2000/02 PRINCE EDWARD ISLAND
Corporate Land Use Inventory
Land Use and Land Cover Summary

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Resource Inventory and Modeling Section, Department of Agriculture and Forestry

Introduction

The 2000/02 Corporate Land Use Inventory followed the same general methodology used in the 1990/92 Forest Biomass Inventory of Prince Edward Island. However, it also included a much more detailed study of non forest land than had been the case in the earlier forest inventory projects.

The major difference between the 1990/92 inventory and the 2000/02 inventory was the identification of both land use and land cover. The 1990/92 project had used a combination of both land use and cover. In the case of forested land, a cover description was given but in the case of most other land uses none was determined. The inclusion of both land use and cover enables the 2000/02 inventory to meet the needs of a wider range of partners.

The following agencies were involved in the development of the Corporate Land Use Inventory;

Water Resources Division, Department of Technology and Environment
Fish and Wildlife Division, Department of Technology and Environment
Planning Section, Department of Economic Development and Tourism
Policy and Planning Division, Department of Agriculture and Forestry
Agriculture Division, Department of Agriculture and Forestry
Natural Resources Division, Department of Agriculture and Forestry
Information Technology Division, Department of Agriculture and Forestry
Planning and Design Section, Highways Division, Dept. of Transportation and Public Works
Properties Section, Public Works Operations Division, Dept. of Transportation and Public Works
Provincial Planning Branch, Department of Community Services and Attorney General
Island Nature Trust
Southeast Environmental Association
(Note: A number of the agencies have changed there names since the beginning of the project. The names used are those used when the project began.)

The project was carried out under the direction of the Resource Inventory and Modeling Section of the Department of Agriculture and Forestry. Project planning began in 1997 with the development of draft specifications. This was followed by a pilot study in 1998/99. The actual project began in the summer of 2000 with the acquisition of the aerial photography. New orthophoto maps, photo interpretation and the creation of the digital maps were completed in early 2003.

The mapping component used false colour infrared aerial photographs taken in July and August 2000 at a scale of 1:17,500. Historically, the Island has used infrared photography because it emphasizes differences between tree species and other vegetation, and improves the detection of vegetation stress such as insect and disease damage. Aerial photograph negatives were digitally scanned and these images were used to create the first digital orthophoto maps of the Province.

This report summarizes some of the findings from the interpretation of the 2000 photography.

Land use

Land use across the province was broken down in to twelve major categories. The interpretation results are shown in descending order of area in Table I. Types of land within each category are given in Tables II to X.

Table I
Summary of Land Use on Prince Edward Island in 2000

Land use	Hectares
Forestry	256,900
Agriculture	222,095
Wetlands (including forested wetlands and excluding tidal waters)	35,996
No use evident	16,208
Transportation	12,588
Residential	12,365
Tidal water above the last bridge on the watershed closest to the ocean	7,111
Urban	5,341
Industrial	3,016
Recreation	2,157
Commercial	883
Institutional	676
Total	**575,335**

Note: Minor discrepancies may exist between grand totals and the sum of individual values due to rounding.

Most of these major land use categories were broken down into sub uses where it was evident to the photo interpreters. Tables II to X provides a summary of these findings.

Forest land use areas were not broken down into sub uses but is subdivided in the Land Cover portion of this report.

Table II
Area of the Agriculture land use by sub use

	Hectares
Crops (see Table XI)	211,454
Farmsteads	4,530
Hedgerows	5,875
Feedlots	161
Orchards	45
Nurseries	27
Major manure storage area	2
Total	**222,094**

Note: Minor discrepancies may exist between grand totals and the sum of individual values due to rounding.

Table III
Area of the Wetlands land use by sub use

	Hectares
No sub use specified	29,635
Forest	6,306
Sewage lagoons	24
Reservoirs	21
Total	**35,996**

Not: Minor discrepancies may exist between grand totals and the sum of individual values due to rounding.

Tables (IV- IX) summarize the developed land categories. The category of Urban was not subdivided.

Table IV
Area of the Transportation land use by sub use

	Hectares
Roads	10,592
Wharves	90
Airports	424
Power lines	137
Abandoned railway	1,311
Lighthouses	9
Communication structures	25
Total	**12,588**

Note: Minor discrepancies may exist between grand totals and the sum of individual values due to rounding.

Table V shows the breakdown of residential land outside the urban areas. The total area of residential land is understated due to the significant amount of this land in urban areas.

Table V
Area of the Residential land use by sub use

	Hectares
Not specified	697
Single unit dwellings	10,257
Multiple unit dwellings	22
Cottages	1,345
Mobile home parks	44
Total	**12,365**

Note: Minor discrepancies may exist between grand totals and the sum of individual values due to rounding.

Table VI illustrates the breakdown of industrial land outside urban areas. As in the case of residential land, the total area of industrial is understated due to the fact that most of this land is within urban areas.

Table VI
Area of the Industrial land use by sub use

	Hectares
Not specified	886
Auto salvage	108
Excavation pits	1,668
Fertilizer plants	73
Food Processing	219
Tank farm	16
Sawmill/lumber yard	46
Total	**3,016**

Note: Minor discrepancies may exist between grand totals and the sum of individual values due to rounding.

Table VII
Area of the Recreation land use by sub use

	Hectares
Not specified	222
Golf courses	1,350
Campgrounds	352
Playing fields	195
Ski slope	30
Rinks	8
Total	**2,157**

Note: Minor discrepancies may exist between grand totals and the sum of individual values due to rounding.

Table VIII shows the breakdown of commercial land outside the urban areas. As in the case of residential and industrial land, the total area of commercial land is understated due to the fact that most of this land is located within urban areas.

Table VIII
Area of the Commercial land use by sub use

	Hectares
Not specified	453
Accommodation	312
Motor vehicle	57
Retail	40
Food and beverage	21
Total	**883**

Note: Minor discrepancies may exist between grand totals and the sum of individual values due to rounding.

Table IX shows the breakdown of institutional land outside the urban areas. As in the case of residential, industrial and commercial land, the total area of institutional land is understated due to the fact that most of this land is located within urban areas.

Table IX
Area of the Institutional Land Use by sub use

	Hectares
Not specified	61
Schools	254
Churches	174
Cemeteries	112
Historic Sites	46
Hospitals	29
Total	**676**

Note: Minor discrepancies may exist between grand totals and the sum of individual values due to rounding.

Land Cover

The inventory describes Land Cover as a percentage of the area covered when viewed from above. For example, a forest stand may be describes as red maple 30%, white birch 30%, poplar 20% and pin cherry 20%, while a residential subdivision may be grass 40%, buildings 30%, trees 20% and paved 10%.

Tables X - XIX provide summary information on the land cover of each of the major land use categories.

Table X groups the forest tree species into softwood and hardwood categories. More detailed forest summaries will be found in a separate report to be issued by the Department of Agriculture and Forestry.

Table X
Area of the Forest cover types (based on all species identified)

	Forest	Forested Wetland	Total
	Hectares	Hectares	Hectares
Softwood	52,753	2,960	55,713
Softwood-hardwood	32,728	604	33,332
Hardwood-softwood	49,080	905	49,985
Hardwood	82,480	1,302	83,782
Plantations	15,731	0	15,731
Alders	6,562	517	7,079
Clear cuts	17,462	12	17,474
Dead trees	104	7	111
Total	256,900	6,307	**263,207**

Notes 1: cover types are defined as follows:
softwood = >75% softwood
softwood/hardwood = >50% softwood, >25 % hardwood
hardwood/softwood = >50% hardwood, >25 % softwood
hardwood = >75% hardwood
2: minor discrepancies may exist between grand totals and the sum of individual values due to rounding.
3: clear cuts are areas from which tree cover has been recently removed but have not been converted to other uses or regrown to a size where tree species were identifiable.
4; forested wetland are wetland areas which have tree cover.

Table XI
The breakdown of the land use Agricultural land cover classified with a sub use of crops (see Table II)

	Hectares
Hay	81,451
Grain	60,968
Potatoes	47,664
Pasture	13,356
Blueberries	3,527
Cranberries	50
Other crops	4,343
Bare ground	31
Buildings	62
Water	2
Total	**211,454**

Note: Minor discrepancies may exist between grand totals and the sum of individual values due to rounding

Table XII
Wetland by land cover class, excluding forested wetlands (see Table X)

	Hectares
Salt marsh	5,692
Bog	4,913
Open water	3,544
Shrub swamp	3,551
Sand dune	3,377
Meadow	2,327
Deep marsh	2,320
Shallow marsh	1,494
Wooded swamp	1,344
Brackish marsh	1,112
Seasonally flooded flat	15
Wetland total	**29,689**
Tidal waters upstream of the last bridge in the estuary	7,111

Notes Minor discrepancies may exist between grand totals and the sum of individual values due to rounding.

A more detailed report on the Island's wetlands will be produced by the Conservation and Management Division of the Department of Fisheries, Aquaculture and Environment

The Non Evident Land Use category was used where there was no land use could not be identified. For the most part, grassed areas were former agricultural land that was no longer in use and had begun to revert to forest.

Table XIII
Non-evident land use breakdown by land cover

	Hectares
Grass	9,971
Shrubs	4,519
Trees (species not identified)	1,215
Back shore beach	7
Paved	19
Bare ground	399
Water	13
Buildings	64
Total	**16,208**

Note: Minor discrepancies may exist between grand totals and the sum of individual values due to rounding.

Table XIV
Residential land use breakdown by land cover

	Hectares
Grass	7,451
Shrubs	440
Buildings	1,569
Water	4
Trees	1,535
Paved	1,083
Bare ground	284
Total	**12,365**

Note: Minor discrepancies may exist between grand totals and the sum of individual values due to rounding.

Table XV
Urban land use breakdown by land cover

	Hectares
Grass	2,415
Shrubs	142
Buildings	1,070
Trees	829
Paved	720
Bare ground	166
Total	**5,341**

Note: Minor discrepancies may exist between grand totals and the sum of individual values due to rounding.

Table XVI
Industrial land use breakdown by land cover

	Hectares
Grass	357
Shrubs	268
Buildings	233
Water	38
Trees	173
Paved	188
Bare ground (primarily excavation pits, shale pits)	1,762
Total	**3,016**

Note: Minor discrepancies may exist between grand totals and the sum of individual values due to rounding.

Table XVII
Commercial land use breakdown by land cover

	Hectares
Grass	333
Shrubs	40
Buildings	195
Water	5
Trees	72
Paved	194
Bare ground	45
Total	**884**

Note: Minor discrepancies may exist between grand totals and the sum of individual values due to rounding.

Table XVIII
Recreational land use breakdown by land cover

	Hectares
Grass	1,122
Shrubs	46
Buildings	174
Water	118
Trees	370
Paved	102
Bare ground	225
Total	**2,157**

Note: Minor discrepancies may exist between grand totals and the sum of individual values due to rounding.

Table XIX
Land cover of Farmsteads

	Hectares
Grass	2,365
Shrubs	142
Buildings	902
Water	10
Trees	404
Paved	465
Bare ground	245
Total	**4,533**

Note: Minor discrepancies may exist between grand totals and the sum of individual values due to rounding.

The Corporate Land Use Inventory can answer many different types of land use questions For instance, if someone needs to know the area of Prince Edward Island that is mowed for aesthetic reasons (i.e. lawns), they could find the answer in table XX. However, this number is probably an under estimate because the residential and other areas under tree crowns (3,425 ha) could also be mowed.

Table XX
Grassed areas in all land use categories

	Hectares
Recreation land	1,122
Industrial land	357
Institutional land	419
Urban land	2,415
Residential land	7,457
Commercial land	333
Farmsteads	2,365
Total	**14,468**

Note: Minor discrepancies may exist between grand totals and the sum of individual values due to rounding.

Comparison with earlier inventories

Table XXI compares figures from the 1980 and 1990 Forest Biomass Inventories, where they have appropriate information, with 2000 information. Note: The 1980 and 1990 numbers are based on aerial photographs taken in those years.

Table XXI

Land use	**1980**	**1990**	**2000**
	hectares	**hectares**	**hectares**
Forest	273,594	279,193	263,207
Agriculture	231,590	226,952	222,094
Cleared land	18,105	20,631	16,208
Excavation pits	1,421	1,511	1,668
Wetlands [*13]	14,303	10,491	17,070
Sand dunes	2,036	2,873[*11]	3,377
Developed land	22,828	22,672	35,358
Water	11,594[*12]	11,202	10,617
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Total	574,472	575,525	575,330

Notes: 1: Forest area includes; stocked forest, plantations, alders, clearcuts, forested wetlands
2: The 1980 areas were recalculated after the inventory was digitized so the numbers may vary slightly from those previously published.
3: The 1990 numbers also vary slightly from previously published numbers due to the conversion of that inventory to the same mapping datum and projection that is now the Provincial standard.
4: Agricultural land includes; land in agricultural use including the farmsteads and hedgerows.
5: Cleared land was the term was used in 1980 and 1990 and is land that has been cleared of trees but is not in agricultural use. The 2000 inventory used the term 'No evident use'.
6: Developed land includes; roads, the railway right of way, urban areas, industrial areas, airports, recreational land, commercial areas.
7: Wetlands excludes most coastal salt marshes.
8: Water includes open water in river estuaries above the bridge closest to the ocean.
9: The difference between the total Provincial areas in the three inventories is to due changes in base maps not necessarily a reflection of actual change.
10: Minor discrepancies may exist between grand totals and the sum of individual values due to rounding
11: The wetlands inventory based on 1990 photography reported 3,471 ha of sand dune. This number is based on the land form not the land cover that the 1980 and 1990 forest inventories reported.
12: The 1980 water area includes the category of coastal feature.
13. The 1990 wetland total does not reflect the more detailed wetland inventory completed by the Dept of Environment but is a generalized figure.

Land use changes

The differences between 1990 and 2000 inventories can be examined to see what has been happening over that period. Table XXII shows the changes in land classified as agriculture in 1990. Of significant note is the 10,319 ha of agricultural land that was converted to developed uses such as residential, urban, and industrial land. One can also look at the reverse, what was use of the land in 1990. This comparison showed that 10,563 ha of forest and 6,390 ha of cleared land not in agricultural use were converted to agriculture between 1990 and 2000.

Table XXII
2000 land use of land recorded as agriculture in 1990

1990 agricultural land in 2000	Hectares	Comments
Agriculture	203523	was retained in agriculture
Commercial	317	converted
Urban	723	converted
Forest	5358	reverted to forest
Industrial	627	converted
Institutional	295	converted
Non-evident use	6390	cleared land but not in active agriculture in 2000
Recreation	663	converted
Residential	7409	converted
Transportation	285	converted
Wetland	1250	converted
Total	226840	

Notes: 1: Total area of agricultural land varies by 0.05 percent due primarily to changes in coastline.

Summary

The Corporate Land Use Inventory provides a basis for monitoring land use change in the Province and the tables presented here demonstrate some of the types of analyses that can be performed using information from this inventory. No doubt, other government Departments and Agencies will carry out further examination of the inventory's findings.

References

1990/92 Prince Edward Island Forest Inventory, Summary, January 1992, Silviculture Development Section, Forestry Branch, Department of Energy and Forestry.