of lake deposits from glacial Lake Algonquin. These areas consist largely of Lacustrine silts and clays and offshore sands with some tills reworked by water of Lake Algonquin, mainly of loam and clay loam texture. Much of this area, generally described as the Simcoe Lowlands, is maintained in agricultural production today.
- The dominant soil type on upland sites is well-drained stoney or sandy loam. These areas resulted from islands in Lake Algonquin and include at least one interlobate moraine and several till plains. The resulting soils are generally moderately acidic with low fertility and very well-drained. The County Forests are predominantly located on these sites.

The climate of Simcoe County is relatively humid with large seasonal variations moderated somewhat by the great lakes. Minor variations occur due to changes in topography including elevated areas such as the Oro Moraine and the Nottawasaga Valley which is impacted by the higher elevations to the west. Summers are warm and humid with a significant percentage of rain often occurring during storm events. Winter seasons are highly variable but significant snowfall is common due to 'lake effect' snow.

Introduction

1.2 Historical Influences on Forest Development

1.2.2 Human Impacts

Pre-European

Most would suggest that it was the arrival of the European settlers in the 19th century that shaped the landscape in South Central Ontario, yet human influence played a pivotal role for hundreds of years prior to that time. In fact, the ‘virgin’ stands of white pine encountered by the early settlers were not what most people think.

Humans first appeared in Ontario approximately 12,000 years ago, although any substantive impact to the forest did not occur until much later. In Southern Ontario, agricultural use began between 1,500 and 3,000 ago, initially with corn and followed by other basic crops. By about 800 years ago it was generally widespread, and with it came a significant increase in population. ‘It is at this time that the first major human cultural impacts occurred on Ontario’s forests, setting in place land use patterns that have had an influence to this day.’ (Armson, K.A., 2001). Estimates based largely upon records compiled from Champlain and missionaries in the early 1600s indicate that the Huron nation, which occupied much of the area today called ‘Huronion’, totalled 20-30,000 or more. Villages were constructed and abandoned approximately every eight to 12 years as a result of decreasing soil fertility and increasing distances for firewood and timber for construction. Evidence exists to suggest that areas were re-colonized approximately every 60 years; as such the landscape of Simcoe County during this period was dominated by agricultural lands and young forests in various stages of succession with only small pockets of mature trees. It was not until the near collapse of the Aboriginal population in the 1600s from war and disease that much of Simcoe County reverted to forest. Thus, much of what was perceived by the early European settlers as ‘virgin’ forest had in fact resulted from the abandonment of agricultural lands less than 200 years prior. The forested landscape of Simcoe County has been heavily influenced by human occupation for at least 800 years.

European Settlement

European settlement in the Simcoe County area began in the late 1700s; impacts to the forest were renewed with the clearing of land for agriculture and the production of timber and firewood. The Napoleonic Wars in the early 1800s created a huge demand for the ‘virgin’ white and red pine, much of which was squared and shipped to Britain. The push for settlement and agricultural expansion accelerated throughout the 1800s with the forest often viewed more as an impediment. Much of the hardwood timber at the time was burned with the resulting potash used for making soap. Although the original white pine was viewed as ‘inexhaustible’ by the first timber barons,

Introduction

1.2 Historical Influences on Forest Development

1.2.2 Human Impacts *continued*

it was eliminated in less than 100 years, and by the late 1800s most of the cultivated lands had already been cleared by settlers.

A Conservation Ethic Begins

As early as the 1870s, concern was growing that the forest was being cleared with no forethought regarding both the future supply of timber and the potential impacts to the landscape. In 1879, a report from the Fruit Growers Association of Ontario indicated the need to ‘carefully instruct the farming community how much depends on the judicious planting of forest trees, their presence producing abundant rainfall, preserving and distributing moisture and thereby forming a preventative against drought and devastating floods’. In some areas of Ontario, large tracts of land that had once supported thriving farms had become wastelands as the sandy soils could not support the agricultural practices of the day.

A preliminary effort of the Ontario Legislature in the late 1800s resulted in the planting of many of the roadside maple trees that we see today. In the early 1900s, momentum began to build toward a more substantial effort to increase tree cover in critical areas of the province, including several areas identified within Simcoe County. Two key figures; E.J. Zavitz, the Provincial Forester, and E.C. Drury, who would become Premier in 1919, were instrumental in identifying the need and developing the framework to not only assist farmers replant waste land, but also to establish ‘forest reserves’ in key areas throughout Southern Ontario.

In 1909, Zavitz authored a government report entitled “Reforestation of Waste Lands in Southern Ontario”. The report identified and mapped the most problematic areas which had been devastated by a lack of tree cover, and recommended that assistance be provided to private landowners to protect remaining woodlands and replant marginal lands. He also recommended that the large ‘wastelands’ identified should be publicly owned and managed for the greater good. The final paragraph states:

‘The policy of putting these lands under forest management has many arguments in its favour. It will pay as a financial investment; assist in insuring a wood supply; protect the headwaters of streams; provide breeding ground for wild game; provide object lessons in forestry; and prevent citizens from developing under conditions which can end only in failure’.

Introduction

1.2 Historical Influences on Forest Development

1.2.2 Human Impacts *continued*

In 1921 the Reforestation Act was passed which enabled the Minister of Lands and Forests to enter into agreements for reforesting, developing and managing lands held by counties. In 1922, Simcoe County led the way and was the first to enter into an agreement. County officials bought the land and the government planted and managed the trees. The Hendrie Tract, 1,000 acres located on Concession VI in Vespra Township, was the first property to be planted beginning on May 8, 1922.

During the rest of the 1920s, 1930s and 1940s several additional large tracts were purchased. These included Orr Lake, Waverley, Tosorontio, Drury, Barr and Wildman. Much of the land put under agreement, originally submarginal farmland either too light or too stony to farm, was reforested with over 20 million trees. Many properties also included remnant woodlots which had been poorly managed and were unproductive.

During the 1970s less emphasis was placed on reforestation; instead increasing focus was placed on purchasing land that was already naturally forested. In 1974 the County incorporated the townships of Rama and Mara, adding an additional 3,525 acres of forest and provincially significant wetlands to the SCF.

Land prices rose dramatically in the late 1970s and purchasing additional lands for forestry purposes was questioned. However, by 1980 revenue exceeded expenses and the County had purchased and or acquired approximately 10,525 hectares of land. In 1982, the year that marked the 60th anniversary of the Agreement Forest Program, the Canadian Forestry Association chose the County as the “Forestry Capital of Canada”; a well-deserved honour.

Grants from the provincial government were discontinued in 1991 because of a lack of funding and since 1996 the County has been fully and completely responsible for all aspects of management.

Introduction

1.2 Historical Influences on Forest Development

1.2.3 Natural Disturbance Factors

Although it is not clearly evident, forests are always in transition. The geological forces of the past several thousand years combined with human intervention for at least 800 years has largely formed the landscape of Simcoe County as we know it today. However, localized natural disturbances including wind, water, fire, and insects or disease also play a role in the collapse, regeneration, and growth of forest ecosystems. Natural disturbance ‘patterns’ in the Simcoe County area are not as well understood as is the case further north in the boreal region, partly as a result of the level of human disturbance described earlier, but also due to the much larger scale of collapse and regeneration which is typical of the boreal region.

Wind:

Impacts from wind events, although relatively common, are most often quite localized. Occurrences are generally due to severe summer storms when cold fronts collide with a hot, humid air mass. In most cases wind events create small openings in the canopy by removing large, over-mature individual trees with structural weakness or compromised root systems. This is a common disturbance associated with mature broadleaf forests in the region and contributes to an accumulation of woody debris and partial mixing and disturbance of soil layers. It also provides openings in the canopy to allow for regeneration. Tornadoes do occur on an infrequent basis; most notably impacting the Barrie area in 1986 and Midland in 2010. Resulting impacts to forests are also infrequent but can result in large openings of forests of any age, usually characterized by stem breakage. A recent wind event occurred in the Cory Tract of the SCF which resulted in the complete loss of several hectares of mature hardwood forest.

Ice/snow:

Ice and /or snow may also combine with wind to become more destructive. Light ice storms or heavy wet snow is not unusual in Simcoe County particularly in early winter, but the result is generally limited to the pruning of dead or dying branches. Occasionally, however, ice or snow can result in very significant impacts as occurred in Eastern Ontario in 1998. In Simcoe County, on November 15, 2008, a heavy wet snowfall event occurred in the central area the County. The weight which accumulated on tree branches was followed by much colder temperatures and additional snow, freezing the weight to the branches. The pine plantations prevalent throughout much of the SCF were particularly hard hit by the event. The most affected stands were in the 30 to 50 year age group, although some losses occurred in more mature stands also. Damage ranged from scattered individual trees, to patches of up to several acres, to the complete loss of

Introduction

1.2 Historical Influences on Forest Development

1.2.3 Natural Disturbance Factors *continued*

plantations in isolated cases. As a result of this storm event approximately 500 ha (12% of total plantation area) was impacted sufficiently to warrant salvage operations. Of this, 120 ha (3% of total plantation area) was totally lost to future red pine production.

Fire:

Fire has played a critical role in the development of forests throughout Ontario. Fire influences the composition, structure, and pattern of vegetation by reducing competition, creating seedbeds, releasing nutrients, and triggering seed release or vegetative reproduction. (Van Sleeuwen, 2006). As described earlier, the Aboriginal use of fire was a significant factor but its extent and impact are not well understood.

Whether or not influenced by the Hurons, the white and red pine dominated forests encountered by the first European settlers were primarily of fire origin. A literature review by Van Sleeuwen indicates that these stands historically experienced low intensity fires at short intervals (12 to 37 years) and high-intensity stand-replacing fires at longer intervals of 46 to 85 years. Fire has also been integral to the occurrence of red oak in the area due to its inability to compete under low light conditions with more shade tolerant species.

More recently, human impact has been largely due to the suppression of fire. In the SCF specifically, fire suppression was an important issue during the early years of reforesting substantial forest blocks. Fire occurrences and impacts have been very modest as a result of the substantial resources allocated to fire control including fires guards, monitoring, staff training, and equipment.

Insect/disease:

Similar to fire, insect infestations have historically affected huge areas of the spruce, pine and fir forests of the boreal region, leading to the renewal and regeneration of vast areas of even-aged forests. Again, due to the differences in topography, forest types, and diversity typical of the Great Lakes St. Lawrence forest, impacts from insects and disease in this region are much more localized. A wide variety of insects and diseases in the Simcoe County area have impacted the cycle of decline and renewal in localized areas for centuries.

2.1 Physical Geography

The following description is comprised of excerpts from the “Official Plan for the County of Simcoe”:

Simcoe County is one of the most geologically diverse areas in Ontario, containing a wide array of prominent physiographic features. Two areas of high topographic relief, the Niagara Escarpment and the Oak Ridges Moraine, form much of the County’s western and southern boundaries, respectively. The Oro Moraine is the dominant landform northwest of Lake Simcoe, while on the east side of the lake is an extensive limestone plain. Granitic bedrock at surface occupies the northeast quadrant of the County. The interior is characterized by a mix of till plains south of the City of Barrie, and sand plains, till plains, and clay plains to the north of Barrie. Several of the larger river systems that drain north into Georgian Bay, notably the Nottawasaga and Wye, occupy wide, flat valleys underlain by extensive beds of silt and organic deposits which in turn give rise to several large wetlands such as Minesing Wetland and Wye Marsh.

In terms of life science, Simcoe County is home to more than 1,500 species of vascular plants, more than 150 species of nesting birds, 50 mammals, and 33 reptiles and amphibians. It supports specialized vegetation communities adapted to unique habitats such as coastal plains, prairies and savannas, alvars, bogs and fens, the Great Lakes shoreline, and Niagara Escarpment cliff faces and talus slopes.

The County contains 68 provincially significant wetlands, 35 provincially significant Areas of Natural and Scientific Interest, and at least 64 species of plants and animals considered to be vulnerable, threatened, or endangered in Ontario and/or Canada. Extensive tracts of undisturbed forest in the north and east of the County are habitats for forest interior bird species and mammals such as Black Bear, Marten, and Fisher. Because the County is situated at the contact zone between the Precambrian Shield and till/morainal deposits to the south it has elements of both Boreal Forest and Great Lakes-St. Lawrence Forest represented together. This results in an unusual mix of northern species of plants and animals at the southern edge of their ranges coexisting with southern species at or near their northern limits. This area known as the ‘Land Between’ forms the northern part of the County’s landscape bordering the Severn River and extending east of Lake Couchiching. It represents a thin strip of unique habitat that runs between the two major ecozones and contains its own unique habitat and landscape characteristics and features an uncommonly high degree of ecological diversity.

Features of the County

2.1 Physical Geography *continued*

The County contains features which have received international recognition for their environmental significance: Minesing Wetland, Matchedash Bay and the Niagara Escarpment. The first two are protected as wetlands, the latter by the Niagara Escarpment Plan. The County recognizes the ecological and economic importance of the preservation of these features and other natural heritage features within the County.

The County also contains extensive shoreline areas, as it borders the major water bodies of Georgian Bay, Lake Simcoe, Lake Couchiching, the Trent-Severn Waterway and several smaller lakes. The shoreline areas and associated beaches and other landscape features are major elements shaping not only the ecological system but the economy of the County, given their contribution to tourism and recreation, and the settlement pattern, given the large number of dwellings serving seasonal and permanent residents along the shoreline.

2.2 Settlement and Growth

The County of Simcoe had a permanent 2006 population of 272,200. In addition about 166,400 people reside in the adjacent cities of Barrie and Orillia. The County is projected to grow by 61% to 439,500 in 2031. Thus, the population located in the separated cities of Barrie and Orillia combined with the population of the County, would bring the total population of the region to 667,000 by 2031.

Population density in general and urban development in particular, is greater in the southern portion of the County. This is as a result of economic and employment links with the highly urbanized Greater Toronto Area immediately south of Simcoe County. Residential development has also been attracted to the shores of Georgian Bay and Lake Simcoe. This development is a mixture of permanent and seasonal occupancy. In summer months, seasonal occupancy swells the population of the County well above the permanent population.

Much development is currently focused in numerous settlement areas, ranging in size from about 20,000 people to small hamlets of only a few dozen people. However, thousands are also housed in country residential or cottage clusters, or isolated lots, found throughout the County.

Agricultural use is found in many places throughout the County, except in the Precambrian Shield at the northern end of the County.

Settlement of the County by First Nations and subsequently by non-aboriginal settlers has resulted in a wealth of cultural heritage resources.

Features of the County

2.3 The County Forests – Significance within the County

The physiographic regions of Simcoe County have been broadly summarized and described as the ‘Simcoe Uplands’ and ‘Simcoe Lowlands’. Most recently this classification was utilized to assess forest cover in the County for the purposes of the official plan update in 2008, specifically to enable a more realistic assessment of woodland significance with respect to percent forest cover and woodland patch size.

The uplands, which include the well-forested areas of the Georgian Bay fringe and the Oro Moraine, consist of 51% forest cover; the lowlands are approximately 27% forested. The uplands also consist of a higher percentage of larger patch sizes which contribute to an increase of interior forest habitat. The percentage of County Forest within these two broad classifications generally mirrors the percent forest cover on the landscape.

The current total area of the SCF of 12,663 ha is 7.6% of the total forested area of 166,935 ha; a very significant contribution to the natural and cultural heritage values of the County. Also, due to the long history of good forestry practices, the contribution to total wood volume produced from the SCF is significantly higher.

The SCF provides a positive example of good forest stewardship for landowners and an opportunity to visualize the potential development of their forests for a range of management options. For many residents and visitors, the SCF is the only opportunity they have to view actively managed forests; as such it provides an important opportunity to increase the awareness and value of forests.

Privately-held forest resources are also critical to the health and vitality of the County. Protection of significant forest areas throughout the County is also afforded through the planning process, and through the continued development, promotion, and enforcement of progressive Forest Conservation By-laws which have been enacted since 1974.

Collectively, the forested landscape plays a vital role in the hydrologic cycle and the protection and enhancement of our water and soil resources. As detailed in Section 1.2.2, we need only look back to a relatively recent time in our history to understand the importance of healthy forest cover. This critical role should not be taken for granted today. More recently, the function that forests play in mitigating climate change, particularly in the sequestration of carbon, is better understood and highly valued.

Features of the County

2.3 The County Forests – Significance within the County *continued*

The County Forests contribute directly to the economic, environmental, and social aspirations as determined and stated within the County of Simcoe Official Plan. Specifically, four of the six goals of the plan are:

- To protect, conserve, and enhance the County's natural and cultural heritage;
- To achieve wise management and use of the County's resources;
- To further community economic development which promotes economic sustainability in Simcoe County communities, providing employment and business opportunities; and
- To promote, protect and enhance public health and safety.

3.1 Historical Context

3.1.1 Land Acquisition and Tree Planting

Simcoe County began purchasing land for reforestation in 1920, two years prior to the initiation of the agreement forest program. In 1922 the first agreement was signed between the Province and Simcoe County whereby the County purchased land and the Province conducted forest management including tree planting. The first trees were planted on May 8 of that year on land now known as the Hendrie Tract.

Hendrie was typical of most properties purchased for reforestation during the early years of the program. Following the timbering of the early 1800s and subsequent grazing, attempts to farm and wildfires, the property was reduced to a barren 'wasteland'.

Land rehabilitation remained the primary objective in the early years; during the 1920s, '30s and '40s several of the largest tracts were purchased including Hendrie, Orr Lake, Waverley, Tosorontio, Drury, Barr and Wildman. All consisted of very light sandy soils which had proven unsuitable for farming.

In the 1950s land prices tripled to an average of almost \$25.00/acre but the County continued with a similar volume of acquisitions. Although land rehabilitation was still important, the initial urgency had abated and other considerations began to be included in purchasing decisions. New properties tended to be more scattered across the County but viable for forest management and with soil quality often better than the early purchases.

With the escalation of land prices, in 1961 the province began to make grants available to municipalities to encourage continued purchases for forestry purposes. Expansion of the managed forest land base was considered a priority at the provincial level and the agreement forest program was an important part of the strategy for Southern Ontario. Grants were for 50% of the purchase price.

In the 1970s land purchases continued but with more focus on lands which were already in forest cover. A higher priority at that time was placed on the supply of wood fibre to the forest industry and revenue generation. 1974 saw the incorporation of Rama and Mara townships into the County and with them 3,525 acres of County Forest. By the late 1970s, land values had risen to the point where many County Councillors began to question the validity of purchasing more land for objectives which they perceived to be more provincial in scope.

Current State of the Forests

3.1 Historical Context

3.1.1 Land Acquisition and Tree Planting *continued*

In 1980 revenue from the forest exceeded expenses for the first time, which provided some incentive for the County to continue purchasing land, although additions were reduced and more selective. Grants from the province were discontinued in 1991 due to a lack of funding.

The 1990s was a decade of transition, with the Ministry of Natural Resources (MNR) funding reductions resulting in reduced capabilities and eventually the withdrawal from the agreement forest program in 1996. This, combined with the transition of management responsibilities to the County, resulted in a very limited focus on continued acquisitions during this period. Acquisition principles were established in 1996, however, providing clear direction to staff regarding priorities for future acquisitions. This specified for the first time that priority be given to the purchase of properties that contribute to both natural heritage values and other forestry purposes.

Increasing revenues and continued commitment from County Council in the first decade of the new millennium resulted in a renewed focus on the continued expansion of the largest and most productive 'community forest' in Ontario.

Decade	Land Purchased		Average Price		Trees Planted
	Hectares	Acres	\$/ha	\$/acre	
1920 - 1929	575	1,420	16.40	6.64	2,014,200
1930 - 1939	1,539	3,800	15.61	6.32	4,079,855
1940 - 1949	2,152	5,314	20.43	8.27	5,050,270
1950 - 1959	1,992	4,919	59.60	24.13	3,686,450
1960 - 1969	1,944	4,800	96.38	39.02	3,191,245
1970 - 1979	1,301	3,213	312.50	126.52	1,715,240
1974*	1,428	3,525			
1980 - 1989	208	514	1,217.41	492.88	406,350
1990 - 1999	488	1,206	1,537.08	622.30	49,400
2000 - 2009	1,119	2,763	7,484.10	3,030.00	47,600

* area added due to inclusion of Rama and Mara townships

Current State of the Forests

3.1 Historical Context

3.1.1 Land Acquisition and Tree Planting *continued*

Including a small number of land swaps, sales, and further acquisitions the area of the County Forests at the end of 2010 totalled 12,663 ha (31,289 acres).

Tree planting levels generally coincided with the volumes of lands purchased; the lower numbers of trees beginning in the 1970s are indicative of the trend toward adding properties which were already forested. Trees planted to date on the SCF total 20,240,610.

3.1 Historical Context

3.1.2 Comparison to past plans

While many reports have documented the management of the SCF, only two full-scale management plans have been written since its inception; 1962-1982, and 1983-2003. Both were produced as part of the ‘agreement forest’ process and under the guidance of provincial forest management planning standards.

The management objectives outlined in the 1962 plan mirrored the definition of ‘forestry purposes’ in the Forestry Act: “Forestry purposes means primarily the production of wood and wood products, and includes such secondary purposes as proper environmental conditions for wildlife, protection against floods and erosion, recreation, and protection and production of water supplies. The plan in 1983 reaffirmed these objectives and clarified the strategies to achieve the desired results. The success of the SCF today is largely a result of these early plans, and as such the current plan will attempt to build upon these successes.

Expectations with regard to the protection and enhancement of environmental values are somewhat more rigorous today than in the past, and with the benefit of modern digital mapping technology it has become much easier to ensure that all available data is included and accurate. Of particular note in the table below is the difference in the percentage of productive area currently versus the earlier plans. This is in part due to the emphasis placed on timber production, and in part due to the improved mapping. In practice, this difference is not as pronounced as it appears, as a substantial amount of the ‘protection’ and ‘non-productive’ areas identified in 2010 have not been harvested in the past as it was not economically feasible.

Current State of the Forests

3.1 Historical Context

3.1.2 Comparison to past plans *continued*

Year	Total Area (ha)	Non-Forest (ha)	Protection (ha)	Non-Productive (ha)	Productive (ha)	% Productive Area
1962	6,400	208	60	45	6,088	95
1982	11,157	175	7	442	10,533	94
2010	12,663	28	1,582	703	10,349	82

Notes:

- NON-FOREST, PROTECTION, and NON-PRODUCTIVE areas are not directly comparable
 - o 2010 NON-FOREST includes hydro and pipeline easements and gravel pits
 - o 2010 PROTECTION includes wetland, riparian, steep slopes and other
 - o 2010 NON-PRODUCTIVE includes poorly drained sites, shallow soils, non-accessible areas

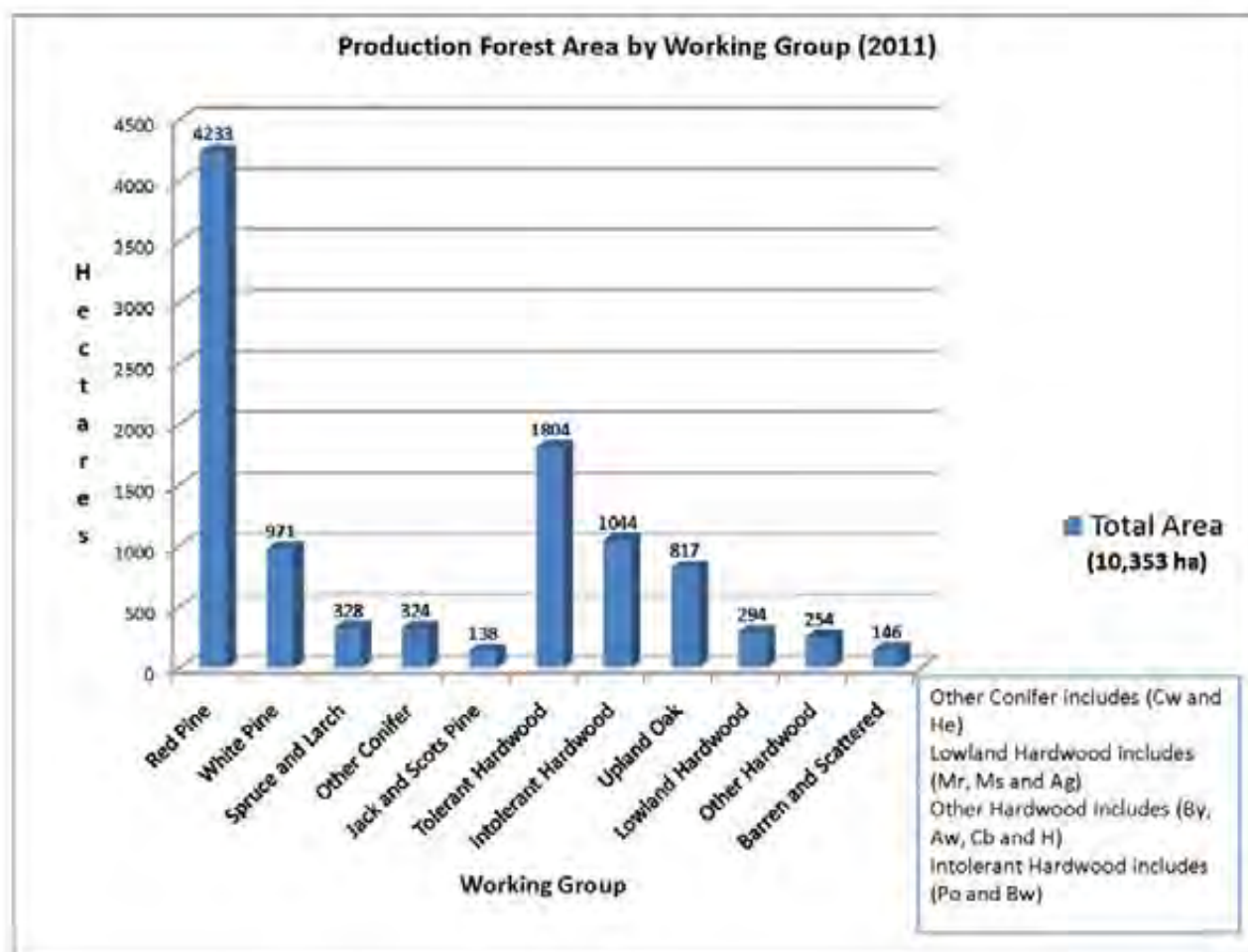
Current State of the Forests

3.2 Area and Distribution

County Forest tracts are present in 14 of 16 area municipalities in addition to the City of Barrie. Representation is much higher where the most significant problems were occurring early in the 20th century. Acquisitions in more recent decades have also occurred more often in the central and north portions of the County due to the much higher percentage of productive agricultural lands in the south.

Municipality	Forest Tracts	Area (ha)
Adjala-Tosorontio	5	458.5
Barrie	2	69.6
Bradford-West Gwillumbury	3	161.8
Clearview	10	732.2
Essa	5	368.2
Innisfil	2	48.4
New Tecumseth	1	77.5
Oro Medonte	38	2,437.9
Penetanguishene	2	73.7
Ramara	1	1,413.7
Severn	10	1,155.6
Springwater	37	4,056.2
Tay	3	177.9
Tiny	10	1,404.3
Wasaga Beach	1	27.4
	130	12,662.6

3.3 Production Forest Area by Working Group



Current State of the Forests

3.4 Average Annual Timber Production

Timber volumes flowing from the SCF continue to be predominantly softwood; plantation thinning during the 10-year period from 2000 through 2009 made up 92% of the total volume harvested. The average annual harvest during this 10-year period of 26,325m³ (22,054 m³ Pr), is slightly higher than the total annual potential cut of 23,605m³ forecast in the 1982 plan. This resulted primarily from a shift in the operating plan in 1999 which reduced the plantation cutting cycle to nine years from 10. This step was taken due to the increasing level of decline in older red pine stands, to reduce losses and begin to move to a shorter rotation age (see Section 3.5 regarding red pine decline). An increasing proportion of older plantations were harvested which yield higher volumes, particularly when economic maturity has been achieved or heavier thinning is prescribed to pre-empt losses from decline. Some final harvests have also been conducted in stands exhibiting advanced stages of decline prior to the anticipated or ideal rotation age.

Harvest areas and volumes of natural stands have conversely been below projected levels; the previous 10-year average volume being just 2,285m³ compared to a total annual allowable cut of 7,341m³ forecast in the 1982 plan. This was primarily the result of poor market conditions for low grade hardwood and mixedwood stands. Improving market conditions, particularly for firewood and low grade hardwood should result in increased volumes in future. In particular, increasing interest in bioenergy may provide opportunities to treat stands which were previously unmarketable. With the potential for significant economic and environmental benefits, the County could play a significant role in promoting investment in this area.

Average Annual Harvest 2000 to 2009

Forest Type	Area (ha)	Volume (m ³)	Volume (m ³ /ha)
Conifer plantation	481	26,325	54.7
hardwood	55	2,285	41.3

During the previous 10-year period from 1990 to 1999, the average annual harvest of softwood plantations was much lower at 19,000m³. Substantial variations in volume occurred year over year due to other priorities of MNR staff including private land extension work, structural changes within the MNR in 1990/91 and the transition to full County responsibility in 1996. The volume of natural stands was higher during this period averaging 4,900m³ per year.

Current State of the Forests

3.5 Forest Health

Forest health is typically measured in relation to biotic and abiotic factors that affect the value, growth and survival of trees and forests as a whole. Biotic factors affecting forest health include forest insects and diseases, while abiotic factors include weather events and fire. The overall health of the SCF is generally good, but there are stress agents that have the potential to cause significant mortality. The vast majority are of minor concern; others may have an impact on a cyclical basis. As described in Section 1.2.3 most of these factors are part of the natural disturbance patterns typical in this type of forest environment. Rarely however, situations occur which require some level of intervention in order to reduce the impact, most commonly associated with the introduction of invasive exotic species. Such situations will be assessed individually and a determination made whether or not to intervene.

Promoting species and age diversity and vigorous growth is the best defence against most forest health issues. Sustainable forest management practices are designed to maintain a diversity of healthy tree species growing on suitable sites and to favour natural regeneration of a wide range of species.

3.5.1 Primary Insect and disease factors

There are innumerable insects and diseases which exist in the forest system as an integral part of the cycle of growth and decay. Most continue with little notice or concern; occasionally conditions exist which favour the expansion of a particular organism which has a visible impact on the forest which attracts attention.

As indicated in Section 3.3, red pine dominated plantations are by far the most significant working group in the SCF; as such the County has a considerable interest in safeguarding this investment. Red pine decline, both in pockets and individual trees, has concerned forest managers in Ontario and surrounding jurisdictions for many years. In the SCF, early mortality has begun in some locations as early as 50-60 years of age; other plantations have begun exhibiting losses in the 80 year class. Soil limitations, climate, and root diseases have all been identified as potential contributors to the problem.

Current State of the Forests

3.5 Forest Health

3.5.1 Primary Insect and disease factors *continued*

In an effort to more definitively find the cause of red pine decline and provide recommendations for management, an exhaustive study was initiated in 2004 by the MNR and supported by various partners. The County of Simcoe provided the majority of the study sites, significant staff time and funding, in addition to recommendations which were incorporated into the management strategies. The study concluded that soil alkalinity is the major predisposing factor in determining red pine health. Red pine grows best in acidic soils; as such plantations established on sites with an alkaline C horizon are at high risk of damage from pathogens and insects. Rooting depth is limited to the upper more acidic soils, resulting in increased moisture stress and ultimately mortality most commonly caused by root disease. SCF staff provided modified management recommendations for varying levels of decline aimed at minimizing financial loss, maximizing timber harvest, and gradually converting red pine stands to mixedwood forests.

Many disease organisms are prevalent in the forests which have varying impacts on the health, structure, and ultimate decay of woody species. Of particular importance in the plantations of the SCF is a very common root rot, *Armillaria obscura*. This particular species can attack essentially all of Ontario's tree species, however, it is particularly problematic in pine plantations where root systems tend to be interconnected through grafting, and where selective thinning can provide further opportunities to advance.

Probably the greatest biotic threats to a wide range of forest species are introduced pests with few or no natural enemies. Pine False Webworm is an introduced pest which was originally identified as a problem in mature pine plantations in the early 1990s in Simcoe and surrounding areas. The most severely affected pine plantations in the South Barr Tract were cleared in 1994 due to large scale mortality. Operational aerial spraying was conducted throughout many locations centered in Oro Medonte in 2001, with experimental work conducted in addition. Survey locations and protocols were established in 2001 and have been continued to date to monitor population levels. Population levels declined and have remained stable but low since 2003/04 and as such no substantive impact to plantation health has resulted.

Current State of the Forests

3.5 Forest Health

3.5.1 Primary Insect and disease factors *continued*

Two well-known introduced pests; emerald ash borer (*Agrilus planipennis*) and Asian long-horned beetle (*Anoplophora glabripennis*) have not been located in Simcoe County to date but remain a potential threat. At present, the asian long-horned beetle has been contained and possibly eliminated as a problem; the spread of the emerald ash borer has been slowed however it is expected to be within the County in coming years with the resulting impact to area ash trees.

Many other formerly introduced pests continue to impact the Forest including:

- Sirex wood wasp (*Sirex noctilio*) is a recent addition to Southern Ontario and has been confirmed in several red pine plantations in the SCF. Preliminary studies are indicating, however, that this pest may only cause mortality in suppressed or stressed trees.
- Gypsy moth (*Lymantria dispar*) continues to spike and defoliate red oak and other species on an irregular basis;
- Beech bark disease is causing significant mortality when bark, attacked and altered by the beech scale, *Cryptococcus fagisuga* Lind., is invaded and killed by fungi, primarily *Nectria coccinea* var. *faginata*;
- Butternut are now listed as an endangered species in Ontario due to Butternut canker (*Sirococcus clavigignenti-juglandacearum*) following introduction to the province in approximately 1990.

Although efforts have been stepped up at the national and international level to reduce new introductions of potentially problematic species, increased trade will continue to pose a problem and it is certain that new problems will arise. The Canadian Forest Service (CFS), Canadian Food Inspection Agency (CFIA) and MNR continue to monitor local forest health conditions and provide updates and recommendations to local forest managers.

Current State of the Forests

3.5 Forest Health

3.5.2 Abiotic factors

As described in Section 1.2.3, fire, wind, and water have all played a role in the development of the local forest environment and will continue to do so in future. Recent examples specific to the SCF include the substantial impacts from the November 2008 snow storm; an extensive late frost in early 2010 led to early leaf drop of various hardwoods; and a localized wind burst resulted in the collapse of several hectares of mature mixed hardwood forest. Also, drought stress has been a contributing factor in regard to red pine decline in the SCF as described earlier.

If projections from climate change are accurate, impacts to the forest from abiotic factors will increase over time.

3.5.3 Invasive Plants

Invasive species are alien plants, animals, or micro-organisms that have been accidentally or deliberately introduced into areas beyond their natural range and negatively impact native biodiversity, the economy and/or society, including human health (Ontario Invasive Plant Council, 2011). While invasive plants are not generally a concern regarding the health of trees in isolation, these plants can affect the health and development of a forest ecosystem by out-competing the native vegetation, often seriously impacting biological diversity.

The detection and mapping of invasive plants in the SCF began in 2008, as such it is not possible to determine when most introductions occurred and the rate of spread. The most significant species of concern are garlic mustard (*Alliaria petiolata*), common buckthorn (*Rhamnus cathartica*), dog-strangling vine (*Cynanchum rossicum*), and Manitoba maple (*Acer negundo*). The current impact to forest health is negligible, however, these species have the potential to have very serious long-term impacts if not controlled.

Increased activities of all kinds within the forest will continue to accelerate the introduction and spread of invasives. Further, several studies have indicated that climate change is expected to exacerbate the problem as many of these species are better able to adapt to changing conditions more readily than our native varieties.

Part 4



Desired State/ Strategic Direction

Strategic directions from County Council have been incorporated into a comprehensive 10-year Business Plan. This plan serves as a framework for County departments to align their long-term goals and strategies. Management of the SCF contributes directly to the following Strategic Directions:

Economic & Destination Development

Create and strengthen partnerships with key stakeholders to develop economic opportunities in response to the changing demographics of the County and to provide a rich cultural experience for both local residents and tourists visiting the area.

Environmental Sustainability

To preserve, conserve, and safe guard our natural resources, while recognizing opportunity, innovation, and the needs of our residences.

A Culture of Excellence

Create and maintain a healthy work environment that supports personal and professional growth. Become the employer of choice.

Open & Inclusive Communications

Promote effective communications through facilitation, consultation and relationship-building.

Increased Opportunities for Success and Well Being

To Increase opportunities for all community members, corporations, and regional partners to achieve success and strengthen their well being.

4.1 Simcoe County Forest - Mission

To promote excellence in the practice of forestry through continued growth and economic viability while contributing to environmental sustainability and our resident's quality of life.

Desired State/ Strategic Direction

4.2 Principles

Sustainability of the forest is paramount.

Sustaining forests is fundamental to sustaining development based on forests.

Sustaining forests includes the maintenance of ecological processes and conservation of biological diversity.

Large, healthy, diverse and productive forests are essential to our well-being, both now and in the future. The establishment and maintenance of representative protected forest lands is a critical component in the protection of our natural heritage.

4.3 Goals

Economic Sustainability

To ensure the SCF remains economically self-sufficient and contributes to a healthy, viable wood using industry

Environmental Enhancement

To protect and enhance the Natural Heritage features of the County including flora, fauna, soils, and watershed health

Social Benefit

To protect the cultural and spiritual values provided by the SCF while making a positive contribution to tourism objectives

Desired State/ Strategic Direction

4.4 Strategies

4.4.1 Economic Sustainability

The SCF Forest Inventory and associated mapping will be updated and improved on a continual basis to provide for accurate forecasting and decision making.

Annual allowable harvest will be determined using the best available science and locally adapted growth and yield data.

Annual operating plans will strive to maintain a continuous supply of a range of timber products to the greatest degree possible. Adjustments to annual plans may occur in order to optimize value, salvage declining timber, or respond to unforeseen events which may require salvage operations.

A silvicultural prescription will be prepared and/or approved by a Registered Professional Forester for each harvest area.

Silvicultural prescriptions will be consistent with accepted forest management guidelines and practices and tailored to local forest conditions.

Management objectives will include an increase in the future value of the forest by retaining optimum levels of healthy growing stock, increasing residual quality, and encouraging the regeneration of tree species that are native to the County and appropriate for the site.

Trees will be marked for harvest by qualified tree markers as determined by the County and will be performed in accordance with the silvicultural prescription.

Timber will generally be sold through an open bidding and 'upset price' system to ensure maximum and fair prices are attained relative to the current economic conditions.

Prior to harvest, a Timber Sale Contract will be signed between the Purchaser and the County to define responsibilities and provide protection to the County in the event of a dispute or accident.

Harvesting operations will be regularly inspected to ensure compliance with the Timber Sale Contract Terms and Conditions.

Desired State/ Strategic Direction

4.4 Strategies

4.4.1 Economic Sustainability *continued*

Post-harvest monitoring will be conducted to ensure that silvicultural objectives have been met. Where objectives are not met or potential improvements are identified, a modified management approach will ensure continual improvement.

Strategies will be implemented to mitigate the anticipated long-range decline of red pine timber and the associated revenue.

Protection of the timber resource will include measures to reduce potential losses from fire and theft. As most losses from insects and disease are part of the natural forest development process, intervention will only occur where the potential exists for significant loss of value and the cost versus benefit has been assessed.

Non-commercial operations will be considered where good opportunities exist to improve future commercial values.

Property acquisitions will consider future revenue potential and opportunities to reforest marginal farmlands.

The County will continue to support use of the SCF for research which enhances knowledge of the forest and its management. New science and technology will be incorporated into forest management processes as appropriate.

Opportunities to supplement revenue from non-timber sources will be maximized where appropriate and within the guidelines established in the Recreation Policy. New opportunities will be reviewed on a case-by-case basis.

Annual budgets for the management of the SCF will be prepared by staff and approved by Council. All revenues generated by the SCF will be credited to the Forest Reserve Fund; management expenses will be debited.

Certification of the SCF through the Forest Stewardship Council will ensure continued market access.

Desired State/ Strategic Direction

4.4 Strategies

4.4.2 Environmental Enhancement

Mapping enhancements will occur on an ongoing basis to improve information on natural heritage features and will consider data from all available sources.

Management of all production forest areas will encourage the regeneration of native species on appropriate sites and promote a diversity of forest types and ages.

Plantations will be managed with the long-term goal of succeeding to mixed native species appropriate to the site.

Silvicultural prescriptions will strive to mimic natural disturbance patterns.

Under-represented forest types will be maintained or expanded where possible. Specifically, where opportunities exist to promote the regeneration of white pine or red oak dominated forest systems on appropriate sites, group selection or shelterwood silvicultural systems will be employed. Prescribed fire will also be considered as a management tool to regenerate such forest ecosystems.

Wildlife habitat within each managed forest stand will be maintained by ensuring adequate structure including species diversity, cavity trees, snags, downed woody debris, supercanopy trees, nut and berry producing trees, etc.

Forest areas containing or contributing to a range of significant features or functions may be defined as 'High Conservation Value Forests (HCVFs). HCVFs will be identified and mapped using all available data and updated on an ongoing basis. Management activities within HCVFs shall maintain or enhance the attributes which define such forests.

Roads, water crossings and access trails will be constructed, maintained and/or rehabilitated to minimize adverse impacts to HCVFs or other natural heritage features and will be consistent with local best management practices, the Conservation Authorities Act and the Fisheries Act. Applicable approvals and permits will be obtained prior to construction.

Desired State/ Strategic Direction

4.4 Strategies

4.4.2 Environmental Enhancement *continued*

New access roads will generally be temporary; existing access roads will be reduced where possible to reduce unauthorized access.

Recreational use will be directed away from HCVMs or other natural heritage features.

Specific strategies to limit the impact of invasive exotic plants will be developed and implemented.

The acquisition of additional lands will continue to focus on opportunities to connect or enlarge existing SCF tracts or other protected lands in order to enhance significant woodlands and forest cover within Greenlands areas.

4.4.3 Social Benefit

The SCF will be available for recreational activities as per the Recreation Policy. Exceptions to the policy will be made to enable access for disabled persons where appropriate.

The SCF will be available for use as part of a network of recreational trails provided that such activities are consistent with the Recreation Policy.

Access points will be adequately signed to encourage appropriate public use, to promote safety and to reduce incidents of trespass, vandalism and illegal dumping.

Property boundaries will be marked to discourage trespass onto adjoining private lands and loss of timber from encroachment.

Property boundary fences will be maintained as needed consistent with the Line Fences Act.

The boundaries of forestry operations will be verified on the ground and adjacent landowners will be notified prior to start up.

Desired State/ Strategic Direction

4.4 Strategies

4.4.3 Social Benefit *continued*

Forestry operations adjacent to forest access roads and trails designated through Property Use Agreements will be conducted with public safety in mind by installing warning signs, removing hazard trees and keeping access roads and trails free of logging debris where possible.

Modifications to the operating plan will be considered to treat all potential areas on a tract at the same time to minimize impact to users.

The County will strive to maintain positive relationships with neighbouring property owners.

The County will provide encouragement and support to private landowners and the logging community by providing an example of good forestry practices and wise stewardship.

The County will work to foster understanding and cooperation amongst users. Communication will include general public outreach and regular contacts with user groups.

The County will foster awareness and knowledge of the SCF, its natural and cultural heritage values, and its sustainable management.

In order to achieve the stated goals of the Simcoe County Forests including forest health, growth, value, and regeneration, planned interventions or ‘silvicultural treatments’ are required. Silvicultural treatments are intended to emulate the natural disturbance patterns to which different forest types have become adapted while maintaining or enhancing structure and diversity.

Single-tree and group selection systems emulate the mortality of single trees or groups of trees that would succumb to competition, age, wind, insects or disease. This is the most common approach utilized within natural stands commonly dominated by shade tolerant species. Larger openings are prescribed where the objectives include regenerating species which are less tolerant of shade such as red oak. 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. This approach is utilized most commonly to mimic the conditions required to regenerate white pine and in some cases red oak, and may also require prescribed burning to fully achieve objectives. Clearcutting emulates the larger scale, stand replacing disturbances such as severe wind storms and intense forest fires. It is mainly applicable to boreal, even-aged forest types and is not generally prescribed here. Clearcutting could, however, be considered an option in the SCF where a severe insect or disease problem necessitates sanitation or eradication. The final overstory removal in a pine plantation could also be considered clearcutting, however it is more closely aligned with the final harvest in a shelterwood operation. Plantation management, which is of primary importance for the SCF, is somewhat different due to the unique conditions. Objectives typically include the maximization of timber growth and quality while working toward the long-term conversion to a natural forest condition. Each silvicultural system has variations to address specific site characteristics and the composition of the tree species involved.

5.1 Production Forest Units, Objectives and Management

The MNR defines a forest unit as, “A classification system that aggregates forest stands for management purposes that will normally have similar species composition, will develop in a similar manner (both naturally and in response to silvicultural treatments), and will be managed under the same silvicultural system “ (MNR 2004).

The objectives for each production forest unit relate primarily to the strategies detailed in 4.4.1 (Economic Sustainability). Considerations regarding environmental enhancement strategies are considered as an integral part of all stand assessments and prescriptions as detailed in Section 5.3.

Implementation

5.1 Production Forest Units, Objectives and Management *continued*

Red Pine (4233 ha / 41% of productive landbase)

Red pine is the most significant species within the SCF with respect to area, productivity, and revenue. All is of plantation origin; approximately 40% is in association with white pine, and small amounts of scots pine, jack pine and spruce are present in a declining number of stands as these species are generally removed in early operations. Most stands which contain a component of white pine will in time have a higher component of this species in the overstory and often as a subsequent forest type due to the generally good conditions for white pine regeneration. Most other red pine plantations will convert to tolerant or mixed hardwood forests depending upon seed availability.

An average cutting cycle of nine years for red pine plantations has been utilized for several years after considering average growth rates and accelerating rates of decline in a number of older plantations. Sites with lower productivity may have an extended period unless decline is evident or stand conversion is a higher priority, and Section 5.2.4 describes where cutting cycles may be extended in mature plantations. Cutting cycles may also be shortened; a subsequent harvest may be prescribed in as little as six years following initial row removal, and salvage cutting may be prescribed where decline is advanced.

With the onset of decline in some older plantations, the oldest of which are now reaching 85 years of age, the final overstory removal and succession to other stand types dominated by sugar maple, red oak, white pine, or other species will become more common.

Objectives

- Maximum production of high quality timber;
- Management will favour eventual pole production on suitable sites;
- Eventual succession to a natural forest condition
 - o White pine and/or red oak stand types will be favoured where possible on appropriate sites;
 - o Where moderate to severe decline is evident, an accelerated conversion to alternate species is desirable.

Implementation

5.1 Production Forest Units, Objectives and Management *continued*

Management

- Crop planning will follow established silvicultural guidelines to facilitate optimum growth of the best quality stems;
- Cutting cycle will average nine years;
- Rotation age will average 90 years;
- White pine will be favoured where planted in association with red pine;
- Modified management prescriptions will be employed on sites where decline is present or likely in the future due to adverse soil conditions.

White Pine (71 ha / 9% of productive landbase)

White pine dominated stands are mainly in the form of plantations. An increase of approximately 400 ha since 1982 is predominantly due to red and white pine plantations where the proportion of red pine has been reduced over time. Higher quality white pine is generally produced when planted in association with other species; pure plantations often have poor form resulting from weevil damage. Substantial investments have been made in most white pine dominated plantations with the pruning of selected crop trees. Subsequent treatments will ensure that maximum value is realized from the clear lumber which will be produced from these stands.

Early thinnings of poor white pine can be difficult and often must be sold in association with red pine to achieve silvicultural objectives. White pine are expected to thrive for a much longer period than red pine and historically were a much more significant forest component; as such it is a favoured species for long-term retention. Shelterwood treatments have been conducted to promote the regeneration of white pine, often in association with red oak.

Objectives

- Maximum production of high quality timber;
- Management will favour the long-term retention of a significant component of white pine.

Management

- Crop planning will typically follow established silvicultural guidelines to facilitate optimum growth of the best quality stems;
- Management in poor quality plantations with excessive weevil damage will be tailored to promote white pine regeneration and succession to a mixed forest type;

Implementation

5.1 Production Forest Units, Objectives and Management *continued*

- Cutting cycle of young plantations will average nine years, however, variations in the age of the initial thinning and subsequent treatments will vary depending upon species mixtures, stem quality and market availability;
- The uniform shelterwood system will be used to promote white pine regeneration in mature stands, in stands with limited potential for quality development, and where white pine regeneration is well-established.

Spruce (328 ha / 3% of productive landbase)

This working group is predominantly comprised of small white spruce plantations and a small component of Norway spruce which were generally established on poorly drained soils. Growth is generally poor in comparison to pine, and often growth response following thinning has been poor. 40 ha of larch (predominantly European) is included within this group.

Objectives

- Timber production;
- Conversion to a natural forest condition at the earliest opportunity.

Management

- Crop planning will follow similar guidelines to that used for red pine;
- Smaller average stand sizes and lower values will often necessitate adding spruce to other higher value sales.
- European larch may be thinned in association with red or white pine.

Other Conifer (324 ha / 3% of productive landbase)

This group is comprised primarily of natural lowland conifer stands dominated by white cedar with secondary species including balsam poplar, balsam fir, tamarack, white birch, red maple, and others. A small component of hemlock stands is included within this group. Very few operations have been conducted in these stands due to site and soil sensitivity and low timber values.

Objectives

- Watershed protection and /or wildlife habitat values are typically a higher priority than timber values;
- Timber production may be considered primarily within cedar and hemlock dominated stands.

Implementation

5.1 Production Forest Units, Objectives and Management *continued*

Jack and Scots Pine (138 ha / 1% of productive landbase)

The area of jack and scots pine stands has been reduced significantly from 580 ha as identified in the 1982 plan primarily due to planned reductions through harvesting, and also due to pine shoot beetle and other insect pests. Originally planted to stabilize fine sandy soils, neither species is locally native or productive over the long-term. During the term of this plan these species will become negligent as these stands continue to be converted to more appropriate species.

Objectives

- Conversion to site appropriate native species at the earliest opportunity.

Management

- While generally non-commercial in isolation, scots and or jack pine timber may be included with other species to achieve silvicultural objectives;
- Wholesale stand conversion is not generally recommended until adequate natural regeneration is well advanced;
- Where decline is occurring naturally, stand conversion may be achieved without intervention.

Tolerant Hardwood (1804 ha / 17% of productive landbase)

Sugar maple dominated forests are the most common forest type of natural origin on upland sites. Many other species are found in association including beech, red oak, white ash, basswood, white birch, poplar, black cherry, white pine, hemlock, and ironwood. Many stands were of very poor quality prior to inclusion in the SCF due to highgrading, over cutting or grazing, however ongoing stand improvement has created an increasing percentage of good quality timber. As sugar maple regeneration is prevalent throughout many older plantations this working group will continue to increase over time.

Objectives

- Maintain a continuous forest canopy;
- Develop or maintain an all-aged forest condition;
- Improve timber quality;
- Promote the restoration of old-growth features in candidate stands or in portions of stands.

Management

- Single tree and group selection system;
- Cutting cycle will average 15 years.

Implementation

5.1 Production Forest Units, Objectives and Management *continued*

Intolerant Hardwood (1044 ha / 10% of productive landbase)

These early successional forests typically developed after the clearing of nutrient poor sites for agricultural purposes which were subsequently abandoned. Large toothed and trembling aspen are the primary species with smaller components of white birch and balsam poplar on poorly drained sites. Most often in association with other species, some relatively pure stands exist. These stands are transitory by nature, and may contain a well-stocked understory of good quality tolerant or mid-tolerant species. Although of minor importance for timber values, these stands may play a role in the provision of certain habitat conditions which are of value in the landscape. As such the potential and objectives for any particular stand may vary widely.

Objectives

- Accelerate transition to tolerant or mid-tolerant species on productive sites with advanced regeneration; or
- Continue to allow natural succession to proceed on poorly drained or unproductive sites; or
- Promote the retention of a high component of intolerant species.

Management

- Generally single tree and group selection system;
- Shelterwood harvesting or patch cuts may be prescribed where the objective is to promote the retention of intolerant hardwoods, or release established mid-tolerant species particularly where opportunities exist to favour oak and / or white pine.

Upland Oak (817 ha / 8% of productive landbase)

Red oak is most prevalent on dry, upland sites with the highest concentrations in the SCF in the Wildman and Torsorontio Tracts. It is most often growing in association with hard maple, beech, white ash, white birch, basswood, white pine and poplar. A valuable species for timber, red oak also provides significant value for wildlife. As a mid-tolerant species which tends to dominate a site following a major disturbance such as fire, its long-term retention can be difficult where sugar maple and other shade tolerant species become established in the understory particularly on more productive sites. Where opportunities exist to manage for red oak in the long-term, variable silvicultural practices will be required including shelterwood systems and prescribed fire.

Objectives

- Maintain red oak as the dominant overstory species where possible;
- Improve timber quality;
- Maintain / regenerate a component of minor tree species.

Implementation

5.1 Production Forest Units, Objectives and Management *continued*

Management

- Single tree selection (or crop tree release) will be utilized in young stands to improve timber values where regeneration is not yet a consideration;
- The group selection system will be utilized where continuous forest cover is desired;
- The even-aged shelterwood system is the preferred method where possible;
- Post harvest monitoring and tending are required to ensure successful regeneration.

Lowland Hardwood (294 ha / 3% of productive landbase)

Typically located on imperfectly to poorly drained soils, this forest type includes the silver maple, red maple and green ash working groups. These sites generally support a diverse group of tree species including basswood, ash, elm, cedar, poplar, hemlock, balsam, and others. Timber values are generally low and soil conditions may hinder harvesting, although the high productivity on some sites will warrant improvement work.

Objectives

- Continue to allow natural succession to proceed on poorly drained or unproductive sites;
- Improve timber quality;
- Maintain / regenerate a component of minor tree species; favour yellow birch where possible.

Management

- Single tree and group selection system;
- The uniform shelterwood system may be prescribed in even-aged soft maple stands or where mid-tolerant species are desired.

Other Hardwood (254 ha / 2% of productive landbase)

This group is primarily comprised of early successional forests which developed after the clearing of nutrient poor sites for agricultural purposes. Primary species include white ash and black cherry. Also included are a few small stands of yellow birch.

Objectives

- Develop or maintain an all-aged forest condition;
- Improve timber quality;
- Maintain / regenerate a component of minor tree species.

Implementation

5.1 Production Forest Units, Objectives and Management *continued*

Management

- Single tree and group selection system.

Barren & Scattered (146 ha / 1% of productive landbase)

This group is primarily comprised of future reforestation sites, most of which have been recent additions to the SCF.

Objectives

- Establishment of productive forest plantations on appropriate sites.

Management

- Planting will follow established protocols to most effectively establish economically viable plantations.

5.2 Projected Harvest 2011 - 2020

Allowable harvest calculations typically require demonstrating that harvest rates do not exceed projected growth rates while accounting for other losses. In an ideal situation, a forest unit with a relatively equal age class distribution will provide a constant flow of timber from the forest which, if matched with growth rates, can be produced indefinitely. In the case of the SCF, however, due to the way in which it evolved from early acquisitions, planting, and management, the composition of the timber resource will change in coming decades.

Existing crop plans and thinning schedules are based on well-established science and protocols which are designed to maximize growth and yield at the stand level. Efforts are made to ensure a relatively constant supply of timber of a range of sizes and quality on a year over year basis, but it must be done without compromising the health or objectives of individual stands.

Due to anticipated changes in the total landbase of the SCF and potential impacts from changing market conditions, unanticipated losses, or as revised growth and yield data becomes available, harvest levels will be assessed at five year intervals.

Implementation

5.2 Projected Harvest 2011 - 2020

5.2.1 Estimated Volume Growth

Red Pine

The volume growth of red pine plantations in the 1982 management plan was estimated at 1 to 1.5 cords/acre/year (5.9 to 8.8 m³/ha/year), which was based upon substantial growth and yield data which had been conducted up until that time. An extensive analysis conducted in the United States (Buckman, R.E., et al, 2006) confirms that this is a reasonable, and probably conservative, estimate based upon a range of site types. Unfortunately, the growth and yield program in Ontario has waned in recent years with the reduced funding to the MNR, and local data on more mature plantations is lacking at this time. A recent commitment by the County to partner with MNR staff to assess and assist with monitoring of existing permanent sample plots should provide additional data in coming years. Evidence from the US study, however, is consistent with local experience in that overall volume growth peaks and begins to decline at approximately 60 years of age. Thus, the best available information indicates that the annual volume growth of managed red pine plantations is 5.9 - 8.8 m³/ha/year.

White Pine

As described in Section 5.1, crop planning for white pine plantations is similar to red pine at least during the first several thinnings. Many stands are also a red and white pine mix. Heavier cuts may occur where the primary objective is the release of white pine in the understory or a shelterwood approach is prescribed. For the purpose of this forecast, however, growth rates and projected volumes are closely aligned with red pine and as such are utilized here.

Hardwood

Previous studies have found a range of potential volume growth from hardwood stands in southern Ontario and the north-eastern United States. A recent review assumed volume growth rates are in the range of 500 - 1000 fbm/ha/year (2.2 - 4.4 m³/ha/year) with the higher volumes resulting from proper management (Schwan and Elliott, 2010).

Utilizing the average growth rates for each primary working group within the production forest area of the SCF provides estimated volume growth as follows:

Implementation

5.2 Projected Harvest 2011 - 2020

Estimated Annual Volume Growth 2011 – 2020

Working Group	Total Area (ha)	Ave. Growth Rate (m ³ /ha/year)	Estimated Volume Growth (m ³ /year)
Red pine	4233	7.3	30,901
White pine	971	7.3	7,088
Total conifer*			37,697
Tolerant hardwood	1804	3.3	5,953
Intolerant hardwood	1044	3.3	3,445
Upland oak	817	3.3	2,696
Other hardwood**	548	3.3	1,808
Total hardwood			13,902

* does not include Sw, Ps, Pj, Le, He, Cw working groups

** includes all other hardwood (Mr, Ms, Ag, Aw, By, Cb, H)

Comparing the projected harvest rates using actual historical volumes to the estimated growth rates provides assurance that harvest levels are sustainable and account for other losses:

5.2.2 Average Annual Harvest 2011 – 2020

Working Group	Total Area (ha)	Available Area (ha) 2011 - 2020***	Cutting Cycle (years)	Average Annual Area (ha)	Average Annual Harvest (m ³) ****	Estimated Volume Growth (m ³ /year)
Red pine	4233	4106	9	456	20,550	30,901
White pine	971	930	9	103	4,600	7,088
Total conifer*				559	25,100	37,697
Tolerant hardwood	1804	1705	15	114	4,674	5,953
Intolerant hardwood	1044	1000	20	50	2,050	3,445
Upland oak	817	763	20	38	1,558	2,696
Other hardwood**	548	433	20	22	902	1,808
Total hardwood				224	9,184	13,902

*** for conifer does not include stands < 25 years of age in 2010

for hardwood does not include stands < 40 years of age in 2010

**** based upon historical average volumes per type and age class

Implementation

5.2 Projected Harvest 2011 - 2020

5.2.3 Red Pine – Long-Term Harvest Trends

As described earlier, the red pine working group is currently the most significant within the SCF with respect to area, productivity, and revenue. Due to a range of factors, however, current growth rates and harvest levels cannot be maintained indefinitely:

- Tree planting volumes closely mirrored historic land acquisition rates. Planting numbers peaked during the period 1936 to 1941 and dropped off substantially in the mid 1970s, which has resulted in the current age class distribution.
- Red pine has very low shade tolerance; as such it will not regenerate naturally in the understory of existing stands.
- The preponderance of Armillaria root rot within the root systems of most plantations precludes the replanting of red pine following a final harvest.
- Even if a significant effort was undertaken in coming years to increase the acquisition and reforestation of marginal lands, a significant age gap will exist due to the reduced planting since 1975.

Sections 5.2.4 and 5.2.5 illustrate the change in future age class distribution, total area, projected volume, and volume by age class in ten-year increments. Projections go beyond the 20-year scope of this plan to more fully illustrate the implications to future timber flow. Total volume will peak in approximately 2020 and begin to decline thereafter, however an increasing percentage of volume will come from older stands which produce larger diameter and higher value timber.

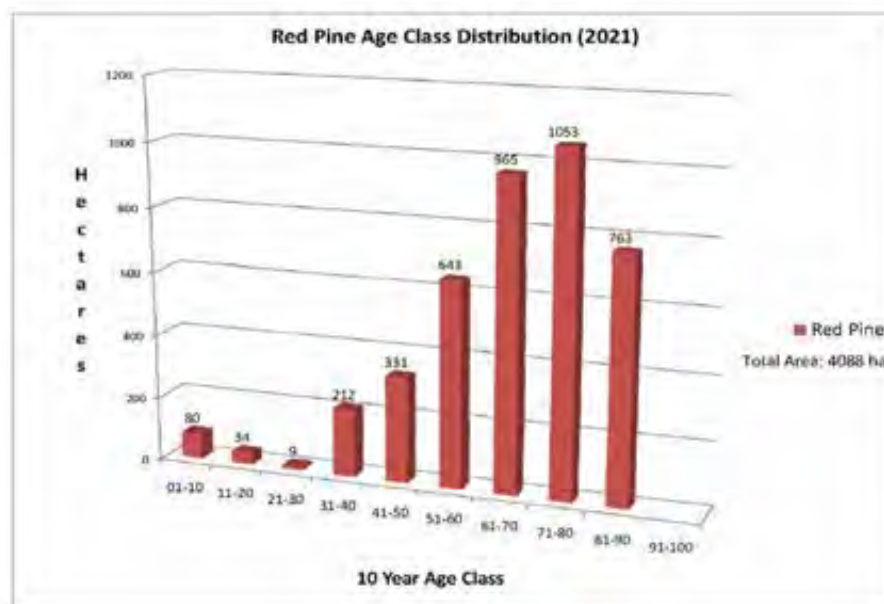
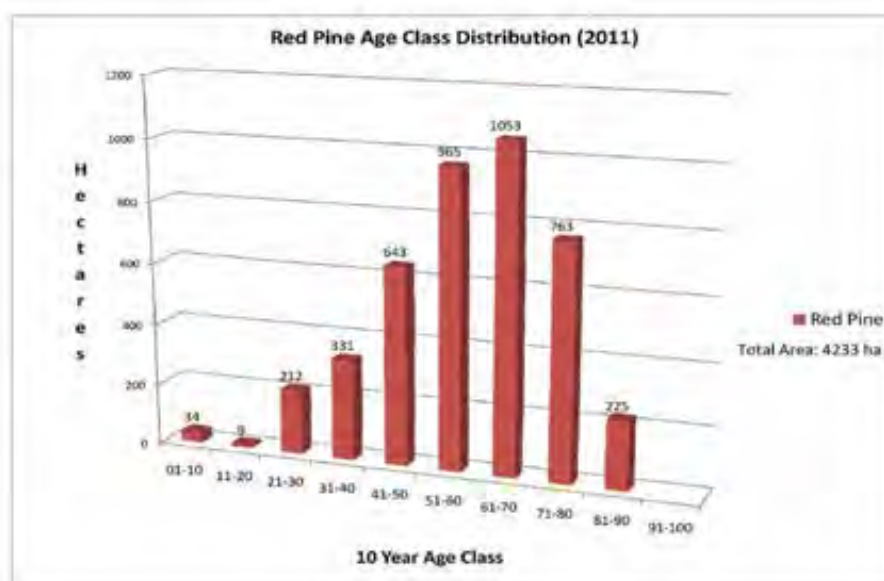
Thus, although total volume will peak around 2020, revenue should remain strong due to the increasing percentage of larger diameter timber for a further 20 to 30 years. (ie. the significant value of large, pole-quality red pine will continue to provide significant revenue until approximately 2040 to 2050). The reduction in younger age classes, however, will have an impact on local operators who are predominantly structured to utilize smaller diameter timber.

Notwithstanding the pending impacts to local industry and reduced revenue from timber sales, the coming transition in forest composition will also affect habitat conditions. In particular, the reduction of large areas of mature pine forests may impact certain forest-dependant bird species.

Implementation

5.2 Projected Harvest 2011 - 2020

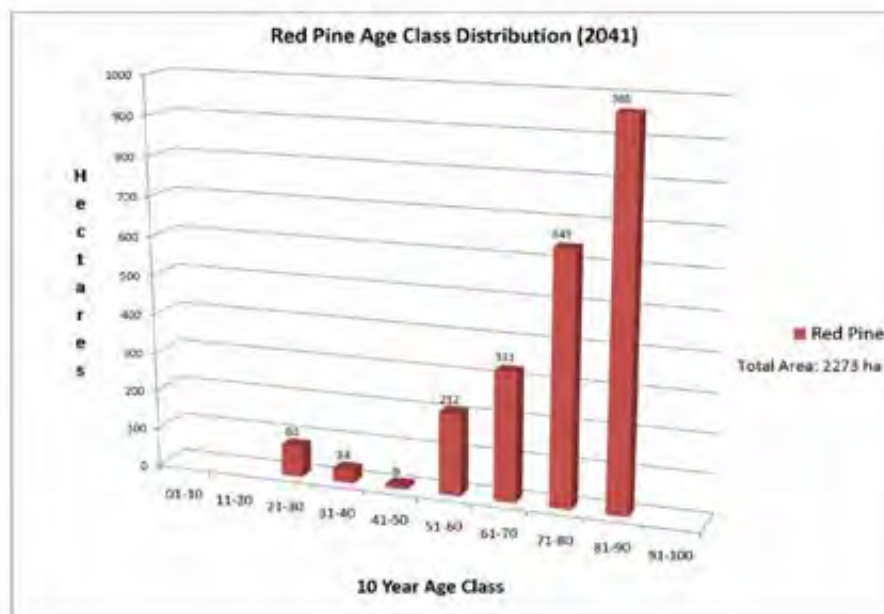
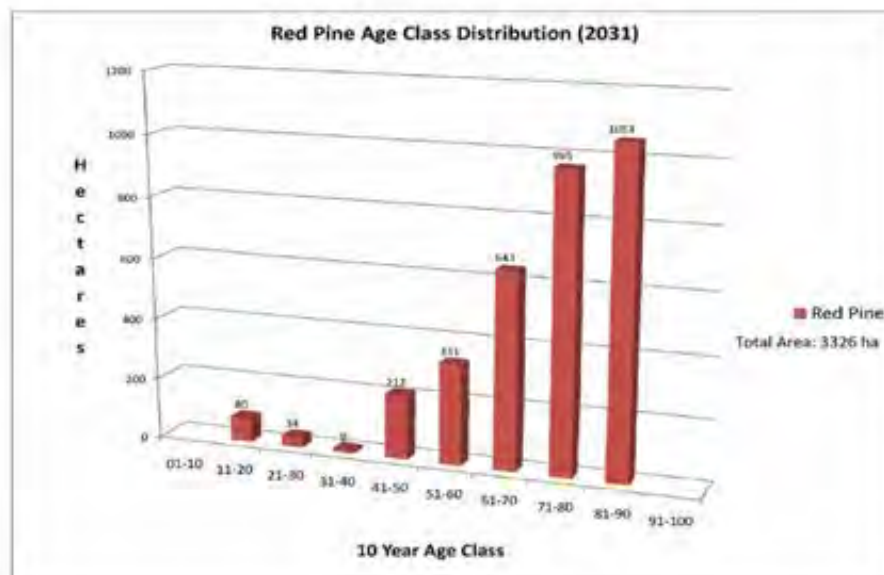
5.2.3 Red Pine – Long-Term Harvest Trends *continued*



Implementation

5.2 Projected Harvest 2011 - 2020

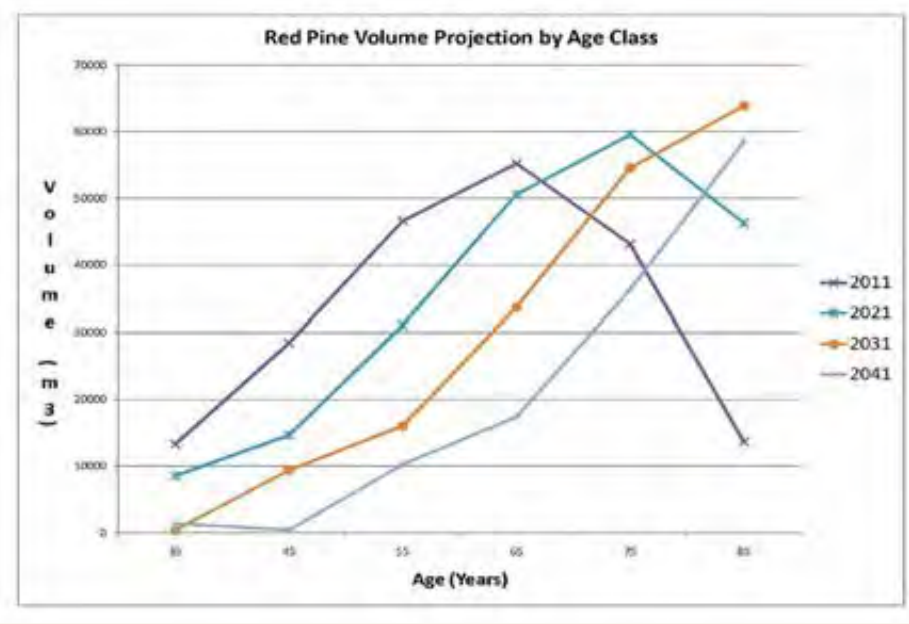
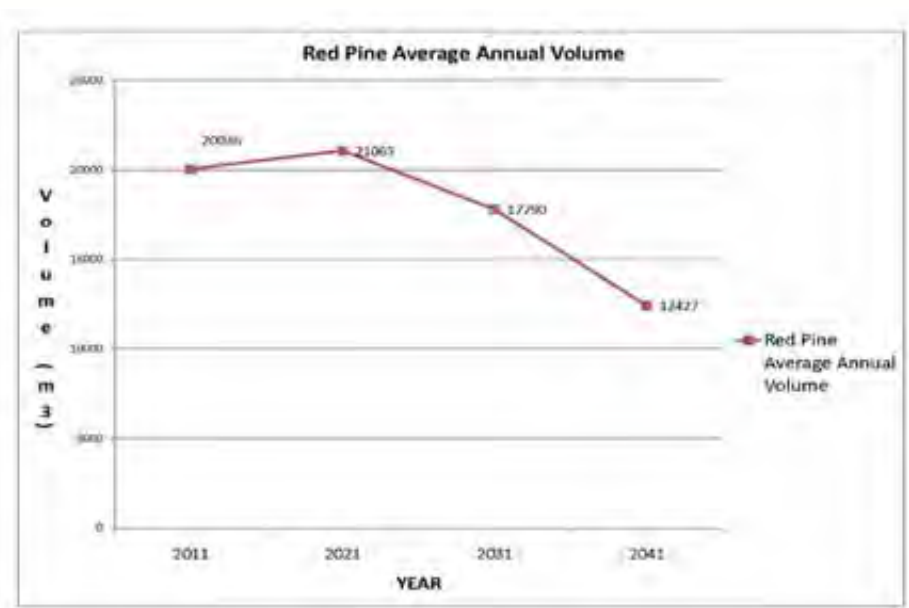
5.2.3 Red Pine – Long-Term Harvest Trends *continued*



Implementation

5.2 Projected Harvest 2011 - 2020

5.2.3 Red Pine – Long-Term Harvest Trends *continued*



Implementation

5.2 Projected Harvest 2011 - 2020

5.2.4 Options to Mitigate the Impact of the Variable Age Class Structure of Red Pine

In order to minimize the impacts associated with the age class distribution of red pine the following strategies will be considered and utilized to the degree possible:

Increase acquisition and reforestation of marginal farmlands

Levels of tree planting historically mirrored land acquisition rates which peaked in the 1930s and 40s and began to decline markedly in 1975. During the previous 20-year period planting has been negligible (Section 3.1.1). Planting rates will increase in coming years due to recent acquisitions; and while this recent trend will continue if suitable lands can be acquired, it will remain very small as compared to historical standards. It will also not contribute to the age gap which exists currently from the reduced planting since the 1970s.

Increase acquisition of lands with established young plantations

This option represents the only opportunity to reduce the current gap of young plantations within the SCF. Targeting the acquisition of lands toward properties which contain established pine plantations up to 50 years of age would contribute to maintaining the revenue stream further into the future. Also, although many private woodland owners are good stewards, the expertise and management processes at the County would ensure the proper development of the. As such, although local industry would have access to some of the timber if privately-owned, County ownership would ensure that the maximum volume of high quality timber was available. As an added benefit to industry this option will increase the availability of certified timber.

Extend the rotation age of existing plantations where possible

The maximum age of red pine in natural conditions is known to be approximately 350 years, however plantations are typically managed with a projected rotation age of 80 to 110 years. Planned rotation age for red pine in the SCF has been 90 years, and future projections will continue on this basis. With the onset of decline forcing a shorter rotation age in a number of stands, however, stands which continue to exhibit good health as they mature will need to be managed with a longer maximum age to compensate for projected yields. Extending the rotation age of select plantations will also provide an opportunity to extend the revenues from these plantations somewhat further into the future than would otherwise be the case.

Implementation

5.2 Projected Harvest 2011 - 2020

5.2.4 Options to Mitigate the Impact of the Variable Age Class Structure of Red Pine *continued*

As discussed earlier, however, plantation thinning must be scheduled appropriately in order to achieve optimum growth and yield. In particular, the first three to four operations (generally between 35 to 65 years of age) cannot be altered substantially without adversely impacting stand level objectives. Following this, however, it is possible to consider more flexibility in the operating schedule for any particular stand. Operating cycles may be shortened for stands exhibiting decline, and others will be identified which can continue for longer periods between harvests and potentially continue beyond 90 years of age.

Specifically, candidate stands chosen for longer retention should be:

- A minimum age of 65 years and exhibiting no obvious signs of decline;
- Succeeding mainly to tolerant hardwood species (stands which have an opportunity for conversion to mid-tolerants including oak and white pine will need to be thinned more aggressively to provide adequate light conditions).

Extending the rotation age of these stands can be achieved by extending the cutting cycle beyond 9 years and/or reducing the percent removed in each harvest to 20-25%.

It must be noted that the ultimate longevity of these red pine stands is not known at present and as such ongoing adjustments to the operating plan will be required. Additional staff time will also be required as additional stands will require assessments each year.

Release established white pine regeneration

Many mixed plantations which had a component of white pine planted originally provide an excellent opportunity to increase the component of white pine as a secondary crop. This will generally require managing mature (ie. 65 years plus) red and white pine plantations using the shelterwood system to ensure adequate light conditions where white pine is well-established in the understory. This process will contribute to filling the gap in young red pine plantations.

Implementation

5.2 Projected Harvest 2011 - 2020

5.2.4 Options to Mitigate the Impact of the Variable Age Class Structure of Red Pine *continued*

Maximize efforts to improve stand quality and future value in natural stands

Notwithstanding the strategies listed above, the volume and subsequent value derived from plantations will decline in coming decades. In their place will be many hectares of young hardwood or mixed stands which will not provide revenue for a minimum of 40 years following the final overstory removal. Pre-commercial stand improvement work has not been employed in the SCF since the 1970s, however, an increased emphasis in this area is required to reduce future declines in revenue from plantation thinning. Pre-commercial stand improvement work may include:

- Crop tree release at a very early age to maximize future value and minimize the time required to produce marketable timber;
- Proper corrective pruning of select young hardwood stands (primarily red oak);
- Control of undesirable species (ie. Manitoba maple; buckthorn).

Most existing tolerant hardwood stands have been treated at least once during the previous 30 years; some have received up to three treatments to improve timber quality and structure since owned by the County. These operations involve the reduction of unacceptable growing stock typically through commercial sales of primarily firewood. A smaller percentage of other forest types have also been treated with the objective of improving future timber quality. An increased emphasis on forest stand improvement will be required, however, to improve the future health and value of these stands. Based upon the total available area for harvest, a substantial increase in commercial stand improvement work is desirable provided that suitable markets exist for low grade timber and firewood. Recent successes at marketing firewood and poplar sawlogs provide encouragement to increase volumes in coming years. Further opportunities may also become available if the recent interest in bioenergy becomes a reality.

Retain ‘veteran’ trees during final overstory removal

In order to reduce the potential impact to forest dwelling songbirds and other species utilizing the mature pine forests, remnant overstory or ‘veteran’ trees may be retained where possible. Guidelines are detailed in Section 5.3.3.

Implementation

5.3 Identification & Protection of Natural & Cultural Heritage Values

In addition to the direct economic value provided by timber, our forests provide critical habitat for a wide range of wildlife, improve and protect the health of area watersheds, and provide tangible benefits to the health and wellbeing of residents. To manage our forests to achieve society's ecological, social and economic expectations, a multi-faceted approach is required to identify, protect, and where possible enhance, these natural heritage values.

5.3.1 The Coarse and Fine Filter Approach

With the incredible diversity of fauna within the Great-Lakes-St. Lawrence (GLSL) forest region of Ontario, a “species-by-species approach to the provision of wildlife habitat and the conservation of biodiversity is impossible” (MNR Forest Management Guide for GLSL Forests). The MNR has begun to rely on a nested coarse and fine filter approach to meet wildlife habitat needs and provide healthy forests on crown land; a concept which is useful to consider and adapt for use in the SCF. The coarse filter component is intended to mimic natural disturbance patterns, creating diverse ecosystem conditions which provide habitat for the majority of native species. In the very large landscape context for which these guidelines have been developed, the coarse filter is defined by forest composition, pattern, and structure. Fine filters are then used, if necessary, to modify the results of applying the coarse filter. This is most often used where it is determined that modifications are necessary for the specific habitat requirements of species such as caribou, moose, marten, pileated woodpecker, etc.

Directly adopting this model to suit the conditions in Simcoe County, and particularly within the SCF, is challenging given the fragmented landscape and long history of human impacts as described in Section 1.2.2. We can, however, set broad objectives and strategies to increase contiguous forest cover (pattern), maintain or increase the diversity of forest stand types (composition), and improve habitat (structure) within each managed forest stand:

Pattern

The acquisition of additional lands will continue to focus on opportunities to connect or enlarge existing SCF tracts or other protected lands in order to enhance significant woodlands and forest cover within Greenlands areas.

Composition

Unusual forest stand types will be maintained or expanded; specifically an increase in the amount of white pine / red oak dominated forests will be pursued where possible.

Implementation

5.3 Identification & Protection of Natural & Cultural Heritage Values

5.3.1 The Course and Fine Filter Approach *continued*

Structure

A range of wildlife habitat conditions within each managed forest stand will be targeted as specified in Section 5.3.2.

Fine filter adjustments are required where species at risk are known or believed to exist, special habitat features are identified, or aquatic or wetland ecosystems require protection as specified in Section 5.3.4. In addition, 'High Conservation Value Forests' are defined, identified and managed using a precautionary approach in order to ensure the protection of natural and cultural heritage values.

5.3.2 High Conservation Value Forests

High Conservation Value Forests (HCVFs) are those that possess one or more of the following attributes (as defined in accordance with Principle 9 and Appendix E of the Forest Stewardship Council (FSC®) document 'Forest Certification Standards for the Great Lakes / St. Lawrence Forest Region' 2007):

- Forest areas containing globally, regionally or nationally significant:
 - Concentrations of biodiversity values (e.g., endemism, endangered species, refugia); and/or
 - 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.
- Forest areas that are in or contain rare, threatened or endangered ecosystems.
- Forest areas that provide basic services of nature in critical situations (e.g., watershed protection, erosion control).
- Forest areas fundamental to meeting basic needs of local communities (e.g., subsistence, health) and/or critical to local communities traditional cultural identity (areas of cultural, ecological, economic or religious significance identified in cooperation with such local communities).

Within HCVFs the forest manager must assure that any prescribed forest operations do not adversely impact identified values. Generally, timber extraction within these forests is of secondary significance.

Implementation

5.3 Identification & Protection of Natural & Cultural Heritage Values

5.3.2 High Conservation Value Forests *continued*

As forest ecosystems evolve over time, so too does the information and knowledge associated with them. Current technology allows for regular mapping refinements and updates to attribute data. As new information becomes available either through updated mapping (for example MNR wetland mapping), or via field assessments conducted by staff, the corresponding updates will be made to the forest stand mapping.

The HCVFs identified and mapped to date within the SCF are as follows:

Wetlands

A wetland is an area of land that is seasonally or permanently flooded by shallow water as well as lands where the water table is close to the surface. In either case, the presence of abundant water causes the formation of hydric soils and favours the dominance of either hydrophytic or water tolerant plants as designated through the Wetland Evaluation process. Wetlands are a critical component of healthy watersheds, contributing to the regulation of water levels and stream baseflow, water quality, and terrestrial and aquatic habitat. Wetlands collectively form the most significant component of HCVFs within the SCF.

Data Source - Evaluated Wetlands (now referred to as Wetland Units by the MNR Feb 11, 2011) received from the Ministry of Natural Resources. A Wetland Unit is classified as being predominantly a marsh, fen, swamp, or bog. Minor adjustments have been made to improve accuracy as necessary and coincide with forest stand mapping utilizing contour lines and/or air photography. Undesignated wetland areas have been added to the mapping where evident through interpretation of air photos (no in-field wetland assessment has been undertaken by County staff). Refinements to the mapping will be ongoing as updates become available through the MNR, or adjustments are recommended by staff at the inventory or harvest planning stage.

Management – The wetland areas are not included within the production forest area. Modified operations will be prescribed within 120 meters of wetland boundaries as detailed in 5.3.4.

Implementation

5.3 Identification & Protection of Natural & Cultural Heritage Values

5.3.2 High Conservation Value Forests *continued*

Riparian Zones

A riparian zone is the area where direct interaction occurs between land and water systems and is important for the management of water quality and ecological resources.

Data Source – Boundaries have been established using historical forest stand mapping combined with current digital mapping layers including air photos, contours, and stream layers. All significant riparian areas have been mapped where an identifiable stream corridor or ravine is evident (other minor, first order streams which do not have a well-defined ‘top of bank’ may not be mapped individually but are protected through buffers and/or modified operations as determined on site and detailed in 5.3.4).

Management – Riparian zones are not included within the production forest area.

Seeps / High Water Table

Several forest stands have been identified which perform important functions related to watershed health due to a preponderance of seeps and/or ephemeral pools and is often related to a high water table.

Data Source - These sites have been identified by field assessments conducted by forestry staff.

Management - Where operations are prescribed, modified operations may include seasonal restrictions and/or avoidance of sensitive areas as prescribed in 5.3.4.

Species at Risk

A ‘species at risk’ (SAR) is any naturally-occurring plant or animal in danger of extinction or of disappearing from the Province of Ontario. The Endangered Species Act protects all species which are classified as endangered or threatened as per the Species at Risk in Ontario List (MNR, 2010). Under the Act, SAR are listed using the best available information and measures are developed to protect SAR and their habitat as well as promoting their recovery.

Data Source – Forest stands are flagged at such time as the presence of a SAR is confirmed by staff, MNR, or other sources.

Implementation

5.3 Identification & Protection of Natural & Cultural Heritage Values

5.3.2 High Conservation Value Forests *continued*

Management - In order to contribute to SAR recovery plans and ensure compliance with the Endangered Species Act, forestry staff will need to continue to work corroboratively with MNR staff as more information becomes available. A list of all known SAR in Simcoe County has been prepared by MNR staff which will require regular updates. Extensive biological inventories are not planned due to the high cost; rather a 'precautionary approach' is envisioned. For example, timing restrictions for harvesting operations may be considered where a potential impact to a SAR could be avoided. If available and applicable, SAR recovery plans may also be implemented.

Regionally Uncommon Species

Due to a variety of factors (e.g. urban development, agriculture, forestry, natural distribution, exotic diseases and pests, etc.) certain tree species are uncommon or rare in Simcoe County but are not listed as a species at risk. Some of these tree species are known to occur in the County Forest but their distribution and condition are not fully known (e.g. white oak, bitternut hickory). Additional stands may be identified which include other uncommon species, species assemblages, or site types as information becomes available.

Data Source - These forest stands are identified by forestry staff as a result of local knowledge and experience.

Management - Operations prescribed where uncommon species exist will be designed to protect, and if possible enhance, the conditions required for the identified species to thrive.

Old Growth Forests

Old growth forests are typically remnant natural forests that have been relatively undisturbed for many years resulting in unique structural characteristics. Although true old growth forest ecosystems in Southern Ontario are extremely rare, all forests have the potential to develop 'old growth' features in time; some of course have more potential than others. Many different interpretations and definitions of old growth have been in use. For the purposes of this document Old Growth Forests are defined as:

- forest ecosystems that include complex forest stand structure, relatively large dead standing trees (snags), accumulations of downed woody material, up-turned stumps, root and soil mounds, and accelerating tree mortality (adapted from MNR Forest Management Guide for Great Lakes-St. Lawrence Landscapes, 2010).

Implementation

5.3 Identification & Protection of Natural & Cultural Heritage Values

5.3.2 High Conservation Value Forests *continued*

According to this definition, true old growth forest ecosystems in the SCF have not been identified to date. Some mature forest stands, however, exhibit some of the characteristics of an old growth forest and have potential to continue to develop further.

Data Source - Staff have identified candidate stands using the following characteristics as a guideline only (ie. no scientific methodology or sampling has been conducted):

- A minimum of 3 trees exceeding 50 cm in diameter at breast height per hectare;
- Average basal area of the stand exceeds 20 m²/ha;
- Stocking of mature climax species is > 40% (i.e. eastern hemlock – *Tsuga canadensis*, eastern white pine – *Pinus strobus*, sugar maple – *Acer saccharum*, American beech – *Fagus grandifolia*, yellow birch – *Betula alleghaniensis*, eastern white cedar – *Thuja occidentalis*);
- Four structural canopy layers (i.e. supercanopy trees, canopy trees, understory trees and shrubs and saplings);
- Pit and Mound forest topography is apparent;
- Coarse woody debris in at least three stages of decomposition;
- Snags;
- Cavity trees (live or dead).

(adapted from the Prescott Russell Forest Management Plan, 2009)

Management – Where prescribed, management will be designed to enhance old-growth features. Modified operations may include the retention of higher residual basal area, additional large diameter trees, etc to increase the characteristics listed above. In addition, additional tolerant hardwood stands or portions of stands will be identified and managed to enhance old-growth characteristics over time.

Areas of Natural or Scientific Interest (ANSI)

ANSIs are areas of land and water that represent significant geological and biological features which are important for natural heritage, protection, appreciation, scientific study or education. Earth science ANSIs include areas that contain examples of rock, fossil and landform features. Life science ANSIs are areas that contain examples of the many natural landscapes, communities, plants and animals found in the 14 natural regions of the province.

Implementation

5.3 Identification & Protection of Natural & Cultural Heritage Values

5.3.2 High Conservation Value Forests *continued*

Data Source – Identification and mapping provided by MNR.

Management – Prescriptions must ensure that the key identified features or values are retained, or where possible, enhanced.

Cultural Significance

Culturally significant sites identified within the SCF include known archaeological sites in addition to the area under lease to Hardwood Ski and Bike as the primary function is recreation.

Archaeological sites are associated with past human activities, endeavours, or events; including surface artefacts, subsurface strata (of human origin or incorporating cultural deposits), remains of structural features, or a combination of these attributes.

Data Source – Provided by the Ministry of Tourism and Culture; January 2008

Management – Forest operations must not disturb soils, including road or landing construction. Operations within the defined recreation area must minimize disruption through timing restrictions, etc.

High Conservation Value Forest Type	Area (ha)
Wetlands	1,364
Areas of Natural or Scientific Interest (ANSI's)	771
Culturally Significant	130
Riparian Areas	97
Species at Risk / Regionally Rare Species	71
Seeps / High Water Table	21
Old Growth Features	15
Total HCVF Area	2,469
Total SCF Area	12,663

Implementation

5.3 Identification & Protection of Natural & Cultural Heritage Values

5.3.3 Operational Guidelines for Habitat Improvement in Natural Forest Stands

While working within the scope of an operational prescription, the selection of individual trees for harvest will generally follow direction in the *Forest Management Guide for Conserving Biodiversity at the Stand and Site Scales* and the *Ontario Tree Marking Guide*. When a natural value is encountered, modifications to tree marking and forest operations will be applied. Wildlife tree retention focuses on trees of special value to wildlife such as cavity trees, mast trees, scattered coniferous trees, and supercanopy trees.

Value Or Feature	Target	Details
Biodiversity	Maintain a natural mix of tree species, retain species that are less common and less abundant at the stand and landscape level.	<ul style="list-style-type: none"> Retention of mid-tolerant species (black cherry, basswood, red, white and bur oak) Retention of regionally rare or uncommon tree species (butternut, bitternut hickory, black spruce, eastern cottonwood) Retention of individual “veteran” trees Creation of group openings
Wildlife Trees - Wildlife trees can include standing healthy, dead, or dying trees. -Cavity trees are a dead, dying, or live tree with a hole for nesting, roosting, resting or feeding -Mast trees are trees that produce edible fruit -Supercanopy trees are large living trees that emerge above the main canopy of the stand -Veteran trees are larger trees that will become the supercanopy trees of the future	Wildlife trees will generally be well dispersed. Where cavity trees are not available, recruit such trees by leaving poor quality stems, especially living trees. Favour retention of cavity trees which will last 20 years (hardwood trees are preferable to poplar)	Retain at least half of wildlife trees as individual stems; the remaining wildlife trees may occur in clumps and of different species. <ul style="list-style-type: none"> Retain an average of ≥ 10 living cavity trees with a minimum of 5 living cavity trees on each ha Retain an average of ≥ 10 mast trees/ha Retain an average of ≥ 10 scattered coniferous trees/ha Retain an average of ≥ 1 supercanopy tree/4 ha Retain ≥ 10 veteran trees on final removal cuts Except in extraordinary circumstances, wildlife trees that fall to the ground, or are purposely felled for worker safety reasons, become downed woody material Reasonable efforts will be made to avoid knocking down standing wildlife trees during renewal and tending treatments

Implementation

5.3 Identification & Protection of Natural & Cultural Heritage Values

5.3.3 Operational Guidelines for Habitat Improvement in Natural Forest Stands *continued*

Value Or Feature	Target	Details
<p>Downed Woody Material -Refers to wood above the soil and on the ground</p>	<p>Leave coarse woody material on site. Coarse woody material will refer to sound and rotting branches, boles, logs, and stumps, generally $\geq 7.5\text{cm}$ in diameter at the small end.</p>	<p>Downed trees (or pieces of trees) present prior to harvest will be left on site (moving such trees for silvicultural purposes is permitted); where windstorms or other natural events (e.g., snow, ice) have recently caused damage to stands, trees leaning and downed by the recent disturbance, which normally would have been available for harvest, may be harvested and utilized.</p>
<p>Snag trees -Refers to dead standing trees</p>	<p>Encourage operators to leave snags that are not a safety risk</p>	<p>Leave snags that are in various stages of decay. Removal of snag trees to be minimized during road and landing construction consistent with OHS requirements.</p>

Implementation

5.3 Identification & Protection of Natural & Cultural Heritage Values

5.3.4 Operational Guidelines for Habitat Improvement in Plantations

The long-term management objective for the majority of forest plantations is to promote natural regeneration of mixed native species that are well suited to the site to allow for a gradual transition to a more natural state. Forest plantations, by their very nature, offer more limited opportunities to maintain or enhance habitat conditions for a range of species, however the following guidelines will be utilized to the degree possible.

Object	Target	Details
Wildlife Habitat – Plantations tend to be uniform with limited amount of wildlife trees	Increase the number of wildlife tree or potential wildlife trees within plantations.	<ul style="list-style-type: none"> • Retain standing dead trees if it is safe to do so • Encourage the development of potential mast trees by releasing ≥ 10 mast trees/ha over 25cm • Retain ≥ 10 veteran trees/ha on final removal cuts to become supercanopy trees • Retain an average of ≥ 1 supercanopy tree/4 ha • Reasonable efforts will be made to avoid knocking down standing wildlife trees during renewal and tending treatments
Stand Diversity	Increase under-represented/ uncommon tree species	Favour uncommon tree species where present
Incorporate Habitat Features	Improve habitat and provide seed source.	Protect and promote remnant hardwood fencerows and other habitat features where present.
Downed Woody Material	Leave coarse woody material on site coarse woody material will be used to refer to sound and rotting branches, boles, logs, and stumps, generally ≥ 7.5 cm in diameter at the small end.	Downed trees (or pieces of trees) present prior to harvest will be left on site (moving such trees for silvicultural purposes is permitted); where windstorms or other natural events (e.g., snow, ice) have recently caused damage to stands, trees leaning and downed by the recent disturbance, which normally would have been available for harvest, may be harvested and utilized.
Improve Future Stand Structure	Retain some plantations past rotation beyond marketable age.	Retain scattered super canopy trees to shelter developing stand
Snag Trees – Refers to dead standing trees	Encourage operators to leave snags that are not a safety risk.	Leave snags that are in various stages of decay. Removal of snag trees to be minimized during road and landing construction consistent with OHS requirements

Implementation

5.3 Identification & Protection of Natural & Cultural Heritage Values

5.3.5 Modified Operations Summary for the Protection of Natural and Cultural Heritage Values

An area of concern (AOC) is a term used to identify an area that requires special consideration when planning forestry operations in order to mitigate the potential negative impacts on an identified value. Operational prescriptions for areas of concern may include a reserve, where no activities are carried out, and/or a modified area, where forestry activities are modified to protect the value. The application of these guidelines contributes to the maintenance of a healthy forest ecosystem, the protection and enhancement of wildlife habitat and the conservation of forest biodiversity.

The following summary has been developed using the Silvicultural Guide to Managing Southern Ontario Forests, with additional adaptations from the OMNR Forest Management Guide for Conserving Biodiversity at the Stand and Site Scales. These guidelines will continue to evolve to reflect the best available science. Further, these guidelines are not all encompassing; specific instances and habitat situations may arise which will require further analysis and consultation with MNR or other expertise.

Value Or Feature	Reserve	Modified Management Area	
	Dimension	Dimension	Condition
Rivers and streams (including intermittent streams)	<ul style="list-style-type: none"> Harvest not permitted below top of bank of water feature. Where top of bank is not clearly defined harvest is not permitted within 15m of water feature. 	Site Specific	<ul style="list-style-type: none"> Modified harvest, renewal, and tending operations will follow appropriate operating practices to minimize rutting, compaction, and mineral soil exposure that could lead to erosion and subsequent transport and deposition of sediment. Retain minimum 75% canopy closure within 30m If a crossing is necessary, temporary structures that do not impede water movement must be used.

Implementation

5.3 Identification & Protection of Natural & Cultural Heritage Values

5.3.5 Modified Operations Summary for the Protection of Natural and Cultural Heritage Values *continued*

Value Or Feature	Reserve	Modified Management Area	
		Dimension	Condition
Springs, seeps		15m	<ul style="list-style-type: none"> Trees are not to be felled into the water feature.
		30m	<ul style="list-style-type: none"> Retain minimum 75% canopy closure
Woodland pools / amphibian breeding ponds	No harvest within 15m of pond edge.	30m	<ul style="list-style-type: none"> Retain minimum 75% canopy closure. Skid trails are not permitted.
Wetlands (includes all identified wetland areas)	No harvest within wetland area.	120m	<ul style="list-style-type: none"> Focus on maintenance and enhancement of wildlife and biodiversity values. Roads and landings are not permitted.
Heronry	No harvest within 75m of colony.	225m	<ul style="list-style-type: none"> Maintain minimum 60% crown closure.
		375m	<ul style="list-style-type: none"> Roads and landings are not permitted.
		1 km	<ul style="list-style-type: none"> No operations permitted March 1 to August 31.
Osprey Nest	No harvest within 75m of nest.	150m	<ul style="list-style-type: none"> Maintain minimum 60% relatively uniform canopy closure.
		300m	<ul style="list-style-type: none"> Operations are not permitted April 1 to August 15. Roads and landings are not permitted.

Implementation

5.3 Identification & Protection of Natural & Cultural Heritage Values

5.3.5 Modified Operations Summary for the Protection of Natural and Cultural Heritage Values *continued*

Value Or Feature	Reserve	Modified Management Area	
	Dimension	Dimension	Condition
Red-shouldered, Goshawk & Cooper's Hawk nests	No harvest within 50m of nest.	400m	<ul style="list-style-type: none"> Maintain minimum 60% canopy closure. No operations permitted March 15 to July 15.
Active Hawk Nest – Red-tailed, broad winged, sharp-shinned, Merlin	No harvest within 20m of nest.	120m	<ul style="list-style-type: none"> No operations permitted April 1 to July 31.
Inactive Heron Nest	No harvest within 30m of nest.	n/a	
Inactive Osprey Nest	No harvest within 20m of nest.	100m	<ul style="list-style-type: none"> Maintain minimum 60% canopy closure.
Inactive Red-shouldered & Cooper's Hawk nests	No harvest within 20m of nest.	n/a	
Inactive Hawk nest – broad-winged, red-tailed, sharp-shinned, Merlin	In selection and shelter-wood cuts, retain nest tree and adjacent trees.	n/a	
Deer Winter Concentration Area		Stratum I (core area)	<ul style="list-style-type: none"> Maintain a minimum 30% as critical thermal cover dispersed throughout the stratum
		Stratum I and Stratum II (yarding area)	<ul style="list-style-type: none"> Maintain a minimum of 60% in conifer canopy; up to 80% if possible.
		Stratum III (year-round range)	<ul style="list-style-type: none"> Maintain a shifting mosaic of 10-15% of the summer range as openings where possible.

Implementation

5.3 Identification & Protection of Natural & Cultural Heritage Values

5.3.5 Modified Operations Summary for the Protection of Natural and Cultural Heritage Values *continued*

Value Or Feature	Reserve	Modified Management Area	
	Dimension	Dimension	Condition
Archaeological sites	No Reserve	Forest stand boundary	<ul style="list-style-type: none"> Forest operations must not disturb soils, including road or landing construction.
Old homestead remnants including foundations, stone fences, rock piles (both cultural and potential habitat values man be present)	No Reserve	n/a	<ul style="list-style-type: none"> No disturbance is permitted.
Trails	No Reserve	n/a	<ul style="list-style-type: none"> Trails should be cleared of logging debris and left safe and passable to the degree possible.

Implementation

5.4 Forest Protection

5.4.1 Insects and disease

As described in Section 3.5.1, a wide range of insect and disease factors play a significant role in the health of individual trees and the development of forest stands. Occasionally, conditions may arise which threaten the health of a particular species or group of species to the degree that intervention is considered. As such, ongoing monitoring is required:

- The MNR provides forest health monitoring through the provision of a Forest Health Technical Specialist and regular forest health updates.
- The Canadian Forest Service (CFS) conducts research on forest health issues and provides technical support.
- The Canadian Food Inspection Agency (CFIA) is a regulatory body responsible for reducing the introduction or export of insects or disease particularly where international trade may be compromised.
- County staff monitor forest health on a day-to-day basis as a part of regular forest inspections. Specific county-led monitoring programs have also been undertaken as is the case with pine false webworm.
- Partnerships between the County and other agencies are a regular occurrence to identify potential pests, determine the level of risk, and assess potential control methods.

The decision to initiate control measures is the responsibility of the County Forester. Where anticipated costs for recommended control measures are beyond approved budgets, approval must be obtained from Council.

5.4.2 Fire

Planning, responsibility and investment in controlling fire in the SCF has changed dramatically in recent decades. Previous plans indicate substantial MNR involvement in the creation and annual maintenance of fire guards, and ponds or cisterns for water storage on most properties. 'Duty Officers' were also on call outside of business hours. A fire protection plan was updated annually which listed the locations of fire suppression equipment, personnel and water sources. Local municipalities were responsible for initial attack. The substantial investment in prevention and control proved successful at keeping losses from fire very low.

Implementation

5.4.2 Fire *continued*

Currently, agreements have been in place with all area municipalities since 1999 which establish responsibilities for firefighting. Local fire departments remain responsible for all necessary firefighting; associated costs for suppression in the SCF are charged to the County. The MNR provides training and advice through regional 'fire advisors'; MNR fire support could also be called in under extreme circumstances if requested by the local Fire Chief. The County is responsible for the purchase and maintenance of five caches of portable wild land firefighting equipment which are housed with local fire departments.

Efforts are currently ongoing to ensure the accurate and consistent emergency numbering of SCF properties.

5.4.3 Invasive Plants

The detection and mapping of invasive plants in the SCF which began in 2008 clearly indicates an accelerating trend of the presence of problem species. Increasing incidences of garlic mustard (*Alliaria petiolata*), common buckthorn (*Rhamnus cathartica*), dog-strangling vine (*Cynanchum rossicum*), and Manitoba maple (*Acer negundo*) are occurring with minor introductions of other species. Introductions and spread are the result of several sources, probably most commonly resulting from recreational users followed by disposal of lawn and garden waste, and forest operations.

A preliminary plan for controlling invasive species in the SCF was prepared in 2008. A successful effort will require a multi-faceted, adaptive management approach:

- Prevention of new introductions is the best defence. This will require a more educated public, a reduction in illegal dumping, and the implementation of best management practices during forest operations.
- Complete eradication is most viable during the earliest onset of infestation.
- The careful and controlled use of approved herbicides will be required.
- Continuous monitoring and adjustments of control efforts will be required.

Implementation

5.5 Recreational Use

In the conclusions drawn by E.J. Zavitz in his influential 1909 report 'Reforestation of Waste Lands in Southern Ontario', he states: "The policy of putting these lands under forest management has many arguments in its favour. It will pay as a financial investment; assist in insuring a wood supply; protect the headwaters of streams; provide breeding ground for wild game; provide object lessons in forestry; and prevent citizens from developing under conditions which can end only in failure." In addition ... "these areas should be preserved for the people of Ontario as recreation grounds for all time to come." It is in this spirit that the SCF has remained available for a wide range of recreational activities to this day.

The management of the SCF by the province until 1996 also played a role in its public use as provincial staff were managing crown land parcels in tandem. As such, the public have historically viewed the SCF as 'crown' land, and permitted uses were generally identical. Increasing population levels and expectations, however, combined with a substantial increase in the popularity of All Terrain Vehicles (ATVs), led to the need for the County to review permitted uses of the SCF. The result, following an extensive public process, was the adoption of a Recreational Use Policy in June 2006 (Appendix 8.1). Generally, the policy attempts to reduce conflict and limit the liability of the County through the use of Property Use Agreements for all organized activities including individual events and long-term trail use.

Since the introduction of the Recreation Policy in 2007, understanding and compliance has increased and improved communication has resulted in beneficial relationships between various user groups and the County. With the increasing levels of use and interest in trail development, continued commitment will be required to reduce conflicts between users and forest operations.

Implementation

5.6 Property Maintenance

In the early decades of the development of the SCF, property protection and maintenance was a much more intensive operation. Significant resources were invested in fencing and the creation and maintenance of fire guards to protect the substantial investments being made in reforestation vast acreages. A 1960 report described that, in addition to the five full-time forest superintendents and assistants, approximately 70 summer students were hired annually to assist with property maintenance. Fire guards and access roads were still being maintained annually until 1991/92.

Current maintenance and infrastructure improvements are intended to serve the following purposes:

- Maintain access for management purposes and emergencies;
- Identify and delineate SCF properties and inform the public through adequate signage;
- Protect County property and assets including timber;
- Reduce unauthorized activities;
- Improve public safety.

Roads

Maintenance of forest access roads is generally only completed as required to provide access for forestry operations. In most cases, harvest contractors are responsible to complete any needed road improvements as per the timber sale terms and conditions. The County may, however, provide gravel or other material where road and/or landing enhancements are of mutual benefit. The County has also traditionally been responsible for new entrances or enhancements to existing entrances including culverts.

Additional maintenance is also completed where safety is of concern particularly where water erosion has created gullies on steep sections and to reduce severe rutting and ponding in wet areas. This work is completed when possible with the assistance of County Roads crews during off-peak times to reduce cost. Designated snowmobile trails are maintained by area clubs as per the Property Use Agreement; as these trails are generally also primary access roads this trail maintenance provides a benefit by facilitating access for forestry purposes.

Prior to 2007 and the implementation of the Recreation Policy vehicular use by the public actually played a role in keeping forest roads open. Where a minimum level of access is required for management and/or emergency purposes, an increased level of road maintenance may be required in future. The construction of new access roads will be carefully considered and minimized to the degree possible.

Implementation

5.6 Property Maintenance *continued*

Entrances

Although signs are placed at each main entrance to the forests, physical barriers are required in many locations to reduce unauthorized activity including vehicle traffic and dumping. Approximately 120 of the over 540 primary entry points have been gated or cabled to date, with additional installations occurring annually on a priority basis. Openings are to be left at each gated location of approximately 34” to allow the passage of hikers, equestrians, etc. In cases where properties have more entrances than required, ditching or other means may be used to cost effectively limit vehicle access.

Parking or staging areas at major trail-head locations have been installed to improve safety in several well-used locations. Parking may be added in additional locations if required.

Designated Recreational Trails

Trail development and use occurred in a haphazard and unauthorized manner for many years prior to the Recreation Policy. As per the Policy, designated trails now require a Property Use Agreement which clearly establishes roles and responsibilities. Staff will need to continue to work proactively with trail proponents to establish trails which reduce conflict, promote safety, and are environmentally responsible. Designated trails are monitored and maintained by Property Use Agreement holders only; Forestry staff do not maintain trails for recreational use.

Signs

Three main sign types are currently in use to identify SCF Tracts, inform the public regarding permitted uses and define property boundaries:

- Large Simcoe County Forest ‘Tract’ signs are installed in highly visible locations;
- Signs detailing permitted/restricted activities are installed at all primary access points;
- Property boundary signs are installed at all boundary points along road frontages.
- The large inventory of signs requires ongoing maintenance, repair and replacement including vegetation removal to ensure visibility.

SCF tracts have been signed with 911 numbers for emergency purposes; however inconsistencies across the County are apparent. Tracts with multiple entrances are problematic and require a unique approach. Plans are currently in place to assess the current numbering and make required adjustments in cooperation with local municipalities.

Implementation

5.6 Property Maintenance *continued*

Property Boundaries

Property boundaries should be evident to staff and the public to protect the interests of the County and neighbouring property owners. In particular, recreational users should be aware if they are venturing onto private lands. Many property lines which were once fenced have deteriorated to the extent that they are no longer visible or may only be found in some locations. Locating and re-establishing these property lines will be conducted by staff as required in order to avoid the high cost of surveying at a later date.

Garbage

Illegal dumping remains a significant issue with an average of approximately 50 tonnes collected annually from the SCF. Debris is always removed as quickly as possible to reduce hazards and reduce the likelihood of further dumping in the same locations. The ongoing installation of gates will reduce opportunities for illegal dumping over time. An increase in convictions for illegal dumping would also be beneficial and any opportunities to do so will be vigorously pursued.

5.7 Property Acquisition / Disposition

The accumulation of properties which make up today's SCF are indicative of an incredibly long history of vision and political commitment. The future growth of the SCF will require the same; however a continued focus on wise fiscal management and application of good forestry practices will provide opportunities for growth.

The reasons for the continued growth of the SCF have changed over the decades, yet it remains an important priority today. The public ownership of lands which protect a range of natural heritage features and functions will continue to grow in importance, as will the availability of these lands for recreation as the population increases. Continued expansion will also help to ensure the economic sustainability of the SCF into the future.

Criteria were established in 1996 which recommend that the County continue to actively pursue the purchase of properties:

- In locations and of quality suitable for forestry purposes;
- To consolidate existing tracts;
- To enlarge existing tracts;
- With good quality sites for regeneration and other forestry purposes;
- Which contribute to natural heritage values.

Implementation

5.7 Property Acquisition / Disposition *continued*

Properties have historically been named after the former land owner. In some cases tract names have been established or changed to recognize the significant contribution of an individual to the County Forests. Changes may also be recommended to provide clarity; particularly where duplicate names exist and when several separate acquisitions are combined into one management area. In all cases the approval from County Council is required.

5.8 Promotion of the SCF and the Sustainable Management of Our Forests

Fostering awareness and knowledge of the SCF, its natural and cultural heritage values, and its sustainable management is extremely important in building and maintaining an awareness of the contributions made by our forests. The County Forests provide a unique opportunity to improve support for sustainable forest management as they may be the only lands where the public is exposed to active forest management. Although many in the forestry community are aware of the substantial contributions, an enhanced effort will be required on an ongoing basis to build understanding and maintain the support of the public. Specific tactics are detailed below; however additional opportunities may arise which will be considered and implemented as time and resources allow.

Improved Communications prior to Harvesting or Tending Operations

Forestry operations can elicit questions and concerns from the public, particularly those who are not familiar with witnessing active forest management. Staff will continue to treat all questions with respect and consider it an opportunity to educate the public and promote the SCF. Improved communications with neighbouring property owners prior to start-up will provide similar opportunities. In highly visible locations and well used SCF properties, enhanced communication may include more descriptive signage on site during operations and/or media releases. Unusual operations which will require particular attention include shelterwood operations and prescribed burns.

Public Outreach

Opportunities to present to various interests, organizations and clubs will be seized when possible. Media requests will continue to be considered an excellent opportunity to enhance the profile of the SCF.

Implementation

5.8 Promotion of the SCF and the Sustainable Management of Our Forests *continued*

Partnerships

Forestry staff will continue to work cooperatively with various partners to most effectively provide information and education to the public. Examples include Ontario Forestry Association, MNR Stewardship Councils, Conservation Authorities, Land Trusts, Huronia Loggers Association, Huronia Woodland Owners Association, etc. Contributions may include the use of SCF properties for tours or demonstrations, or staff may provide expertise or other contributions toward landowner workshops or other educational initiatives. Forest tours or workshops may include many aspects of the forest values.

Website

A more complete and updated website will enable the public to view the location of active forestry operations. Work will be undertaken to provide more complete information including the management plan and the history of the SCF.

Continued Contact with Recreational Users

Regular contact with recreational users has resulted in improved cooperation amongst various interests in the SCF and provided staff with allies in educating the public about the Recreation Policy. It has also provided an opportunity to improve the understanding of the various groups about the SCF and the importance of maintaining active forest management.

Demonstration Areas

The variety, history, and age of many of the forest stands provide an excellent opportunity to showcase different management techniques. In particular, as some of the oldest plantations are nearing 90 years of age with good records of past treatments, opportunities for forest managers and the public to learn from this history are invaluable. Effort will be made to identify and catalogue potential sites and package the information in a way that can be used for organized tours or accessed individually.

5.9 Research

The County Forests have been utilized for many years for a variety of research initiatives to gain a better understanding of forest growth, management, and protection. Although the County is not a research-based agency and does not assume the lead role, contributions have included research locations, staff time, and/or funding.

Implementation

5.9 Research *continued*

Information on the growth of forests and anticipated future yields is vital for forest managers to project timber volumes, revenues, and ensure sustainability. This information depends upon the establishment of 'permanent sample plots' (PSPs) where a defined area is established in a particular forest and various factors are measured over many years. This requires a stable land base such as the SCF and a very long-term commitment from both the research lead and the landowner. A renewed partnership began in 2008 with the County assisting the MNR by taking a more active role in the location and measurement of PSPs in the SCF. Accurately locating and mapping PSPs will reduce the confusion which has resulted in the past when they were found in the field unexpectedly, and the additional data which will result will be invaluable.

As discussed earlier, substantial resources were allocated to assist with a study to determine the cause of red pine decline. Recent research initiatives also include two studies related to forest succession and the establishment of native understory plants in mature pine plantations, a study of the impacts of Sirex wood wasp in plantations, an operational spray trial to test the efficacy of Gypchek for the control of Gypsy Moth, Pine False Webworm monitoring and control options, and many others. Research sites have generally been provided upon request and funding and/or staff time provided where there is a potential benefit to the County and as budgets allow.

While it is anticipated that future contributions will be made in the same manner, a more proactive role should be taken by the County to identify information gaps and promote and fund research accordingly.

Potential research priorities include the following:

- Implications or impacts to the forest ecosystem as a result of climate change;
- Assessing the type and amount of recreational use in the SCF and any resulting impacts to the forest;
- Under-represented forest types are not known outside of staff knowledge and experience. No assessment or inventory of other forest species has been conducted.

Continued cooperation with existing and potential partners will help to ensure that management decisions in the future are based upon the best possible science, and that the SCF continues to contribute to a broader knowledge base which benefits the larger community.

Monitoring / Reporting

6.1 Annual Reports

In addition to budgeting, annual reporting is critical to provide the information needed to track trends, monitor performance, and establish records for future analysis.

Annual reports will include:

- Property acquisitions and sales
- Timber sales summary including volume by species, total area, and revenue
- Other silvicultural operations including tree planting, stand tending, etc.
- Invasive species monitoring and control
- Infrastructure maintenance and improvements including signs, gates, garbage removal, etc.
- Property Use Agreements
- Research initiatives
- Partnerships / extension services
- Special projects

6.2 Five-Year Review

Although this plan is intended for a twenty-year period, a staff review at five-year intervals will provide an opportunity to monitor progress and make any required adjustments. Modifications which will result from improved data (which for example may alter HCVFs) and land acquisitions will be incorporated into the plan at that time. This will also coincide with the year five audit required to maintain Forest Stewardship Council Certification and will provide an opportunity to incorporate any required changes at that time.

Part 7

Standard Operating Procedures

7.1 Forest Stewardship Council Chain-of-Custody and Use of Trademark

Purpose

- To document Simcoe County's chain-of-custody (COC) process for the sale of standing timber from the Simcoe County Forest as required under 'FM-35 Rainforest Alliance Chain-of-Custody Standard for Forest Management Enterprises';
- To ensure appropriate use of the FSC® label Rainforest Alliance Certified Seal.

The County Forester is responsible for the implementation of this procedure.

Chain-of-Custody

The County of Simcoe produces forest products in the form of standing timber from the Simcoe County Forest. Standing timber is sold through a competitive process to independent contractors. The Timber Sales and Cutting Agreement is awarded to the highest compliant bidder. Upon award of the Agreement, ownership of the standing timber is legally transferred to the contractor.

For the purposes of the County's COC procedure, the 'forest gate' is defined as the transfer of ownership from the County to the contractor through the award of the Timber Sales and Cutting Agreement. The scope of the County's COC extends to the point of transfer of ownership and does not cover the contractor.

Mixing of FSC certified and non FSC certified timber will not occur as all timber sold is from the certified land base. The County has also included a clause within the Agreement to prohibit the transfer of forest products from other locations onto the County Forests.

The FSC claim is made within the Agreement which also serves as an invoice to the contractor and includes:

- The County's FSC certificate code and FSC claim (FSC 100%);
- The property location and forest stand description;
- Species, number of stems, and estimated volume of standing timber;
- A form which must be completed by the contractor post harvest detailing the actual volumes harvested.

All applicable documentation for each timber sale will be maintained for a minimum of 5 years.

Standard Operating Procedures

7.1 Forest Stewardship Council Chain-of-Custody and Use of Trademark *continued*

Use of FSC/Rainforest Alliance Trademark

The County of Simcoe may promote the FSC certification of the Simcoe County Forest through brochures, displays, documents, or forest signage. Diligence is required to ensure the appropriate use of the FSC labels and Rainforest Alliance Certified Seal.

To ensure the proper use of trademarks:

- FSC and the Rainforest Alliance guidelines (FSC-STD-50-001 or updated version) will be followed ;
- All potential trademark use will be approved by Rainforest Alliance prior to printing, distribution or display;
- All trademark approval correspondence with Rainforest Alliance will be kept on file for a minimum of five years.

Standard Operating Procedures

7.2 Health & Safety Guidelines (Forest Operators)

Purpose

- To minimize the potential for accidents related to forestry activities on the County Forests.

All activities that take place in the County Forests must be carried out in a way that encourages safe practices. Operations will be monitored to ensure strict compliance.

- Duly executed Timber Sales and Cutting Agreements are required. Provisions within the agreement will ensure compliance with the Occupational Health and Safety Act and the County Health and Safety Policy.
- Prior to the start of forest operations in the County Forest a 'Pre-Start' form will be reviewed, completed, and signed by all parties which outlines safety concerns and issues that may pose a risk to safety;
- Ongoing monitoring of forest operations will be carried out and safety checklists/ Harvest Inspection Forms will be filled out at each site visit by County staff to ensure safe practices are being followed;
- Binders with SCF safety policies, procedures, emergency response plans, safety reference material will be provided to all contractors working in the SCF;
- Safety policies will be reviewed annually by Forestry and other relevant County staff and a meeting with Workplace Safety North will be scheduled every April to ensure policies are current.

Standard Operating Procedures

7.3 Property Boundaries

Purpose

- To ensure property boundaries are clearly marked and accurately located.

Property boundary lines must be established and delineated before tree marking or harvesting begins so as to be unambiguous and acceptable to neighbouring landowners. Properly delineated boundaries on the ground will help in protecting the property from trespass, illegal harvesting, settlement and other unauthorized activities.

- Property boundaries will be identified using red flagging, red paint, or other markings acceptable to both parties;
- Property boundaries through continuous forest may be verified on the ground using physical evidence such as old fence lines, survey markers or corner posts;
- If clear evidence of a boundary line does not exist:
 - o temporary layout of property boundaries can be established using aerial photography and GPS technology;
 - o the adjacent landowner must be notified and agreement reached prior to proceeding with operations.
- A licensed surveyor may be required if agreement cannot be reached regarding the lot line location with the adjacent landowner.

Standard Operating Procedures

7.4 Raptor Nest Reporting Procedure

Purpose

- To ensure that appropriate AOC guidelines are followed when a raptor nest is located during the collection of inventory or tree marking.

Forest stand analysis is normally conducted by staff, however as all staff are not capable of positively identifying stick nests this procedure will ensure that the required information is available to enable appropriate follow-up prior to tree marking.

As the majority of stick nests will be located during tree marking which is often conducted by contractors, this procedure will ensure that staff are able to return to the site and modify marking as necessary prior to operations.

If a nest or colony of nests is located during tree marking:

1. Mark nest tree with blue ring and a letter N.
2. Leave 20m no cut buffer centered on the nest.
3. Fill in the Raptor Nest Form as completely as possible and mark the nest location on the map.
4. Number multiple nests on the map (see next step). Reference the nest number on the form.
5. Treat a colony as one entity, i.e. no need to number individual nests, but try to indicate the extent of the colony by multiple x-marks or an outline of the colony.
6. Submit all forms and maps to SCF staff.

If nest or nests are located outside SCF property but potentially within AOC guidelines, follow steps 2 – 6 above.

If a nest or colony of nests is located during the collection of inventory, follow steps 3 – 6 above. SCF staff will identify the nest and update digital mapping and operational file. Consultation with MNR or other experts will be sought as required.

- If the nest was located during the inventory process, appropriate AOC guidelines will be included in the tree marking prescription and instructions provided to tree markers.
- If the nest was located during tree marking SCF staff will return to the site to modify the AOC as required prior to proceeding with the timber sales process.

Standard Operating Procedures

7.5 Endangered Species Act Compliance

Purpose

- To ensure that appropriate measures are taken to protect Species at Risk and ensure compliance with the Endangered Species Act.

Ontario's Endangered Species Act (ESA), 2007 provides a legislative framework for the protection and recovery of Ontario's endangered and threatened species and their habitats.

One component of the ESA, 2007 is the establishment of the Species at Risk in Ontario (SARO) List. This list identifies species that have been classified as being at risk by the Committee on the Status of Species at Risk in Ontario (COSSARO).

There are two key protection provisions in the ESA, 2007:

Section 9 prohibits killing, harming, harassing, possessing, collecting, buying and selling etc species listed as extirpated, endangered or threatened on the SARO List.

Section 10 prohibits the damage or destruction of the protected habitat of species listed as extirpated, endangered or threatened on the SARO List.

- SCF staff will obtain 'detailed user status' to access more detailed information to screen all potential harvest locations for the presence of species on the SARO List;
- SCF Forestry staff will obtain basic training on recognition of primary SAR which may be encountered within the SCF;
- Confirmed incidences of SAR on SCF property will be included in the SCF database and the forest stand will be designated a HCVF;
- MNR staff will be consulted as required to ensure that appropriate safeguards are in place to comply with the ESA;
- The County may participate in species recovery plans in cooperation with MNR.

8.1 Recreation Policy Summary

Activities Permitted	Conditions
Walking; hiking	
Cross-country skiing; snowshoeing	
Orienteering; geocaching	
Nature appreciation; nature study	
Dogsledding	
Horseback riding	
Dog walking	<ul style="list-style-type: none"> Pets must be under control or on leash
Mountain biking	<ul style="list-style-type: none"> No unauthorized trail construction
Snowmobiling	<ul style="list-style-type: none"> On designated trails only* Use Agreement and Permits are required
Other off-road motorized vehicles (ATVs; motorcycles)	<ul style="list-style-type: none"> On designated trails only* Use Agreement and Permits are required Maximum vehicle weight 400 kg
Hunting; fishing	<ul style="list-style-type: none"> As per provincial hunting and fishing regulations** Portable tree stands only Hunters must be members of OFAH
Trapping	<ul style="list-style-type: none"> License and Use Agreement required
Harvesting non-wood forest products	<ul style="list-style-type: none"> Personal use only

* Exceptions Include:

- use by OFATV, OFTR, or OFSC members where authorized to facilitate volunteer patrols or stewardship activities
- to enable disabled or infirm hunters to access the SCF during all hunting seasons
- to facilitate large game retrieval (deer and bear)
- to facilitate complete access for hunters to the SCF during the Controlled Deer Hunt only

** **Hunting** is permitted **except** on several tracts due to close proximity to urban areas.

- All properties are clearly posted
- Refer to simoce.ca for details

Appendices

8.1 Recreation Policy Summary *continued*

Activities Not Permitted:

- Operation of motorized vehicles in excess of 400 kg gross vehicle weight
- Littering, dumping or disposal of any foreign material
- Open fires
- Camping
- Consumption of alcohol
- Target practice, paintball
- Cutting, pruning, digging or gathering of trees, shrubs, groundcover or firewood
- Construction of unauthorized structures; permanent tree stands
- Placement of unauthorized signs

Special Use:

- Organized events are not permitted without a valid Use Agreement in effect. This includes any activity which is advertised or if participants are charged an entry fee, but does not include organized hikes or nature walks.

8.2 Related Policies and By-laws

Policy / By-law	Year	By-law
County Forest Acquisition Principles	1996	4268
Establishment and Purpose of a Reforestation (Forestry) Reserve Account	1997	4279
Property Use Agreement Policy	2007	5568
County Forest Recreation By-law	2007	5569
County Forest Recreation Policy	2007	5570

Appendices

8.3 References

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