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1.0 INTRODUCTION

The Dufferin County Forest is an agreement forest area of 1,019 ha (2,518 acres). The Dufferin County Forest is made up of ten individual properties which are located in all six rural townships of Dufferin County. The majority of the properties are in the northeast corner of the County, in Mulmur Township.

This background report, which describes the physical features, economy, history, past operations, and current resources of the Dufferin County Forest, has been prepared to support *Our Forest, Our Future: Dufferin County Forest Management Plan 1995-2015*.

2.0 PHYSICAL FEATURES

2.1 Topography, Geology, and Soils

Dufferin County, along with its neighbours, Grey, Wellington and Simcoe Counties, is located on a high, undulating plain which forms the “Roof of Ontario”. The elevation of the “roof” ranges from 467 to 583 metres above sea level. The location of the roof’s peak is under much debate, but the *Physiography of Southern Ontario* puts it near the village of Singhampton, just north of Dufferin County. There, the elevation reaches 583 metres. Although the peak of the roof is not within Dufferin County, Dufferin does have the highest seat of government in southern Ontario. Orangeville is located at an elevation of 450 metres.

The elevation in the northeast corner of the county is 260 m above sea level, 380 m above sea level in the southeast corner. West of the Niagara Escarpment, the land slopes to the north, from 470 m above sea level in the southwest to 530 m above sea level in the northwest.

Dufferin County rests on Precambrian rock, estimated to be between 800 and 1100 million years old. In the period between 500 and 300 million years ago, this area was covered by a vast sea. On the floor of this sea settled sand, ooze, mud, shells, tiny sea animals, and all manner of marine debris. Time and pressure eventually turned this layer into rocks of various types and hardness. About 250 million years ago, the sea retreated, leaving a flat, unbroken plain. Rivers flowed over the old seabed, eroding the rocks. The softer rocks, such as the shales, eroded quickly, whereas the harder dolomites and limestones resisted the eroding power of the rivers. Over several hundred million years, this continued erosion produced the Niagara Escarpment. In Dufferin County, the Escarpment runs through Mono and Mulmur Townships in a north-south direction.

Dufferin County has been subjected to repeated glaciations and the bedrock is covered by glacial

drift varying in thickness from several centimetres to 170 metres. The soils of Dufferin County have developed directly from this drift. Dufferin County is underlain by sedimentary strata of the Ordovician and Silurian ages. The Ordovician lie to the east and the Silurian to the west of the Niagara Escarpment. The uppermost strata of the Silurian rocks consist of dolomite, shale and sandstone. These rocks are underlain by grey and buff dolomites.

The upper formations of the Ordovician age are the only ones which occur in Dufferin County. Uppermost and adjacent to the Niagara Escarpment are the reddish shales of the Queenston formation. These are underlain by greyish shales.

Dufferin County is characterized by gently undulating ground moraine. Steep slopes, associated with the kame moraines, occur in Mulmur, Mono, and the south part of East Garafraxa townships. The glaciers also left behind spillways, which today are important sources of gravel. Gravel can be found in many pockets around the County, but the most important deposits are north of Orangeville and in the Grand River Valley.

The glaciers also created the Dundalk till plain which covers Melancthon, Amaranth, East Garafraxa and Luther. The plain is high and flat, supporting the County's agriculture, but is also poorly drained and contains many areas of swampland.

The surface deposits in Dufferin County are of glacial origin. They form the parent material from which the soils have developed. The surface deposits are classified as till, outwash, kame, esker, deltaic, and lacustrine. These classifications indicate the mode of deposition and the texture of the deposit. Glacial till, which covers a large portion of Dufferin County, is a non-sorted mixture of rock fragments and soil particles ranging in size from sand to clay.

Gently undulating till plains cover most of Amaranth, East Garafraxa, East Luther and Melancthon Townships. Most of this area has a superficial deposit of silt. The silt is thinnest near the west side of the county and is thickest in the area between Shelburne and Honeywood.

A part of the Port Huron morainic system forms the core of the region in most of Mulmur and Mono Townships. The kame moraines are very hilly and stony and consist of a mixture of sands and gravel materials, but with clay till, coarse, stony, sandy loam till, and loam till, covered with up to one metre of silt or fine sandy loam.

Dufferin County's glacial heritage did not leave behind many rich mineral deposits. There were deposits of oil discovered in the early settlement days, but none were large enough to support a petroleum industry. In the early years of settlement, there were also rumours of gold and silver deposits, but none were ever found.

Organic deposits exist throughout Dufferin County, the largest of them is Luther Marsh.

Generally speaking, the Dufferin County Forest tracts located in the eastern half of Dufferin County (Main, Randwick, Little, Simmons, and Mono) are on drier, upland sites whereas those in the western half (Melancthon, Riverview, Gara-Gore, River Road, and Amaranth) are on wetter, lowland sites.

Table 1 describes the major soil types associated with the Dufferin County Forest.

2.2 Hydrology

Dufferin County has no large lakes, but it has many rivers. The Grand, Nottawasaga, Credit, Humber, and Saugeen rivers all have their headwaters in or near Dufferin County.

The Grand River drains the western half of Dufferin County, an area of 6,734 km² and occupies the largest catchment basin in southwestern Ontario. Its main tributaries are the Conestogo, Nith, and Speed. There has been little valley cutting in the upper reaches of the Grand River Valley, deepening being restricted by bedrock. North of the Village of Grand Valley the drainage is poor, making swamps prevalent in Melancthon Township. The depth of the river valley increases between Grand Valley and Elora, going from 18m to 30m. The Grand flows south for a distance of about 265 km, ending up in Lake Erie just south of Dunnville.

The Nottawasaga River drains the eastern half of Dufferin County. Two of its tributaries, the Pine River and the Boyne River, rise west of the Niagara Escarpment and flow in an easterly direction. The main branch of the Nottawasaga system rises south of Shelburne and flows through the Hockley Valley. The valleys of this system are deeper than those of the Grand River system, often having gradients of more than 20 metres per kilometre. The Nottawasaga flows into Georgian Bay where its mouth forms the delta of Wasaga Beach, the longest freshwater beach in the world. The Pine River runs through the south end of the Main Tract of the Dufferin County Forest.

The Credit River collects some of its tributaries from the area around Orangeville before flowing south and east to finally empty itself into Lake Ontario just west of Highway 10.

The Humber River begins its journey in the southeast corner of Mono Township before continuing southward through Metropolitan Toronto and into Lake Ontario at the boundary between the City of Etobicoke and the City of York.

The Saugeen has its headwaters just outside the northwest border of Dufferin County, but it does

YEAR	POPULATION	YEAR	POPULATION
1901	21,036	1976	28,528
1911	17,740	1981	31,145
1921	15,415	1986	32,635
1931	14,892	1991	38,776
1941	14,075		

In 1991, the population of Dufferin County was 38,776, split evenly between males and females. About 57% of the people live in the three urban centres (Orangeville, Shelburne, and Grand Valley); the remainder live in the six rural townships (Mono, Mulmur, Amaranth, Melancthon, East Luther, and East Garafraxa). In the period from 1988-1991 Dufferin County grew by 12.55%, the largest growth rate of any County in Ontario. The next highest growth rate for the same period was for Peterborough, at 10.75%. It is predicted that over the next fifteen years the population of Dufferin County will grow as much as 60%, making it the fastest growing County in Ontario, and thus exerting great pressures on its natural environment. This growth will mainly be due to the County's proximity to Metropolitan Toronto and the Region of Peel.

The majority of the settlers of Dufferin County came from the British Isles, particularly Northern Ireland. This heritage is reflected in the current population of Dufferin County; in the 1991 census 98% of the people in the County said that their first language was English. Other ethnic backgrounds represented in Dufferin County include French, East Asian, Italian, German, and other European.

In the past, the economy of Dufferin County has been based on agriculture. Livestock raising and mixed farming were the main enterprises, with dairy farms prevailing close to large centres of population. The most common crops included hay, mixed grains, oats, wheat, and potatoes. Beef, poultry, dairy, and market gardening operations were also important. In 1986, there were 1,079 farms in Dufferin County covering an area of 85,360 hectares. Although a portion of Dufferin's economy still depends on agriculture, the economy is diversifying.

According to the 1986 census, the population of Dufferin County aged 15 years or older was employed in the following industries:

- 28% service industries
- 24% manufacturing industries
- 17% trade industries
- 9% primary industries

8%	transport, storage, communication, and other utility industries
7%	construction industries
4%	government service industries
3%	finance, insurance, and real estate industries

The commercial retail and service sector is centred in Orangeville and Shelburne and is growing rapidly. With recent influxes of population, industries related to residential and commercial construction (building, supplies, aggregates, real estate) have also grown. Manufacturing, although suffering somewhat in the recent economic downturn, is also an important sector of Dufferin's economy. Tourism is becoming more significant, as the County takes a more proactive role in attracting visitors to the area.

There are several local sawmills that have traditionally purchased timber from the Dufferin County Forest: Robert Ritchie Forest Products (Elmvale), Brouwer Wood Products (Keswick) and Maurice Miller Lumber Ltd. (Barrie). However, due to the relatively low volume of wood that is removed from the Dufferin County Forest annually, there are no mills that depend on the Dufferin County Forest for their entire supply. The thinning of red pine plantations supplies pulpwood, sawlogs and poles. Hardwood sawlogs and fuelwood are supplied through improvement cuts in the hardwood stands. The standing trees are sold on a tender basis. Buyers of standing timber from the Dufferin County Forest have come from all over Ontario.

4.0 A HISTORY OF FORESTRY IN THE COUNTY OF DUFFERIN

By 1900, much of Dufferin County had been cleared of trees to facilitate farming. As there had been no reforestation, the trees disappeared, and so did the lumber companies. Many farmers who had supplemented their income with logging fell on hard times. But the removal of the tree cover had more far-reaching effects: without stabilization, the thin, sandy soils were eroded by wind and water. This made farming impossible. However, Dufferin was not alone in this predicament. Similar settlement patterns in other parts of southern Ontario had created similar problems. As early as 1908, the Ontario Department of Agriculture had published a *Report on the Reforestation of Waste Lands in Southern Ontario*. This report outlined the development of blowsands that had resulted from large-scale land clearing. It also described the economic and environmental benefits of reforestation:

“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 Dufferin County, land reclamation through planting began in 1905. Gradually, tree planting gained momentum, as people realized that trees were not a nuisance in land-clearing, but were

important for stabilization of soils, maintenance of water supplies, and ongoing timber production. This change in opinion could not have come about without the leadership provided by local municipalities. In 1914, the town of Orangeville planted 4,000 trees; further plantings occurred in 1916, 1924, 1925, 1926, and 1932. The Township of Mulmur planted 16,000 trees in 1924. This was followed by more plantings in 1925, 1927, and 1928. The Township of Mono began planting in 1925, and by 1952 there were 228,300 trees planted on lands in Mono Township that were formerly barren.

From aerial photography taken of the County of Dufferin in 1953, it was estimated that there were approximately 19,600 hectares of grass and meadow (poor pasture) lands, and wooded pasture (grazed woodlots) lands in Dufferin County that were suitable for reforestation and woodlot management. Reclaiming the majority of these areas would require plantings of about one million trees per year for thirty years. By March 31, 1974 over 17 million trees had been planted in Dufferin County.

In 1953, the Grand River Valley Conservation Authority initiated a forest management agreement with the Department of Lands and Forests with the purchase of 190 hectares in the Township of East Luther. Many of the lands owned by the Conservation Authority are important water source and water-holding areas. However, they also have value in terms of wildlife, recreation, and timber production.

In 1967, Woodlands Improvement Act (WIA) Agreements began to take hold in Dufferin County. These agreements provided private landowners with assistance from the Department of Lands and Forests (now the Ministry of Natural Resources) in the planting and management of their woodlots. In 1982, the 9000th Woodlands Improvement Act Agreement in Ontario was signed in Dufferin County. Currently there are approximately 200 Woodlands Improvement Act Agreements in Dufferin County, covering a total area of about 2,000 hectares.

The most significant step in the reclamation of barren lands in Dufferin County came in 1930 when the County of Dufferin entered into its first forest management agreement with the Department of Lands and Forests.

4.1 Dufferin County Agreement Forest

In 1930, the County of Dufferin, following the lead taken by the County of Simcoe in 1922, signed a forest management agreement with the Department of Lands and Forests under the auspices of the *Counties Reforestation Act*.

The Dufferin County Forest began its existence on July 3, 1930 when a motion was introduced at

the Dufferin County Council meeting requesting the Ontario Forestry Branch to secure options on lands in Mulmur Township for reforestation purposes. This motion was instigated by County Treasurer James Henderson. The first purchase of land for what would become the Dufferin County Forest was made on November 7, 1930. It consisted of 426 ha (1,013 acres) on Concessions VII and VIII in Mulmur Township. The cost of this initial purchase was \$7,637.32. During the next 40 years Dufferin County made additional purchases bringing the current area of the Dufferin County Forest up to 1,019 ha (2,518 acres). The last purchase was made on September 17, 1971. It consisted of 40 ha (100 acres) on Concession VI in Mulmur Township acquired at a cost of \$25,000.00 (including a \$19,012.65 grant from the Ministry of Natural Resources). A description of the individual purchases that make up the Dufferin County Forest is shown in Table 3. For further details and legal descriptions of the properties refer to Appendix 1. The Dufferin County Forest is distributed over ten tracts in six townships (Map 1).

Table 3: Dufferin County Forest Properties

Tract Name	Compartments	Area(ha)(acres)	Purchased	Township
Randwick	1-6	117 (289)	1940-44	Mulmur
Main	7-31	604 (1,492)	1930-63	Mulmur
Melancthon	32-35	59 (146)	1945	Melancthon
Riverview	36-38	40 (99)	1949	Melancthon
Mono	39-41 & 46	71 (175)	1942, 1963	Mono
Amaranth	42 & 43	24 (59)	1940	Amaranth
Gara-Gore	44	15 (37)	1934	E. Garafraxa
River Road	45	5 (12)	1963	E. Luther
Simmons	47	40 (99)	1967-68	Mulmur
Little	48	44 (109)	1972-73	Mulmur

Total Area **1, 019 ha (2,518 acres)**

Although the Dufferin County Forest is owned by the County of Dufferin, it has always been managed by the provincial government. (Originally the Department of Lands and Forests, which became the Ministry of Natural Resources in the early 1970s.) On November 26, 1930, the

County of Dufferin signed its first Forest Management Agreement with the Department of Lands and Forests. The agreement was made under the *Counties Reforestation Act*; later coming under the jurisdiction of the *Forestry Act* R.S.O. 1950.

In 1959, the *Forestry Amendment Act* was passed which allowed the Minister of Lands and Forests to make interest-free loans to any Conservation Authority or municipality to assist in the buying of land for forestry purposes, provided that the land was reforested and managed under an agreement with the Department. This was significant at a time when interest rates were high, and land prices in southern Ontario were rising rapidly. To date, the County of Dufferin has received \$28,297.20 in grants under this provision. The current *Forestry Act* R.S.O. 1980 stipulates that lands bought with a grant cannot be sold or used for other than forestry purposes without the approval of the Lieutenant Governor in Council.

The second agreement between the County of Dufferin and the Department of Lands and Forests was signed in November, 1960 for a twenty year period commencing April 1, 1960. Amendments to the *Forestry Act* now made it possible for the County to receive a grant from the Minister of Lands and Forests for the purchase of lands to be used for forestry purposes. The grant could be up to the amount of 50% of the cost of the land plus 50% of the reasonable solicitor's fees and costs involved in securing title to the land plus an amount equal to the value of the timber on the land. The term "forestry purposes" was also changed, to include not only timber production and reclamation of waste land, but also improving wildlife environment, recreation, flood control, and water conservation.

The *Forestry Amendment Act*, 1967 re-defined forestry purposes to the extent that the Department of Lands and Forests and the County of Dufferin felt that it would be expedient to terminate the existing agreement and prepare a new one. Under the new definition the term forestry purposes included "the production of wood and wood products, provision of proper environmental conditions for wild life, protection against floods and erosion, recreation, and protection and production of water supplies". This agreement was signed on September 14, 1971 to cover the twenty year period commencing April 1, 1971.

When this agreement expired (April 1, 1991), the County of Dufferin decided that increased demands on the forest properties, as well as changes to the Ministry of Natural Resource's agreement forest program, meant it could not simply sign a new agreement. The County decided that a comprehensive management plan would have to be prepared for the Dufferin County Forest before a new agreement was signed.

In the spring of 1992, the County of Dufferin approached the Faculty of Forestry at the University of Toronto to have the fourth year forestry class prepare plans for the Dufferin County Forest as part of their thesis work. These plans were presented to the County of Dufferin and the

Ministry of Natural Resources in April, 1993.

In December, 1993 the County of Dufferin and the MNR approved the Terms of Reference for a new management plan. Subsequently, the County of Dufferin, in partnership with the Ministry of Natural Resources, hired a management plan author to develop a forest management plan for the period 1995-2015. This management plan would describe in detail the operations for the period 1995-2000 and, more generally, the operations for the period 2000-2015.

4.2 Agreement Forest Review

In June of 1992 the Ministry of Natural Resources initiated a review of the Agreement Forest program. This review was prompted by several factors:

1. The general public is becoming much more interested in the environment and forest management. In the past, the Agreement Forests have been managed by the MNR with very little public input.
2. Although Agreement Forests are available for public use, there is a general lack of knowledge about their existence.
3. In southern Ontario, there are increasing pressures on the few remaining areas of forest. Many of these areas are Agreement Forests.
4. A number of the Agreement Forests will be coming out of the red in the next few years. In the past, all revenues from the forests have been applied against the debt (management costs) owed to the MNR.
5. There are no longer grants available from the MNR for the purchase of additional Agreement Forest lands.
6. The current Agreement Forest program did not fit within the MNR's changing private land forest strategy.

The entire Agreement Forest program was reviewed in consultation with the 55 agreement holders across the province. The review was completed in September, 1994. It was decided that new agreements signed with the landowners will do much more to respect the rights of the landowner, while ensuring the sustainability and integrity of the Agreement Forest lands. All new agreements will be compatible with the MNR's *Framework for Resource Management Partnerships in Ontario*. The agreements will take the form of a memorandum of understanding, rather than a formal lease agreement under the auspices of the *Forestry Act*, as in the past.

4.3 Tree Cutting By-Laws

The first tree cutting by-law for Dufferin County was passed by County Council on November

28, 1947. At that time, the by-law fell under the jurisdiction of the *Trees Conservation Act* (1946). The by-law prohibited the destruction of trees below a certain size and established a three member Trees Conservation Commission of the County of Dufferin for enforcement. The penalty for violation of the by-law was a fine of not exceeding \$500.00 or a term of imprisonment not exceeding three months. Subsequent revisions and amendments of the by-law occurred in 1948, 1956, 1967, 1968, 1970, and 1982.

The current tree cutting by-law came into effect in 1993. It describes the smallest size of tree (by species) that can be cut for other than the owner's own use. The purpose of the by-law is to prevent the wanton destruction of forested areas. The penalty for violation of the by-law is a fine of not more than \$5,000.00, or a term of imprisonment of not more than three months, or both. The by-law is enforced by the County by-law enforcement officer.

4.4 Ministry of Correctional Services Camp Dufferin

In 1969, an agreement was made between the County of Dufferin, the Ministry of Natural Resources, and the Ministry of Correctional Services (MCS) to establish a correctional facility on the Main Tract of the Dufferin County Forest (Lot 18, Con. VI, Mulmur Twp.). In late 1969, an area of approximately 2.4 ha (6 acres) was cleared and stumped for the facility. Building began in early 1970. When the buildings were almost finished a fire on April 3, 1971 destroyed them. Temporary buildings, which are still in place, were erected in time for Camp Dufferin to open in the late summer of 1971. The Camp was originally a forestry work camp for adults from the Guelph Correctional Facility.

After the passing of the *Young Offenders Act* in 1985 Camp Dufferin became an open custody facility for male young offenders. At the beginning of 1990, the County of Dufferin began a process to formally recognize the presence of Camp Dufferin by means of a lease. The lease was signed in September, 1992, for the eighteen month period of April 1, 1992-September 30, 1994. The lease was for parts of the West Half of Lots 18 and 19 Con. 7 East of Hurontario Street, Mulmur Township. The lease was prepared so that Camp Dufferin would be assured of its position on the County Forest land until such time as a new forest management plan was prepared. The Camp is now in a period of “overholding” as described in the lease, which allows it to remain on the property on a month-to-month basis, as long as the County of Dufferin agrees to its continued tenancy.

Throughout its existence, the residents of Camp Dufferin have provided various services to the community, including work on the Dufferin County Forest property. In the past, this work has included road maintenance, clearing compartment lines, pruning crop trees, salvage cutting, brushing of trails and roads, garbage pick-up, fuelwood cutting, and non-commercial thinning. (Similar work has also been undertaken in the Simcoe County Forest.) Since the Camp became a young offender facility, the amount of man-hours of labour has been reduced, as the residents must be given recreational and educational opportunities. Table 4 shows the amount of labour provided to the Dufferin County Forest by the residents of Camp Dufferin.

Table 4: Labour Provided to the Dufferin County Forest by Camp Dufferin Residents

FISCAL YEAR	LABOUR IN DCF	FISCAL YEAR	LABOUR IN DCF
1973-74	3,000 man-days	1977-78	1,522 man-days
1974-75	1,415 man-days	1978-79	1,052 man-days
1975-76	1,896 man-days	1979-80	1,250 man-days
1976-77	2,278 man-days	1989-90	744 hours

4.5 Mansfield Outdoor Centre

Mansfield Outdoor Centre is a private recreational facility located to the south of the Main Tract. This facility leases the south part of the Main Tract during the winter months for cross-country skiing. Mansfield Outdoor Centre has been in existence since 1983, when it replaced the bankrupt Mansfield Forest Club. The Mansfield Forest Club had been in existence for more than fifteen years. Besides cross-country skiing, Mansfield is involved in outdoor education, horseback riding, orienteering, and other recreational activities.

In August, 1984 the President of the Mansfield Outdoor Centre, Ken Mikoliew, presented a brief to the County of Dufferin's Roads and Environment Committee outlining his organization's use of the Dufferin County Forest. He stated that of the Centre's 32km of skiing and hiking trails, 20km were on Dufferin County Forest land. These trails used existing logging and access roads and were graded and groomed by the Centre. The Centre did not ask for exclusive use of any area, but did suggest separate trails for skiers and snowmobilers in order to minimize conflicts.

During the 1984-85 ski season the Centre was permitted to use the Dufferin County Forest as it had in the past, with the stipulation that the County of Dufferin be added as a named insured to the Centre's insurance policy. In the meantime, the County of Dufferin and the Ministry of Natural Resources worked on policy to govern use of the Dufferin County Forest by groups such as the Mansfield Outdoor Centre. This led to a trial period from April 1, 1988 to March 31, 1990 during which the cutting and hauling of wood in the winter months would be restricted.

In 1990 the policy was reviewed and a formal land use permit was issued to the Mansfield Outdoor Centre for the period from December 12, 1990 to April 15, 1991. This permit applied only to the existing ski trails on the southern part of the Main Tract. The ski trails could have a maximum width of 25 feet. The Centre could maintain the trails, but was not allowed to establish new ones without the permission of the Chief Administrative Officer of the County of Dufferin. Any clearing to be done on existing trails had to be approved by the Ministry of Natural Resources. Any signs that were to be erected were the responsibility of the Centre, and the Centre was also responsible for collecting garbage along the trails. The Centre could not erect any barriers to restrict access to the trails. The Centre's insurance policy had to name the County of Dufferin and the Ministry of Natural Resources as named insured, and the Centre had to sign an Indemnification Agreement.

5.0 REPORT OF PAST OPERATIONS

For a detailed description of all management activities conducted in the Dufferin County Forest

during the periods for which records are available, refer to Appendix 2.

5.1 1930-1960

5.1.1 Planting

During the period of the first agreement (1930-1960) forest management activities consisted mostly of planting areas of abandoned farmland. The major species planted during the early years were red pine, white pine, jack pine, scotch pine, white spruce, white cedar, and larch. The planting of maple, oak, and white ash met with limited success. The planting was done by hand, as well as by mechanical tree planters drawn by tractors.

The summary report for 1930-1959 describes the benefits of establishing forest cover:

1. Marginal and sub marginal farm land that is not profitable for agriculture can support tree growth and produce valuable forest products.
2. Soil conservation
3. Water conservation
4. Forest cover provides habitat for wildlife, and recreational areas for man, who is fleeing in ever increasing numbers from the pressures of urban society to the peace and quiet majesty of the forest.

5.1.2 Tending

In order to produce high quality, knot-free wood some of the plantations of red and white pine were pruned. The 1930-1959 summary report recommends two prunings, the first when the trees are approximately eight metres high, the second when they have reached a height of thirteen metres.

5.1.3 Protection

In the period 1930-1960, there were three small forest fires in the Dufferin County Forest, in the years 1933, 1934, and 1944.

During the period from 1930 to 1957 there were no major insect outbreaks in the Dufferin County Forest. In 1957 there was an outbreak of spruce sawfly in the Gara-Gore and Sheriff Tracts. These areas were sprayed with D.D.T. in 1957 and 1958. The European pine sawfly was being controlled with a virus spray. In 1959 stands of young white pine were sprayed to kill white pine weevil, but it is not clear which chemical or biological agent was used. The

1930-1959 summary report also mentions occurrences of pine shoot moth and red-headed pine sawfly. A forest biology ranger of the Forest Biology Service of the Dominion Department of Agriculture was stationed at Angus. This ranger was responsible for informing the Department of Lands and Forests about potential insect outbreaks on the County Forest properties.

Fences around the Dufferin County Forest were maintained under a 50-50 agreement with adjacent landowners, mainly to keep cattle out of the plantations and woodlots.

5.1.4 Harvesting

There was some harvesting, consisting of improvement of natural stands (fuelwood was the main product, with some sawlogs) and first thinnings of plantations to produce pulpwood. Between 1930 and 1960 the Department of Lands and Forests did not produce annual reports outlining the management activities in the Dufferin County Forest, so the records for this period are quite slim.

During the period of the first agreement, approximately 12,000 Scots pine Christmas trees were harvested from the Dufferin County Forest. This program was started to show local landowners the possibilities for producing a cash crop on marginal land, as well as to provide some early revenues from the forest properties. The Scots pine were planted in alternate rows with red pine, pruned and then harvested while the red pine were allowed to grow to maturity. At the time the 1930-1959 summary report was written, no further planting of Scots pine were anticipated for the following reasons:

1. there were no new properties at the time that required reforestation;
2. a number of private Christmas tree farms had become established, indicating the success of the demonstration objective of the program and;
3. Scots pine is host to numerous insects which spread from Scots pine to red and white pine.

Improvement cuttings in the natural stands were conducted on an annual basis from 1930 onward. The aim was to improve the species composition and quality of the trees in stands that had been high-graded and used as cattle pasture in the past. Products produced from these cuts included fuelwood, sawlogs, poles, poplar bolts, and fence posts.

The first plantation thinnings in the Dufferin County Forest occurred in 1956. These produced pulpwood, small sawlogs and poles. The plantations were first thinned at age twenty-five, with subsequent thinnings occurring at ten-year intervals.

5.1.5 Staffing/Management

Originally, the Dufferin County Forest fell under the jurisdiction of the Lake Simcoe District of the Department of Lands and Forests, with the District Headquarters located at Maple. The District was further divided into two zones; the Richmond Hill Zone (Ontario, York, and Peel Counties) and the Simcoe-Dufferin Zone (Simcoe and Dufferin Counties). The Zone Office for Simcoe-Dufferin was located at Angus, Ontario. At this time, the Dufferin County Forest and the Grand Valley Conservation Authority Forest were managed by the Dufferin Forest Superintendent and two permanent employees. Seasonal employees were hired as necessary.

The Dufferin Forest Headquarters consisted of a house, barn, three-stall truck garage and pump house. There was also a variety of equipment at this location, including a tractor with blade, two ton truck, small wheeled tractor, set of harrows, power saw, cant hooks, and fire fighting equipment.

In 1959, there were three full-time Department of Lands and Forests employees working on the Dufferin County Forest, with up to twenty additional employees involved in seasonal projects such as planting, logging, and thinning. Prior to 1935, the fiscal year for the Department of Lands and Forests ran from November 1 to October 31. As of March 31, 1935 the fiscal year was changed to April 1 to March 31, which is still the case in the Ministry of Natural Resources. This change resulted in a 1934-35 fiscal year that was only five months long.

In the summer of 1958 the first comprehensive inventory of the Dufferin County Forest was conducted by a group of six university forestry students.

5.2 1960-1971

5.2.1 Planting

Tree planting continued during the second forest management agreement, although not to the extent that it had during the first agreement. Slowly, the barren lands were being reclaimed. Table 5 shows the number of trees and the area that was planted on an annual basis during this period.

5.2.2 Tending

In almost every year, some pruning of crop red and white pine trees was done. However, the actual amount done was not always noted in the annual reports, so there is no data in Table 5 for

some years.

5.2.3 Protection

There were no major fires in the Dufferin County Forest during the period from 1960-1971. In 1962-63 and 1963-64 two small fires occurred; in 1964-65, 1966-67, and 1967-68 there was one small fire. Throughout the period of the agreement, roads and fireguards were maintained to enable quick access in case of forest fire. In the fall of 1960, a cistern was constructed at the north end of Main Tract due to inadequate natural water supplies in the area.

Insects and diseases in the Dufferin County Forest were monitored with the assistance of the Dominion Forestry Department rangers. Spraying against insects was fairly common in this period. A virus was sprayed against the European pine sawfly in every year except 1966-67, 1967-68, and 1970-71. In 1969-70, part of Randwick Tract was sprayed with Malathion to kill the European pine sawfly. It is unknown why a chemical spray was used in that year, since already in the 1960-61 annual report it was stated that the virus was proving to be quite effective in combatting the sawfly. In several annual reports (1964-65, 1965-66, 1970-71) there is mention of collecting European pine sawfly larvae after spraying in order to produce the virus for the following year.

Red-headed sawfly was another problematic insect. Parts of the forest had to be sprayed in 1962-63, 1963-64, 1964-65 in order to prevent its spread. It is unknown whether a biological or chemical spray was used.

An unknown chemical was sprayed to prevent the spread of white pine weevil annually prior to 1965-66. In 1970-71, surveys were done to assess the level of white pine weevil in the Dufferin County Forest.

In 1967-68 fourteen hectares of the Gara-Gore tract was sprayed against larch sawfly. It is unknown whether a chemical or biological spray was used.

The first mention of treating cut pine stumps to prevent the entry of the *Fomes annosus* root rot fungus occurs in the 1964-65 annual report. After that year, all cut pine stumps were treated with a sodium nitrite solution. The 1965-66 annual report states that *Fomes annosus* was not yet present in the Dufferin County Forest, the application of the sodium nitrite was being done as a preventative measure.

Fences around the Dufferin County Forest were maintained in co-operation with adjacent landowners. The MNR maintained half the length of the fence line, with the adjacent landowner maintaining the other half. Periodic repairs and installations were done as necessary.

5.2.4 Harvesting

During the period 1960-1971 improvement cutting in the natural tolerant hardwood stands appears to have consisted mainly of removing all of the ironwood and beech as these were seen as “low value” species. Dead, damaged, and malformed trees were also removed. Thinning of red pine plantations continued throughout the period. For years where data was available, the actual volumes cut are shown in Table 5.

5.2.5 Staffing/Management

In the 1964-65, 1965-66, and 1966-67 annual reports it is mentioned that the forest was patrolled “at appropriate times of the year” to prevent damage from theft and vandalism.

In 1960-61, a summary report of the management activities for the period 1930-1959 was produced by the Department of Lands and Forests, as well as the first annual report. It is likely that this action was spurred on by the fact that the Department wished to encourage the County of Dufferin to renew the Forest Management Agreement. The agreement was renewed, for the twenty-year period April 1, 1960-March 31, 1980.

In the 1962-63 annual report, the Department of Lands and Forests presented to the County the *Agricultural Rehabilitation and Development Act* (A.R.D.A.) assistance program. Under this program, federal and provincial grants up to 75% of the cost of the land would be provided. This program was compatible with the agreement forest program, and the County was encouraged to submit a proposal. Grants under the A.R.D.A. would have to be repaid to the federal government only if the County sold the land or removed it from the agreement within 25 years.

In 1963-64 a change in the provincial grant structure occurred. In cases where the cost of the land was less than \$10,000, the grant would be from 50-75% of the purchase price, depending on the value of the timber on the land. In cases where the cost of the land was more than \$10,000, the grant would be more than 50% of the purchase price only on condition that the excess was repaid at the end of the agreement period.

In 1964-65 Hilton McKee was the Forest Superintendent. He retired in 1964, and was replaced by Mervin Todd from the Metropolitan Toronto and Region Conservation Authority Forest. Murray Irwin was the Assistant Forest Superintendent. Mervin Todd was responsible for three forests: Dufferin, Metro and the Grand. On June 1, 1965, the Ministry of Lands and Forests opened a Zone Office in Orangeville. This office was responsible for the Dufferin County Forest

and extension work in the Counties of Dufferin and Peel. The new Zone Forester was R.M. Monzon, he was assisted by C.W. Duckworth.

In 1966-67 Mervin Todd was transferred to Lake Erie District, leaving the Forest Superintendent's position vacant. In the following year, Murray Irwin was named the new Forest Superintendent, M.E. Charbonneau was the new Assistant Superintendent, and J.F. Christian was transferred from Sault Ste. Marie District to the Management Forester position in Orangeville. R.M. Monzon, who had been the Management Forester since 1965 was transferred to Kenora District. In 1969-70, B. Thompson became the new Management Forester at Orangeville. In that same year, part of the Main Tract was cleared for the new correctional centre.

5.3 1971-1991

5.3.1 Planting

The spring of 1988 saw the planting of a ten hectare area in Simmons Tract. This area had been partly damaged by a tornado in 1985, salvage cut, and prescribed burned in 1987. In October, 1988 the Dufferin County Forest experienced what is described in the annual report as a “freak snowstorm”. The build up of heavy wet snow damaged many oak trees that were still holding their foliage. This situation, combined with the 1988 drought, led to predictions of oak dieback in the coming years.

In 1972-73 a small nursery was developed at the Dufferin Forest Headquarters in order to grow seedlings to a size suitable for roadside plantings. In that same year, maple seedlings were planted along the 25th Sideroad and other roads by residents of Camp Dufferin. It is not clear if the nursery existed for only one year, or if it continued for some time.

5.3.2 Tending

Tending operations conducted during this period included thinning of conifer plantations, manual cleaning of young stands, and pruning of crop trees. The amount of tending done in each year is shown in Table 6.

5.3.3 Protection

There were no major fires in the Dufferin County Forest during the period from 1971-1991. In

1972-73 two small fires occurred and in 1973-74 there was one small fire. In 1976-77 there were no fires, but woods operations had to be closed for a period in the late summer due to fire hazard build-up and the deployment of fire fighting staff to Northern and Northwestern Ontario. In 1990-91 there were two fires on Dufferin County Forest lands. The first, in April, 1990, burned 2.8 ha on Lot 20, Con. VII of the Main Tract. The fire appeared to be a result of recreational activities near the 20th Sideroad. The second fire, on February 26, 1991, destroyed the Project Office at Camp Dufferin. Reserve food supplies, clothing, mattresses, tools, and the shop area were all lost.

In 1980-81 there was a fire pond built on the Riverview Tract and two fire ponds built in the northwest corner of the Randwick Tract. These fire ponds are still in place. In 1982-83 a cistern was built on the Simmons Tract.

In the early 1970s one of the annual reports mentions that municipal fire departments co-operated in fighting fires in the Dufferin County Forest and that neighbours of the Dufferin County Forest were provided with hand tools for fire fighting.

Beginning in the early 1980s, Camp Dufferin operated a weather station to predict the forest fire hazard for the Main Tract of the Dufferin County Forest. In 1989-90, new equipment was put in place at the weather station, which continued to be operated by Camp Dufferin.

Throughout the period of the agreement, roads and fireguards were maintained to enable quick access in case of forest fire.

The spraying of virus to combat European pine sawfly continued until 1973-74. After that year, populations of the sawfly were not high enough to warrant control measures.

In 1971-72 an area near the forest was sprayed to control the oak leaf tier which was causing serious problems. According to the annual report, the spray "seemed successful".

In 1975-76 areas of the Melancton, River Road and Little Tracts were sprayed to control spruce budworm. It is unknown whether a chemical or biological agent was used. In 1977-78 1.6 ha of plantation was treated against spruce budworm and sawfly. In that same year, isolated white birch trees in recreational areas were sprayed to combat birch leaf miner. In the following year, seven ten-year-old red pine trees had to be removed and burned due to an attack by root collar weevil. In 1986-87, white pine in Simmons Tract had to have their leaders clipped due to infestation by white pine weevil.

In the spring of 1973, a large part (550 ha) of the Main Tract was sprayed with Sevin Oil to combat oak leaf shredder. This insect had been a problem in the Georgian Bay area since 1970.

At the time, there was no satisfactory biotic control against oak leaf shredder. In 1978 342 ha of the Main Tract was again sprayed to combat oak leaf shredder, this time with Orthene. In the following year a further 69 ha of the Main Tract was sprayed with Orthene to combat the continuing oak leaf shredder problem.

The 1987-88 annual report is the first to mention surveys done to assess gypsy moth populations. At the time, gypsy moth populations in the Dufferin County Forest were found to be low, a situation which continues to the present.

The application of sodium nitrite solution to cut conifer stumps to prevent the entry of *Fomes annosus* root rot fungus had been started in the Dufferin County Forest in 1963. This was done as a preventative measure after *Fomes annosus* was discovered in neighbouring Simcoe County. The root rot fungus was not discovered in the Dufferin County Forest until 1973. By March 31, 1974 a comprehensive study had found eight areas infected with *Fomes annosus*. It was found that all of these areas had become infected prior to the treatment of cut stumps with sodium nitrite. The following year, two more infected areas were found, bringing the total to ten. Two of these areas were treated with a competing fungus in 1974-75 to determine if it would impede the growth of the *Fomes annosus*. The stumps of cut conifers continued to be treated with sodium nitrite until 1979-80 when the MNR switched to using borax.

Fence maintenance continued as in the previous agreement, the costs being shared equally between the County of Dufferin (via the Ministry of Natural Resources) and adjacent landowners.

5.3.4 Harvesting

Both improvement cuts in natural stands and thinnings in conifer plantations continued in the 1971-1991 period. For the volumes cut on an annual basis, refer to Table 6.

5.3.5 Staffing/Management

The 1971-72 annual report is the first to refer to the Ministry of Natural Resources as opposed to the Department of Lands and Forests.

Due to changes in the *Forestry Act*, the agreement between the County of Dufferin and the Department of Lands and Forests for the period April 1, 1960-March 31, 1980 was terminated in 1971 and a new agreement was signed. This agreement was for the period April 1, 1971-March 31, 1991. The new agreement provided for more flexibility in management, the focus was no

longer primarily on timber production. There was also a clause added that the County of Dufferin and the Ministry of Natural Resources would share equally the costs and revenues resulting from special recreational projects.

In June, 1971 the County of Dufferin passed a by-law providing for the payment of grants in lieu of taxes to the area municipalities in which County Forest lands were located. This by-law allowed the municipalities to collect the revenue that they would have normally received if the land was taxed.

In 1972-73, S.D. Kim became the new Management Forester at the Orangeville Zone Office. Following that year, it appears that the Orangeville Zone Office was closed, as all subsequent annual reports bear the address of the Huronia District office in Midhurst. The 1974-75 annual report lists the following staff as being involved in the management of the Dufferin County Forest:

M.R. Innes, Forest Management Supervisor	Huronian District Office
W.S. McNeice, Forester	Angus Work Centre
G.W. Greer, Senior Technician	Dufferin Forest Headquarters
M.L. Irwin, Forest Technician	Dufferin Forest Headquarters
D.E. Williams, Forest Technician	Dufferin Forest Headquarters

In the annual report for the following year (1975-76) the author states that this permanent staff complement (assisted by seasonal employees) is insufficient and that another Forest Technician would be starting work on the Dufferin County Forest late in 1976. Seasonal labour included Junior Rangers, SWEEP students, and people employed under various Dufferin County work programs. In the 1977-78 annual report, the supervising forester is Bob Brandes.

In 1980-81, the MNR hired Karen Mikoliew (Forester) and Elizabeth Adams (Forest Technician) to do the field work and write a new forest management plan. The plan in place at the time expired on March 31, 1982. The new management plan was for the period April 1, 1983-March 31, 2003. The management plan was accompanied by an operating plan for the period April 1, 1983-March 31, 1993.

As part of the Dufferin County centennial celebrations in 1980-81 the Ministry of Natural Resources and Dufferin County participated in a ceremonial tree planting at the Primrose Work Centre on Highway 10. Thirteen trees were planted by representatives from Dufferin County elementary schools.

The annual report for 1982-83 was the first one to be prepared by Wally McNeice, Management Forester. It is not clear whether at that time the Management Forester was located at the Angus Work Centre or the Midhurst District Office. The annual reports continued to be produced by Wally McNeice until his retirement in 1992-93.

In February, 1984 Timberco Forestry Consultants reported that the “on-the-stump” value of all marketable timber in the Dufferin County Forest was \$1,049,441, for a total estimated volume of 109,219 m³ of fuelwood and sawlogs.

On February 16, 1988 the County of Dufferin and the Ministry of Natural Resources agreed to limit forest management activities in the southern part of Main Tract for a trial period in order to reduce conflicts with cross-country skiers. The agreement was as follows:

“In designated cross country ski areas that;
-major tree cutting and felling shall be minimized during the period of December 1 to March 31 each year.
-The hauling of wood, where practical, shall be limited to roads or trails reserved for forestry purposes, and, as suggested by the Ministry of Natural Resources, this arrangement shall run for a trial period from April 1, 1988 to March 31, 1990, after which time the arrangement shall be evaluated.”

The agreement was reviewed during 1990, and found to be workable from the standpoint of all parties concerned. A formal land use permit was issued to the Mansfield Outdoor Centre for the 1990-91 ski season. This permit restricted logging activities in the southern portion of the Main Tract from December 1 to March 31.

On February 12, 1991 the Roads and Environment Committee of Dufferin County Council passed the following resolutions with regard to the continued management of the Dufferin County Forest:

1. “That the Roads Committee recommends to County Council that the Ministry of Natural Resources be advised that Dufferin County intends to renew a revised forest management agreement with the Ministry as soon as one can be successfully negotiated” and;
2. “That the Committee recommends to County Council that the County Solicitor be instructed to draft a forest management agreement based on the Committee's comments of February 12, 1991 and in accordance with the Solicitor's letter of January 7, 1991.”

At the end of the 1990-91 fiscal year the Ministry of Natural Resources and the County of Dufferin had agreed to the following:

1. That Amaranth Tract, River Road Tract, and up to 6.8 ha in the area of Camp Dufferin would all be excluded from any new forest management agreement and;
2. That management of the Dufferin County Forest would continue to be conducted by the Ministry of Natural Resources until a new forest management agreement was signed or the County advised the Ministry otherwise.

5.4 1991-1995

5.4.1 Planting

There has been no planting done in the Dufferin County Forest since 1988-89. To date, almost two million trees have been planted on lands that are part of the Dufferin County Forest.

5.4.2 Tending

Tending activities during this period have been limited to plantation thinning. There has been no pruning done during the most recent management period.

5.4.3 Protection

In the current management period, populations of gypsy moth in the Dufferin County Forest continued to be low. Borax continues to be applied to stumps of cut conifers to prevent the entry of *Fomes annosus* root rot. In 1992-93, logging contractors took over the cost of purchasing the borax, so borax was applied at no cost to the County of Dufferin or the MNR for the first time.

In 1994, sooty mold accompanied by some type of sucking insect was found in a young white pine plantation in Simmons Tract. Control of this condition may be required in the future.

In 1994, a quarantine was placed on Dufferin County by Agriculture Canada after a sample of pine shoot beetle was found near Orangeville. The effect that the quarantine will have on the sale and distribution of forest products from the Dufferin County Forest is not yet clear.

Fencing, roads, and fireguards were maintained as necessary throughout the management period. In 1992-93 MNR fire management staff conducted a survey of existing cisterns on the County Forest properties. The report determined that due to changes in fire fighting technology and the continued liability risk posed by the cisterns, all of them should be filled in except the one at Simmons Tract. After some discussions with staff at Camp Dufferin, it was determined that they would maintain the cistern located at the Main Tract near their facility. The cisterns at Mono and Randwick tracts remain to be filled in.

5.4.4 Harvesting

Both improvement cuts in natural stands and thinnings in conifer plantations continued in the 1991-1995 period. For the volumes cut on an annual basis, refer to Table 7.

5.4.5 Staffing/Management

During this most recent period in the management of the Dufferin County Forest operations have continued much as before, but there have been significance advances in the management planning for the forest. The forest management agreement between the County of Dufferin and the Ministry of Natural Resources expired on March 31, 1991. At that time, the County decided that it wanted a new management plan to be prepared for the Dufferin County Forest prior to a new forest management agreement being put in place. The new plan would take a more integrated, community-based approach to managing the forest, rather than focusing just on timber management. A target date of April 1, 1995 was set for the new plan. In the interim, the County and the MNR agreed to continue managing the forest as before.

In April, 1993 fourth year students from the Faculty of Forestry, University of Toronto presented four alternate plans for managing the Dufferin County Forest properties to the County of Dufferin and the Ministry of Natural Resources. The preparation of these plans included a detailed survey of Dufferin County residents with regard to their current and future uses of the forest. The plans generated a number of new and interesting ideas which will contribute to the preparation of the management plan.

Some maintenance work continued to be done on the forest properties by residents of Camp Dufferin. However, the amount of work done by the residents was greatly reduced since the change in 1985 to a facility for young offenders.

The Mansfield Outdoor Centre, in consultation with the MNR, maintains the ski trails that fall under its land use permit with the County of Dufferin. This includes trail widening, grooming, grading etc.

In 1992-93 Wally McNeice retired as the Management Forester for Dufferin-South Simcoe. He was replaced by Mike Rosen. The Area Supervisor for Dufferin-South Simcoe is Anne Burgoyne.

As of April 1, 1994 management of the Dufferin County Forest at the County of Dufferin changed from the Roads Department (Stuart Smart, County Engineer) to the Community Development Department (Darrell Keenie, Community Development Co-ordinator). Reporting on County Forest activities continued to be to the Roads and Environment Committee of Dufferin County Council. On January 16, 1995 Dufferin County Council created a new Community Development Committee. As of that date, all County Forest activities are reported to the new committee.

6.0 CURRENT RESOURCES

The Dufferin County Forest is an agreement forest of 1,019 hectares (2,518 acres). The forest is divided into ten tracts located in Mulmur, Melancthon, Mono, Amaranth, East Garafraxa and East Luther Townships. The largest single area is the Main Tract (604 hectares, 1,492 acres) in Mulmur Township. Table 8 is an area summary for the Dufferin County Forest. Table 9 describes the significant characteristics of the Dufferin County Forest on a tract-by-tract basis.

Table 8: Dufferin County Forest Area Summary¹

	Area (hectares)
I. Water	0
II. Non-Forested Land	
i. Designated Agricultural Land	0
ii. Grass and Meadow	0
iii. Unclassified Land	5
III. Forested Land	
i. Treed Wetland	0
ii. Non-treed Wetland	23
iii. Barren and Scattered	26
iv. Production Forest	880
v. Protection Forest	85
TOTAL	1,019 ha

¹ Refer to the Glossary for definitions of terms.

The inventory of the Dufferin County Forest was conducted in July and August, 1994. Due to time constraints, it was not possible to complete an inventory that was statistically significant. The characteristics of the forest that were measured during the inventory were: overstorey tree vegetation, regeneration, understorey non-tree vegetation. Qualitative assessments of topography, special features, water resources, wildlife, and aesthetics were also made. A summary of the estimated production forest area and volume is shown in Table 10.

Table 10: Summary of Estimated Production Forest¹ Area and Volume for the Dufferin County Forest

Working Group	Area (ha)	% Total Area	Volume (m ³)	% Total Volume
Red pine	365	41	72,068	49
White pine	70	8	9,635	7
White spruce	32	4	4,501	3
Other Conifers	15	2	1,651	1
Red oak	175	20	26,797	18
Hard maple ²	26	3	3,196	2
White birch	22	3	4,226	3
Poplar	36	4	5,636	4
Tolerant Hardwoods	139	16	20,468	14
Total ³	880 ha	101	148,178 m ³	101

¹ Production forest: all productive forest land managed primarily for human benefit, unless otherwise reassigned

² The hard maple working group includes stands with more than 50% hard maple, on the basis of basal area.

³ Totals are greater than 100 due to rounding.

6.1 Overstorey Tree Vegetation

For a detailed breakdown of the basal area, stocking, and volume of the overstorey tree vegetation by site class, refer to Appendix 3.

The **red pine** working group makes up about 365 ha (41%) of the production forest. All of the red pine stands were planted in order to stabilize the light, sandy soils. The red pine often grows in association with white pine, jack pine, white spruce, poplar, hard maple, red oak, and cherry. Most (78%) of the red pine occurs in the 41-50 and 51-60 age classes. There is no red pine older than 70 years. Eighty-four percent of the red pine grows on site class 1 areas. Almost half (163 ha) of the red pine plantations in the Dufferin County Forest contain a significant component of hardwood regeneration over 1.3 m in height. This regeneration consists mostly of hard maple and white ash. In some areas, there is significant white pine regeneration.

Red oak makes up the next largest working group in the production forest -- about 175 ha (20%). All of the red oak stands occur on site class 1 areas. There are eight hectares (5%) in the 41-50 age class, the other stands are all 61 years or older. The red oak stands are mostly of

natural origin (i.e. not planted).

The **tolerant hardwoods** working group covers about 139 ha (16%) of the production forest. The major species include hard maple, white ash, cherry, ironwood, and basswood. In some stands, the hardwoods are associated with red pine and/or white pine. In all of the tolerant hardwood stands the dominant trees are 61 years of age or older. The stands have an uneven-aged structure. Ninety-eight percent of the tolerant hardwoods occur on site class 1 areas.

The **white pine** working group makes up about 70 ha (8%) of the production forest. White pine grows in association with red pine, white spruce, red oak, poplar and ash. The stands of white pine are a mix of planted and natural. The white pine is almost evenly distributed between the 0-20, 31-40, 41-50 and 71-80 age classes.

The **white spruce** working group makes up about 32 ha (4%) of the production forest. All of it is planted on lowland sites in Mono, Amaranth, Melancthon and Gara-Gore tracts. The white spruce grows in association with white pine, larch, cedar or white ash. The white spruce is concentrated in the 41-50 age class on site class 1 land.

The **hard maple** working group makes up about 26 ha (3%) of the production forest. The stands are of natural origin and are located on Mono and Main tracts. It grows in association with other hardwoods such as white birch, beech, white ash, elm, basswood, red oak, poplar, ironwood and cherry. The dominant trees in the hard maple stands are concentrated in the 71-80 and 91-100 age classes. The stands have an uneven-aged structure. Sixty-three percent of the hard maple is on site class 1 land. The remainder is split almost evenly between site classes 2 and 3.

The **poplar** working group makes up about 36 ha (4%) of the production forest in one large natural stand on Little Tract. The stand is in the 51-60 age class on site class 2 land. The poplar grows in association with hard maple, red pine, white birch, white pine, beech and red oak.

The **white birch** working group makes up about 22 ha (3%) of the production forest. It consists of one stand on Main Tract where it grows in association with poplar, red oak, hard maple, white pine, cedar and ironwood. The stand is in the 51-60 age class on site class 1 land.

The **cedar** and **tamarack** working groups make up about 15 ha (2%) of the production forest. They are natural stands growing on lowland sites in Riverview Tract. All of the cedar and tamarack is in the 31-40 age class on site class 1 land.

There are about 85 ha of **protection forest** in Dufferin County Forest. They consist mostly of lowland poplar and cedar. At the south end of Main Tract there is a provincially recognized Area of Natural and Scientific Interest (ANSI). There are several significant wetland areas within the

Dufferin County Forest. These areas are further described in section 6.5: Natural Heritage Features. A summary of the protection forest is shown in Table 11.

Table 11: Areas Designated as Protection Forest in the Dufferin County Forest

Tract (Compartment)	Working Group	Area (ha)
Main (30d)	Po	9
Main (31b) ¹	Sw	2
Main (31c)	Po	15
Melancthon (32c)	Po	5
Melancthon (33c)	Ce	11
Melancthon (34a)	Ce	13
Melancthon (35a)	Ce	14
Riverview (38c)	Po	4
Amaranth (42a)	Mr	12
Total		85 ha

¹Although this area is not officially designated as protection forest, its location (adjacent to compartment 31c) means that it will be treated as protection forest area throughout the management plan.

6.2 Regeneration

Regeneration is the term used to describe young trees with a DBH (diameter at breast height) of less than 4cm. The quantity and species of regeneration depends mainly on the shade tolerance of the species forming the overstorey. Species which are shade intolerant (e.g. red pine, poplar) regenerate with great difficulty under their own canopy. The understorey in these stands will be severely limited or will be formed by more shade tolerant species such as maple or ash. Shade tolerant species will usually regenerate under their own canopy.

In the Dufferin County Forest, most regeneration is either hard maple (on average, approximately 3,500 stems/ha) or white ash (on average, approximately 2,000 stems/ha). The red and white pine working groups also have a significant component of white pine regeneration (on average, approximately 450 stems/ha). The greatest quantity of regeneration occurs in the hard maple working group.

Almost half (163 ha, 45%) of the red pine plantations in the Dufferin County Forest contain a significant component of hardwood regeneration over 1.3m in height. This regeneration consists

mostly of hard maple and white ash.

Table 12 shows the estimates of regeneration for the working groups that make up the Dufferin County Forest.

Table 12: Estimates of Average Stems/ha of Regeneration by Working Group and Height Class

Understorey Species	Ht Class	Overstorey Working Group								
		Pr pure ¹	Pr mix ²	Pw	Sw	C	Mh	Bw	Po	H
Mh	<1.3	1.008	3.269	3.857			10.958	8.200	357	4.689
	>1.3	215	462	143			1,313	700	643	454
Or	<1.3	492	500	686			83	2.200		606
	>1.3	45		43			21			33
Bw	<1.3	4								7
	>1.3	24					21			7
Aw	<1.3	789	3.692	3.186	950		1.521	4.050	643	3.222
	>1.3	146	500	643			896	500	71	205
Pw	<1.3	870	154	329		63		100	143	162
	>1.3	329	38	29						43
Pr	<1.3	268		29			83			
	>1.3	8								
Ch	<1.3	484	769	1.314	100	63	875	1.400	214	1.417
	>1.3	114	462	200			1,167	200	286	649
I	<1.3	20								46
	>1.3			14						46
Be	<1.3	154	38	14			188	300		146
	>1.3	81		14			42	300		66
Po	<1.3	81					42		214	40
	>1.3	98	77	14			21		286	
Bd	<1.3			143			188		286	364
	>1.3	20		29			146			46
	<1.3			71	200					

Understorey Species	Ht Class	Overstorey Working Group								
		Pr pure ¹	Pr mix ²	Pw	Sw	C	Mh	Bw	Po	H
	>1.3			57	100					
Sw	<1.3	305	38	286	3.350		1.146			
	>1.3	4								
Ce	<1.3			14			21			
	>1.3									
Elm	<1.3									33
	>1.3									

¹ Pr pure refers to red pine plantations that have no significant component of any other species in the overstorey.

² Pr mix refers to red pine plantations that have a significant component of other species in the overstorey.

6.3 Non-Tree Understorey Vegetation

Besides regeneration, most forest stands have at least some non-tree understorey vegetation. The species and amount of non-tree understorey vegetation varies with the site type, stand history, and current stand structure. For estimates of vegetation cover for the various working groups in the Dufferin County Forest, refer to Table 13.

In the Dufferin County Forest, the most common species of non-tree understorey vegetation are: bracken fern, mosses, grasses, raspberry and various species of herbs.

Table 13: Estimates of Average Percent Cover of Non-Tree Vegetation by Working Group

Understorey Species	Overstorey Working Group									Total
	Pr pure ¹	Pr mix ²	Pw	Sw	C	Mh	Bw	Po	H	
Misc. herbs	4.5	2.7	6.1	12.5	35.3	4.1	3.0	2.9	3.5	74.6
Mosses	2.0	0.6	0.7	19.8	12.8	0.5		1.4	0.4	38.2
Grasses	2.6	7.3	6.1	4.5		2.6	2.0	5.7	5.4	36.2
Alternate-leaved Dogwood	0.1	5.2	0.7			0.5			2.1	8.6
Sarsaparilla	0.4	4.6	2.1			2.1	0.5		2.2	12.0

Understorey Species	Overstorey Working Group									Total
	Pr pure ¹	Pr mix ²	Pw	Sw	C	Mh	Bw	Po	H	
Lilac					2.5					2.5
Poison Ivy					1.3					1.3
Starflower	0.1									0.1
Clover				0.5	1.6				0.0	2.1
Strawberry					1.9					1.9
Ferns (Bracken)	5.1	10.4	11.4			3.1	3.3	15.4	3.4	52.1
Canada Mayflower	1.5	2.5	1.6				1.5	1.0	1.0	9.1
Fragrant Bedstraw	0.1		0.2	5.3				0.4	0.2	6.1
Goldenrod			1.3	4.5					0.1	5.9
Raspberry	5.7	0.4	3.8	13.5		6.0			0.7	30.1
Kidney Leaf Violet			1.1	1.5		0.8				3.5
Elderberry	0.1			1.3						1.3
Solomon's Seal						0.3			0.7	1.0
Trillium						0.3			0.0	0.3
Milkweed	0.4					0.5				0.9
Horsetail	0.0		0.1							0.1
Mullen	0.0									0.0
Strawberry	0.0									0.0
Indian pipe	0.0								0.0	0.0
Sumac	0.0									0.0
Large Leaved Aster									0.0	0.0
Viburnum									0.1	0.1
Total	22.7	33.7	35.2	63.3	55.3	20.9	10.3	26.8	19.8	287.9

¹ Pr pure refers to red pine plantations that have no significant component of any other species in the overstorey.

² Pr mix refers to red pine plantations that have a significant component of other species in the overstorey.

6.4 Wildlife

Animals which are present in the Dufferin County Forest include: white-tailed deer, ruffed grouse, wild turkey, woodcock, Canada geese, mallards, wood ducks, pheasants, snapping turtle, muskrat, raccoon, beaver, mink, coyote, fox, porcupine, cottontail rabbits and other small mammals. Not all of these species exist on all of the tracts, as some are associated with wetland habitat types (e.g. snapping turtle), while others are associated with upland types. The main wildlife species known to be associated with each tract can be found in Table 9. Section 6.5: Natural Heritage Features lists the wildlife species known to exist in the evaluated wetlands.

The Ministry of Agriculture and Food lists a number of shrubs in its *Farm Forestry and Habitat Management* guide that are important for many different wildlife species. These species are highbush cranberry, red-osier dogwood, alternate-leaved dogwood, nannyberry, elderberry, staghorn sumac, serviceberry, ninebark, bittersweet, virginia creeper, wild apple, wild grape, and American hazelnut. Of these, red-osier dogwood, alternate-leaved dogwood, elderberry, sumac, and wild apple are known to exist in the Dufferin County Forest.

The Ministry of Natural Resources does not collect census data for the wildlife species in the Dufferin County Forest. Wildlife management is based on a habitat management approach, i.e. the forest is managed for different habitat types rather than being directly managed for different wildlife species. The Dufferin County Forest currently includes the following habitat types:

1. **Non-treed wetlands.**
2. **Treed wetlands/lowland conifers.** These stands have an even-aged structure, and are all in the 31-40 age class. The main tree species are cedar and larch.
3. **Creeks.**
4. **Upland tolerant hardwoods.** These stands have an uneven-aged structure, and are all older than 60 years. Almost 10% (by area) of the stands are older than 100 years. The main tree species include hard maple, white ash, cherry, ironwood and basswood.
5. **Upland oak.** These stands have an uneven-aged structure, and are almost all older than 60 years. The regeneration in these stands consists mostly of tolerant hardwood species such as hard maple, white ash, ironwood, basswood, and beech.
6. **Conifer plantations.** These stands have an even-aged structure, and are all younger than 70 years. The main species are red and white pine. About half of the plantations have a significant understorey of tolerant hardwoods.
7. **Hardwood plantations.**

Habitat types which are adjacent or in close proximity to the Dufferin County Forest include

cultivated fields, meadows, river valleys, stream corridors, and small woodlots.

Some of the unique habitat types that exist within the Dufferin County Forest are described in more detail in section 6.5: Natural Heritage Features.

6.5 Natural Heritage Features

In the Dufferin County Forest, there are a number of significant natural heritage features that require special attention in the planning process. These can be grouped under the following headings: evaluated wetlands; Areas of Natural and Scientific Interest (ANSIs); vulnerable, threatened and endangered (VTE) species, and critical fish habitat.

6.5.1 Evaluated Wetlands

The Ministry of Natural Resources has recently changed the procedure for the creation of wetland complexes. These changes will probably result in wetland complexes being created in Melancthon Township. Generally speaking, wetland complexes are more valuable than individual wetlands as they have the ability to protect a greater number of features and play a greater role in water conservation.

6.5.1.1 Laurel Wetland Complex (class 2 wetland, provincially significant)

The Laurel Wetland Complex is located on Cons. I-IV in Amaranth Township. The northern portion of the Amaranth Tract (Con. III, Lot 8) is part of this complex and is designated as protection forest. The complex is 95% swamp and 5% marsh. The area provides habitat for a number of wildlife species including snapping turtles, muskrat, raccoon, beaver, mink, fox, coyote, white-tailed deer, and colonial waterbirds. The provincially significant pied-billed grebe, and northern harrier, and the regionally significant mink frog also inhabit this area.

6.5.1.2 Walker's Creek Swamp (class 6 wetland, locally significant)

The Walker's Creek Swamp is located on Cons. VI-VIII in Mulmur Township and in Tosorontio Township (Simcoe County). The creek runs through the northwest corner of the Randwick Tract (Con. VI, Lot 26). The wetland is 82% swamp and 18% marsh. It provides habitat for snapping turtles, muskrat, raccoon, beaver, mink, fox, coyote, white-tailed deer, and colonial waterbirds. The regionally significant brook trout also inhabits this area.

6.5.1.3 Terra Nova Complex (class 1 wetland, provincially significant)

The Terra Nova Complex is adjacent to the Main Tract of the Dufferin County Forest, in Mulmur Township. The complex is 94% swamp and 6% marsh. The area provides habitat for bullfrogs, snapping turtles, muskrat, raccoon, beaver, mink, fox, coyote, white-tailed deer, and colonial waterbirds. The Terra Nova Complex is regionally significant as white-tailed deer winter cover and as a spawning and rearing area for brook trout and rainbow trout. It is locally significant as an area of waterfowl production. The provincially significant northern harrier and the regionally significant magnolia warbler, mink frog, and brook trout also inhabit this area.

6.5.1.4 Melancthon 2 (class 6 wetland, locally significant)

The wetland known as Melancthon 2 is located on Cons. IX and X in Melancthon Township. Part of it is within the Riverview Tract of the Dufferin County Forest. The wetland is 86% carr, 9% swamp, and 5% marsh. This area provides habitat for bullfrogs, muskrat, and raccoon. The Melancthon 2 wetland provides good winter cover for ruffed grouse and small game. It also has local significance as an area of waterfowl production.

6.5.1.5 Melancthon 32 34 37 (class 6 wetland, locally significant)

The Melancthon 32 34 37 wetlands are located on Cons. III-VIII in Melancthon Township. They were originally designated as individual wetlands in a complex, but were later found to be one continuous wetland. Most of the Melancthon Tract is part of this wetland, and it is designated as protection forest. The wetland is 90.4% swamp and 9.6% bog. This area provides habitat for bullfrogs, muskrat, racoon, beaver, white-tailed deer, and colonial waterbirds. The regionally significant mountain fly honeysuckle (*Lonicera villosa*) grows in this area.

6.5.2 Areas of Natural and Scientific Interest (ANSIs)

In the Dufferin County Forest, there is one provincially significant Life Science ANSI, the Oak Ridges South Slope Forest. It is located at the southern end of the Main Tract. This ANSI is associated with the Oak Ridges Moraine and represents warmer-than-normal forest associations on sand in Site Region 6. The cover is currently a sugar maple-red oak forest with some red and white pine. In the Pine River floodplain area the species include white ash, yellow and white birch, basswood, cedar, hemlock, balsam fir, and some elm.

6.5.3 Vulnerable, Threatened and Endangered (VTE) Species

There are two areas in the Main Tract that are identified as supporting vulnerable species. The exact location and identification of these species is held in confidence by the MNR in order to minimize the pressure on these species from human activities.

6.5.4 Critical Fish Habitat

There are no significant areas of critical fish habitat in the Dufferin County Forest.

6.5.5 Important Natural Heritage Areas in Dufferin County

The *Comprehensive Set of Policy Statements Implementation Guidelines for Natural Heritage and Environmental Protection* outline the requirements for areas to be significant in terms of their natural heritage.

There are several such areas in Dufferin County:

1. Luther Marsh Conservation Area, located in East Luther Township
2. Terra Nova Complex, a class 1 wetland located in Mulmur Township
3. Niagara Escarpment area, which runs through Mulmur and Mono Townships in a north-south direction
4. Hockley Valley, located in Mono Township
5. Melancthon Township, which contains several significant wetland complexes
6. Main Tract of the Dufferin County Forest, a large contiguous area of publicly-owned forest.

6.6 Protection (Fire, Insects, and Disease)

In the Dufferin County Forest, there were cisterns located in Main (two), Randwick, Simmons, and Mono tracts. In 1992, the MNR conducted a study to determine if the cisterns should stay open. The cistern located in compartment 10a of Main Tract has been filled. The cisterns in Randwick and Mono tracts were also to be filled, but this has not been done to date. The cistern in Randwick Tract is well-fenced and posted. The cistern in Mono Tract is surrounded only by a rail fence, there is a hole in the boards covering it, and there is no cistern sign.

There are fire ponds in Melancthon, Riverview, and Randwick (two) tracts.

All tracts are equipped with signs that state the phone number of the local municipality's fire department.

Insects and diseases are monitored annually as part of the federal Forest Insect and Disease Survey (FIDS), as well as by the Ministry of Natural Resources and Agriculture Canada.

A history of fire, insects, and disease in the Dufferin County Forest can be found in section 5.0: Report of Past Operations.

6.7 Recreation

Most of the tracts have a trail system that is used for a variety of recreational activities including hiking, wildlife viewing, nature appreciation, cross-country skiing, snowmobiling, mountain biking, and horse-back riding. However, the trail systems are not well mapped, especially for the Main Tract.

Little Tract has a picnic area, outhouses, garbage can and a sign showing the trail system. All of these are in a severe state of disrepair.

Mansfield Outdoor Centre, a private recreational complex, leases the southern part of the Main Tract for the winter months for cross-country skiing. This area of the Main Tract is currently under a snowmobiling ban. Mansfield also provides horse-back riding and outdoor education.

Ontario Federation of Snowmobile Clubs (OFSC) trails run through the north part of the Main Tract in an east-west direction, through the west part of Randwick Tract in a north-south direction, and around the perimeter of Mono Tract.

Hunting in the Dufferin County Forest focuses on white-tailed deer, wild turkey and small game. The shotgun portion of the controlled white-tailed deer hunt takes place annually for five days in November and five days in December. The controlled wild turkey hunt takes place in May of each year for a period of approximately two weeks. The seasons for small game vary, but usually take place over the fall and winter. The hunting seasons and numbers of tags are determined each year by the Ministry of Natural Resources (MNR) on a Wildlife Management Unit basis. This ensures that wildlife populations in any given area are not exposed to undue hunting pressure. In the case of game animals, such as white-tailed deer, the number of tags in a given Wildlife Management Unit is determined on the basis of hunter success during the previous season and weather conditions over the past year. For example, a particularly hard winter will probably mean that fewer animals survived and a lower number of tags will be issued. Every year, the MNR publishes a guide for hunters explaining the current year's regulations and seasons. These guides are available from MNR offices across the province, as well as other

locations where hunting licences are sold.

The recreational activities of Dufferin County residents were assessed in 1993 by University of Toronto Forestry students using a mail out survey. The survey was sent to 2,000 households, randomly chosen from the County of Dufferin's tax rolls. The sample was stratified into rural and urban residents, each stratum receiving half of the surveys. The urban stratum consisted of property owners in Shelburne, Grand Valley and Orangeville; the rural stratum consisted of all other property owners. The return rate on the surveys was approximately 25%; the usual expected rate of return on a survey of this type is 10%.

The results of the survey of recreational activities show that 35% of the people who returned surveys use the Dufferin County Forest for recreational activities. The tracts that are used most often are Mono and Main. The most popular recreational activities include nature appreciation, wildlife viewing, hiking, cross-country skiing, and outdoor education. Picnicking, snowmobiling, orienteering, mushroom and/or berry picking, hunting, mountain biking, horse-back riding, snowshoeing, and dog-sledding were also frequently mentioned activities. The activities most often mentioned for restriction were hunting, snowmobiling, and motorbiking. It was clear from the surveys that many of the respondents were not aware that the Dufferin County Forest exists and is available for public use.

With regard to the question of logging, 87% of the respondents said that logging does not interfere with their enjoyment of the Dufferin County Forest. Continued logging was favoured by 57% of respondents, 13% were opposed, and 30% were undecided.

With regard to Camp Dufferin, 62% of respondents favoured retaining Camp Dufferin, 9% were opposed, and 29% were undecided.

6.8 Aggregates

Table 14 summarizes the aggregate resources present on the Dufferin County Forest properties.¹

Table 14: Aggregate Resources in the Dufferin County Forest

Tract (Comp.)	Township	Description of Aggregate Resource
Riverview (37, 38)	Melancthon	less than 35% gravel; less than 1.5m thick; outwash; no known limitations on quality; selected sand and gravel resource area of tertiary significance; bedrock covered by 8-15m of overburden
Melancthon	Melancthon	greater than 35% gravel; 3-6m in undifferentiated ice-contact stratified drift areas, greater than 6m thick in esker areas; no known limitations on quality;

Tract (Comp.)	Township	Description of Aggregate Resource
(32, 33, 34)		selected sand and gravel resource area of primary significance; selected bedrock resource area (bedrock within 1m of surface); unlicensed gravel pit
Amaranth North (42)	Amaranth	none
Amaranth South (43b)	Amaranth	less than 35% gravel; less than 1.5m thick; outwash; no known limitations on quality; selected sand and gravel resource area of tertiary significance
Randwick (all)	Mulmur	less than 35% gravel; greater than 6m thick; outwash; no known limitations on quality; selected sand and gravel resource area of tertiary significance
Little (all)	Mulmur	less than 35% gravel; greater than 6m thick; outwash; no known limitations on quality; selected sand and gravel resource area of tertiary significance
Simmons (all)	Mulmur	less than 35% gravel; greater than 6m thick; outwash; no known limitations on quality; selected sand and gravel resource area of tertiary significance
Main (all)	Mulmur	less than 35% gravel; greater than 6m thick; outwash; no known limitations on quality; selected sand and gravel resource area of tertiary significance
Gara-Gore	E. Garafraxa	none
River Road	East Luther	none
Mono (all)	Mono	less than 35% gravel; greater than 6m thick; undifferentiated ice-contact stratified drift; clay and/or silt (fines) present in objectionable quantities; selected sand and gravel resource area of tertiary significance

¹Compiled from the Aggregate Resources Inventory Papers for Dufferin County.

6.9 Research Plots

Throughout the existence of the Dufferin County Forest, there have been a number of research projects conducted by various agencies. Most of these projects have focused on finding solutions to practical problems: control of *Fomes annosus* (a root rot fungus), preconditioning of container stock, and the effect of prescribed burning on red oak are just a few examples. Table 15 gives a summary of the known research activity in recent years.

Table 15: Compendium of Research Activity in the Dufferin County Forest¹

Tract	Comp.	Name of Study	Agency	Date
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Tract	Comp.	Name of Study	Agency	Date
Main	26 & 27	Prescribed Burning Red Oak	MNR Midhurst & OFRI /Mike Rosen, Dan Dey	1994-ongoing
Main	26b	Ontario Growth & Yield PSP SR2002/93	MNR Midhurst & Kemptville/Eric Boysen	1992-ongoing
Simmons	47b	Preconditioning of Container Stock	MNR OFRI/Columbo	1988 ²
Main	16c	NEC Woodlot Management Project	U of Guelph/Peter Williams	1986-ongoing
Main	25	Underplanting with White Pine	MNR Midhurst	1979 ²
Main	12a	<i>Fomes annosus</i> Control	MNR OFRI/Tim Myers	1979 ²
Main	22d	<i>Fomes annosus</i> Control	MNR OFRI/Tim Myers	1979 ²
Main	26b	Red Oak Health	CFS Sault Ste. Marie/ Bob Sajan	1977
Randwick	4c	An Outstanding Red Oak-Red Pine Plantation	MNR Kemptville/Eric Boysen	1970 ²

¹ compiled by Mike Rosen, Area Forester, MNR Midhurst

² trials probably inactive at this time

7.0 PUBLIC INPUT

7.1 Summary of 1993 Survey by University of Toronto Students

In January, 1993 University of Toronto students conducted a mail-out survey of the property owners in Dufferin County.

This survey was mailed to 2,000 property owners who were chosen **randomly** from the County tax rolls. Half of the surveys were mailed to urban property owners (Shelburne, Grand Valley and Orangeville); the other half were mailed to rural property owners. The response rate was approximately 25%; 10% is the usual response rate for this type of survey.

The survey was intended to determine the current level of recreational use as well as opinions regarding logging and Camp Dufferin.

Note: “Respondents” refers to all property owners who responded to the survey, “users” refers to property owners who said that they use the forest properties for recreational activities.

7.1.1 Current Use

The main points of note about current use of the Dufferin County Forest for recreation are:

1. 35% of respondents said they used the forest properties for recreational activities
2. the tracts most often used were Mono and Main
3. the most popular recreational activities were: nature appreciation, wildlife viewing, hiking, cross-country skiing and outdoor education
4. other recreational activities included: picnicking, snowmobiling, orienteering, mushroom and/or berry picking, hunting, mountain biking, horse-back riding, snowshoeing and dog-sledding
5. hunting, snowmobiling and motorbiking were the activities most often mentioned for restriction
6. from comments received, it is apparent that many respondents were unaware that the Dufferin County Forest properties are available for public use

7.1.2 Logging

With regard to the subject of logging, the survey found the following:

1. 87% of respondents (84% of users) said that logging **does not** interfere with their enjoyment of the Dufferin County Forest
2. 57% of respondents (54% of users) favoured continued logging; 13% (14% of users) were opposed to logging and 30% (32% of users) were undecided

7.1.3 Camp Dufferin

With regard to Camp Dufferin, the survey found the following:

1. 62% of respondents (65% of users) favoured retaining Camp Dufferin; 9% (11% of users) were opposed and 29% (24% of users) were undecided

7.2 Summary of 1994-95 Public Participation in the Management Planning Process

7.2.1 Forest Advisory Team

In addition to inviting the general public to participate in the management planning process, the County established a Forest Advisory Team consisting of representatives from the following stakeholder groups: the County of Dufferin, the Township of Mulmur, the Ministry of Natural Resources, Huronia Woodlot Operators, Dufferin-North Peel Anglers' and Hunters', Mansfield Outdoor Centre, Dufferin Snowmobile Club, Upper Credit Field Naturalists, Camp Dufferin, Ontario Trail Riders Association, Ontario Competitive Trail Riders Association, Halton Off-Road Riders Association, and two representatives from the general public.

This team, along with a group of MNR resource advisors, formed the core of advice and comment during the planning process. However, the general public was also given a number of opportunities to provide input. These opportunities, and a summary of their results is given in this section. It should be noted that the input provided by the Advisory Team was not vastly different in content from that provided by the general public. The role of the MNR resource advisors was largely to assess the plan from a technical standpoint.

7.2.2 Participation by the General Public

The public participation in the management planning process occurred in three distinct phases, the background information, draft plan, and final plan. The first two stages facilitated public comment on the work to date, the third provided the public with information regarding the outputs of the planning process.

7.2.2.1 Background Stage

In the fall of 1994, the County of Dufferin distributed Invitations to Participate in the planning process to almost 500 stakeholders. The stakeholders included politicians, past user groups, groups with an interest in natural resources, members of the public who had expressed an interest in the forest, local media, local municipalities, all of the property owners adjoining the Dufferin County Forest, and all those people living along Airport Road (County Road 18) between the Village of Mansfield and the Main Tract. The Invitations included a description of the upcoming planning process and some background information about the Dufferin County Forest. In October, 1994, the County presented the background information on the forest properties at two open houses, in Orangeville (the major population centre of Dufferin County) and Terra Nova (close to the majority of the forest properties). Both of these open houses were well attended, with about twenty people at each one. The background information was also presented as part of Environment Week at the Dufferin County Museum & Archives in late October, 1994. At the open houses, County and MNR representatives gave presentations and asked for input into what

issues should be reflected in the draft forest management plan. Members of the public were asked to complete questionnaires in order to formalize their input into the process. By the end of February, 1995 more than 60 of these questionnaires were received by the County. The main thrusts of the public comment included:

1. almost all of the respondents expected that their use of the Dufferin County Forest would stay the same or increase in the future;
2. hunting, motorized vehicles, and snowmobiling were most often mentioned as activities that should be restricted;
3. most respondents felt that the activities currently going on in the forest were appropriate for the future;
4. most respondents were not opposed to logging, as long as clearcutting was not practised;
5. the respondents were evenly split on whether or not more facilities (signs, outhouses, picnic tables, garbage cans) should be provided in the forest. Most felt that signs were appropriate, but that outhouses, picnic tables, and garbage cans would require costly maintenance, would be subject to vandalism and would promote sedentary activities such as bush parties.
6. almost 60% of the respondents said that they would be willing to pay to use the Dufferin County Forest. The most common reason given was that “user pay” is being implemented everywhere as governments at all levels assume more fiscal responsibility. The most common reason given for an unwillingness to pay was that the maintenance of the forest should be part of the taxes each resident pays to the County.
7. about two-thirds of the respondents said that they had had a conflict with other users of the forest. The most groups that were cited as a source of conflict were hunters and their dogs, motorized vehicles, and users of the forest who trespass on adjacent private property.
8. most of the respondents stated that they were residents of Mulmur Township.

All of the comments and concerns submitted at this stage of the process were taken into consideration in the preparation of the draft forest management plan.

7.2.2.2 Draft Plan Stage

Once the draft plan was completed, the County initiated the second stage of the public participation. Again, letters were sent out to over 500 stakeholders informing them of the open houses, and the locations where the draft plan would be available for review. At the beginning of March, 1995 open houses were again held in Orangeville and Terra Nova. These were even better attended than the first series; about 30 people turned out at each one. At these open

houses, the County presented the draft forest management plan and the attendees were again asked to complete questionnaires in order to formalize their comments. The entire month of March, 1995 was devoted to public review of the draft plan. The plan was made available at the Community Development Department in Orangeville, the eight local municipalities in Dufferin County, the three public libraries in Dufferin County, the Dufferin County Museum and Archives, and the Ministry of Natural Resources in Midhurst. The draft was also distributed to individuals at their request. During the public review period, the plan also underwent review by the Forest Advisory Team and the MNR resource advisors. Overall, the response to the draft plan was favourable. The main points coming out of the review of the draft plan were:

1. the need to develop a business plan for the five year operational period (1995-2000)
2. the need to clearly define the future roles of the County, MNR, and others
3. the no motorized vehicles by-law (85-19) should remain in effect, and should be enforced
4. the issue of County and user liability
5. finances should not be considered at the expense of conservation
6. the neighbours of the forest properties should be actively involved in management, enforcement etc.
7. hunting is not compatible with a number of the other activities and should be restricted
8. there should be gating/posts to prevent entry of four-wheeled vehicles (problems with dumping, illegal removal of wood, partying etc.)
9. forests owned by the six rural Dufferin County townships should be brought into the management plan as well
10. signs should not display dates of hunting season, as this could create unnecessary public concern and the sign proposed may be overly large and unsightly
11. there needs to be a stated noise limit for activities within the forest
12. the need to reassess by-law 85-19 and its intent
13. the Simmons Tract should be designated as natural area instead of the Little Tract
14. the County should promote “good neighbour relations” and keep all forest neighbours well informed of activities regarding the forest
15. the absence of references to individual tracts of the forest
16. the abundance of forest practice goals at the expense of goals relating to outdoor recreation and use
17. the “plan” section of the document should be numbered to avoid confusion
18. the need to restructure the Environmental & Resource Management objective stream

All of the comments and concerns were taken into account in the preparation of the final plan.

In addition to distributing questionnaires relating to the draft plan, the County also asked the public to complete an information sheet if they were interested in becoming members of the Friends of the Dufferin County Forest. In total, 25 user groups and individuals signed up at this

preliminary stage.

7.2.2.3 Final Plan Stage

At this stage the public was not asked to comment on the plan, but was presented with the products of the planning process.

8.0 GLOSSARY

The definitions in this glossary were taken from various Ministry of Natural Resources (MNR) and Ministry of Agriculture and Food (MAF) publications.

- ANSI:** Area of Natural and Scientific Interest. ANSIs are areas of land and water containing natural landscapes or features which have been identified by the *Ministry of Natural Resources (MNR)* as having values related to protection, natural heritage appreciation, scientific study or education.
- barren and scattered:** productive forest land which, because of natural or artificial disturbance, contains only scattered trees (*stocking* below 0.25) or no trees at all with either shrub cover or bare soil, but no significant regeneration.
- basal area:** the cross sectional area of a stem at breast height (1.3m), most commonly accumulated as square metres per hectare. Also see *normal basal area*.
- biodiversity:** the variety and variability (in time and space) among living organisms and the ecological complexes in which they occur. Biodiversity can be measured at the genetic, species and landscape levels.
- bog:** see *wetland*
- breast height:** 1.3m above the ground.
- carr:** see *wetland*
- conifer (softwood):** needle-bearing tree that produces seeds in cones.
- Department of Lands and Forests:** see *Ministry of Natural Resources (MNR)*
- diameter at breast height (DBH):** the diameter of a tree taken at a height of 1.3m above the ground
- endangered:** any species of flora or fauna that is threatened with imminent *extinction* or *extirpation* throughout all or a significant portion of its Canadian range
- even-aged:** condition of a *stand* in which relatively small age differences exist between individual trees. The maximum difference in age is usually twenty years. Also see

uneven-aged.

- extinct:** a species formerly indigenous to Canada that no longer exists anywhere
- extirpated:** any species of flora or fauna that no longer exists in the wild in Canada but occurs elsewhere
- fen:** see *wetland*
- forest cruise:** sample survey of a forest area to provide an estimate of timber by volume, species, products, size, and other characteristics. Also assesses understorey and ground vegetation, wildlife, water resources, aesthetics and special characteristics of the forest. Also see *timber cruise*.
- hardwood:** leaf-bearing trees whose seeds are not produced in cones.
- high-grading (selective cutting):** the cutting of the largest and most merchantable trees in a stand. There are relatively few or no control measures.
- intolerant:** used to describe trees which do not tolerate shade (e.g. red pine, poplar). Also see *tolerant*.
- marsh:** see *wetland*
- Ministry of Correctional Services (MCS):** the provincial ministry responsible for correctional facilities
- Ministry of Natural Resources (MNR):** the provincial ministry responsible for natural resources, including forests, wetlands, waters, and fish and wildlife. The MNR was formerly known as the Department of Lands and Forests.
- normal basal area:** the basal area for a given *working group* on a particular *site class* at a particular age, as given by Plonski's Normal Yield tables.
- prescribed burning:** the knowledgeable application of fire to a specific land area to accomplish predetermined forest management or other land-use objectives
- private land:** land not vested in Her Majesty in right of Ontario, but includes unpatented land that is located or sold under the *Public Lands Act*. Also see *public*

lands.

- productive forest land:** all forest areas capable of growing commercial trees and not withdrawn from such use
- production forest:** all productive forest land managed primarily for human benefit, unless otherwise reassigned
- protection forest:** all productive forest land managed primarily to exert beneficial influence on soil, water, landscape, or for any other purpose when production of merchantable timber, if any, is incidental
- public lands:** the lands vested in Her Majesty in right of Ontario and under the management of the Minister [of Natural Resources], and includes the lands in respect of which a lease, licence of occupation or permit has been granted or issued under the *Mining Act*, the *Provincial Parks Act* or the *Public Lands Act*. Also see *private land*.
- regeneration:** the renewal of a tree crop whether by natural (self-sown seed or by vegetative means) or artificial means (sowing and planting). This term may also be used to describe the young crop itself.
- selective cutting:** see *high-grading*
- selection system:** a periodic partial cutting, controlled by basal area, using vigour and risk characteristics to determine individual tree selection
- shelterwood system:** an *even-aged silvicultural system* where in order to provide a source of seed and/or protection for regeneration, the old crop is removed in two or more successive cuttings
- silviculture:** the science and art of cultivating forest crops. More particularly, the theory and practice of controlling the establishment, composition, constitution and growth of forests. Silviculture is a combination of three forestry activities: 1) timber harvest; 2) forest renewal; 3) subsequent maintenance of the new forest.
- silvicultural system:** a process, following accepted silvicultural principles, in which crops constituting forests are tended, harvested, and regenerated,

resulting in the production of crops of distinctive form. Systems are conveniently classified according to the method of harvesting the mature stands with a view to regeneration and according to the type of crop produced.

- site class:** a measure of the relative productivity of a site. Site classes 1a and X are the most productive; site class 3 is the least productive. Site class is determined using Plonski's Normal Yield Tables.
- stand:** a community of trees possessing sufficient uniformity in composition, constitution, age, arrangement or condition to be distinguishable from adjacent communities
- stocking:** the actual *basal area* as a fraction of the *normal basal area*. Stocking can be more than 1.
- swamp:** see *wetland*
- threatened:** any species of flora or fauna that is likely to become *endangered* in Canada if the factors affecting its vulnerability are not reversed
- timber cruise:** sample survey of a forest area to provide an estimate of timber by volume, species, products, size and other characteristics. Also see *forest cruise*.
- tolerant:** used to describe trees that can regenerate under a canopy (e.g. maple, hemlock). Also see *intolerant*.
- uneven-aged:** the condition of a stand in which trees markedly differ in age. Also see *even-aged*.
- United States Department of Agriculture (USDA):** a branch of the USDA, the Forest Service, is the government agency responsible for forestry in the United States
- vulnerable:** any species of flora or fauna particularly at risk because of low or declining numbers, small range or for some other reason, but not a *threatened* species
- wetland:** land that is seasonally or permanently covered by shallow water, as well as lands where the water table is close to or at the surface. In either case the presence of abundant water has caused the formation of hydric soils (characterized by an

abundance of moisture) and has favoured the dominance of water-tolerant plants. The four major types of wetlands are **swamps, marshes, bogs** and **fens**. **Carr** is an English name for a wet-ground shrub community. Dogwoods and willows are the dominant types of vegetation in the carr.

	VEGETATION	WATER	SOIL	LOCATION
Marsh	Øcattails, sedges, rushes	Øvery efficient at supplying water and nutrients to vegetation Øoccasional flooding Ømaintain some open water, less than 2m depth Øwill dry out during extended droughts	Ømineral Øhigh organic matter content near surface	Øsouthern Ontario
Bog	Øsphagnum moss	Øwater from runoff and precipitation only	Øthick layer of peat (decomposed sphagnum moss), which is highly acidic, extends beneath bog	Øcommon to northern Ontario, but some in south
Swamp	Øshrubs and trees e.g. soft maple and cedar	Øoccasional flooding	Øorganically rich mineral soils	Ømost common wetland in southern Ontario
Fen	Øgrasses, sedges	Øsome flow-through	Øneutral and alkaline	Ørare in Ontario

Wetlands in Ontario are evaluated based on their biological, hydrological, socio-economic and special features. The wetland is given a number of points in each of these categories. Based on the number of points the wetland is assigned to one of seven classes. Wetlands in classes 1-3 are provincially significant; classes 4-7 are locally significant.

working group: an inventory aggregation for management purposes. An aggregate of *stands*, including potential forest areas assigned to this category, having the same predominant species, and management under the same rotation and broad silvicultural system.

8.1 Acronyms Used in the Report

AgCan	Agriculture Canada
ANSI	Area of Natural and Scientific Interest
CWIP	Community Fisheries Involvement Program
CFS	Canadian Forest Service
CO	Conservation Officer
CWIP	Community Wildlife Involvement Program
DCMA	Dufferin County Museum and Archives
DCF	Dufferin County Forest
FIDS	Forest Insect and Disease Survey
GIS	Geographic Information System
GPS	Global Positioning System
MCS	Ministry of Correctional Services
MNR	Ministry of Natural Resources
MOC	Mansfield Outdoor Centre
NEC	Niagara Escarpment Commission
OFRI	Ontario Forest Research Institute
OFSC	Ontario Federation of Snowmobile Clubs
USDA	United States Department of Agriculture
VTE	vulnerable, threatened, and endangered species (formerly known as RTE (rare, threatened, and endangered) species)
WIA	Woodlands Improvement Act

8.2 Species Abbreviations

Ab	black ash
Aw	white ash
Bd	basswood
Be	American beech
Bw	white birch
Ch	cherry
C	other conifers
Ce	eastern white cedar
Elm	American elm
H	other hardwoods
He	eastern hemlock
I	ironwood
Mh	hard (sugar) maple

Mr	red maple
Or	red oak
Pj	jack pine
Po	poplar (aspen)
Pw	white pine
Sb	black spruce
Sw	white spruce
La	tamarack (larch)

8.3 Conversion Factors

1 hectare (ha) = 2.47 acres

1 metre (m) = 3.26 feet = 1.09 yards

1 cubic metre (m³) = 35.315 cubic feet = 0.415 cords = 195 f.b.m.

1 hectare (ha) = 10,000 m²