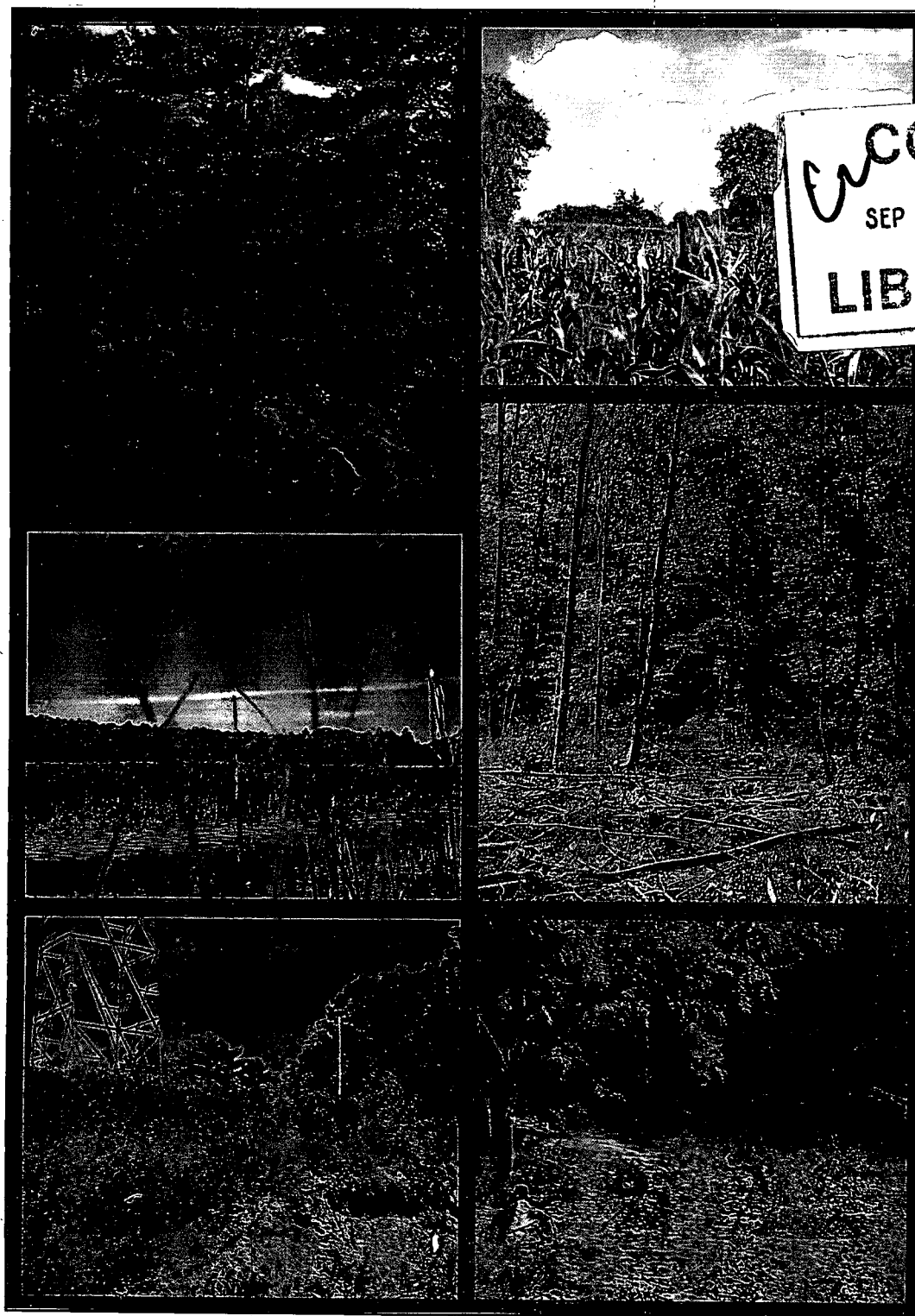


# THE ENVIRONMENT OF THE CORTS CORRIDOR - THE RIDEAU SECTOR

Addendum #1

## LANDSCAPES OF THE RIDEAU SECTOR



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Ecological Land Classification Series, No. 15

THE ENVIRONMENT OF THE CORTIS CORRIDOR-  
THE RIDEAU SECTOR

Addendum #1  
LANDSCAPES OF THE RIDEAU SECTOR

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March, 1981

Ecological Land Classification Series No. 15

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## LANDSCAPES OF THE RIDEAU WATERWAY

### INTRODUCTION

The Rideau Waterway has been divided into 40 Landscape units according to the methodology outlined in the Inventory and Interpretation of environmental resources carried out in the CORTS Corridor<sup>1</sup>. This report acts as an addendum to the overall report and contains the descriptive information for each Landscape unit in the study area. A summary map is provided at a scale of 1:250,000 showing the entire Rideau, and individual maps for each Landscape unit are provided at a scale of 1:50,000. Accompanying the individual maps are descriptions of the biophysical characteristics of each Landscape unit and significant features of that unit.

This addendum contains the basic inventory and interpretation of the Rideau landscape. It can be used to obtain an overall picture of the resources and environment of the Rideau Waterway and some insight into the relationship of land cover to the landscape. It can be a useful aid in evaluating the significance of various areas within the CORTS Corridor to the Waterway as a whole.

The land resources of the Rideau Waterway are classified at three levels. The broadscale levels are those of the Canadian Committee on Ecological (bio-physical) Land Classification. Those are the Land Regions and the Land Districts. They are defined as:

1. Hodges, James and Joseph Arbour. 1981. The environment of the CORTS Corridor: The Rideau Sector. Lands Directorate, Environment Canada, Burlington.

Land Region - an area of land characterized by a distinctive regional climate as expressed by vegetation.

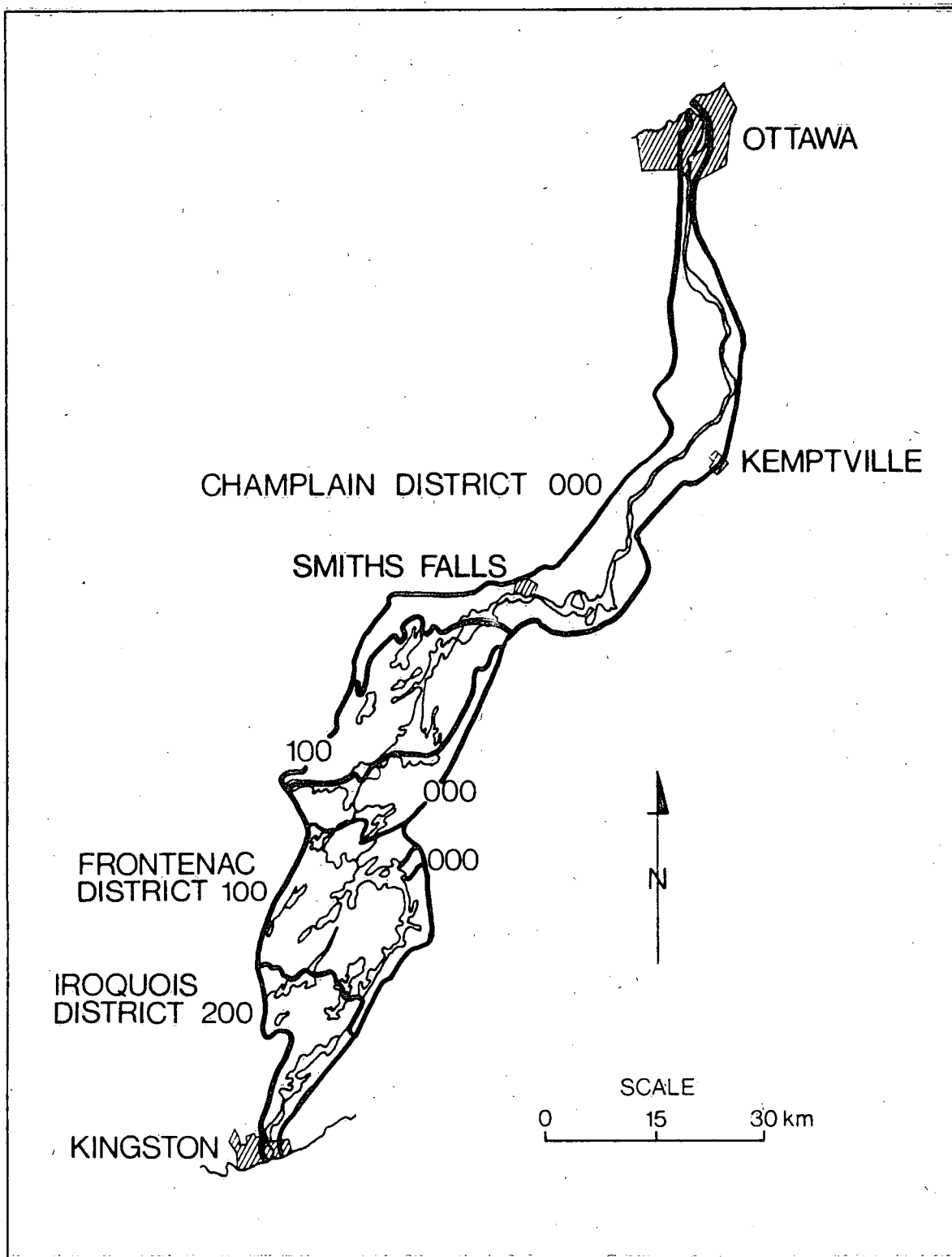
Land District - an area of land characterized by a distinctive pattern of relief, geology, geomorphology and associated vegetation.

Detailed descriptions of the Region and the three Districts appears in the Arbour and Hodges report<sup>1</sup>. Their boundaries as they define the limits of the Landscapes are shown in Figure 1.

The third level of description is a departure from the standard biophysical approach. Rather than define ecologically-significant land systems and land types, 'Landscape units' are defined and a system of landscape analysis utilized. Landscape analysis is better suited to the diverse landcover mosaic found in the Rideau Waterway. The components of landscape shown are described in this report as Figure 2:

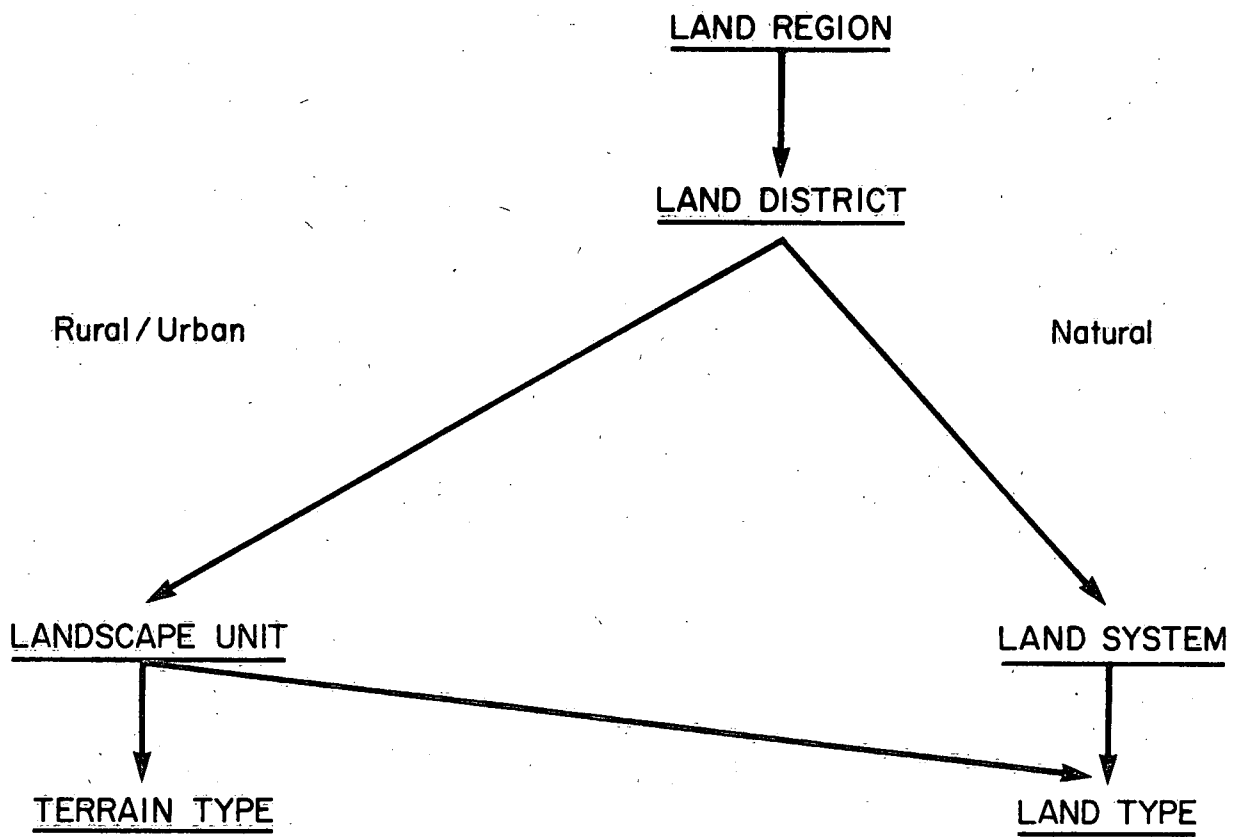
Landscape units - are of land and water characterized by a distinctive pattern of related terrain types and water bodies. This level closely parallels the land systems level.

Terrain Types - an area of land characterized by a distinctive landform, geological type and land cover. Those landform descriptors shown on the unit maps are set out on the summary map.



## LAND DISTRICTS

FIGURE 1



## CLASSIFICATION HIERARCHY

FIGURE 2

Vegetation was recorded at each sample site in three categories:

- (a) dominant tree species - comparable to original land-surveyors' reports on vegetation encountered on survey lines;
- (b) most common tree species - indication of current successional stage, and tree species response to environmental conditions;
- (c) total tree species - for statistical comparisons and community coefficient calculations.

Those categories were selected for each of sampling, and to match, as nearly as possible, other known vegetational survey techniques. No special weighting of species importance as a reflection of environmental conditions is intended by those categories.

Those categories are used to (a) compare existing woodlands to the historical, (b) to estimate present stage of succession for woodlands that have been disturbed and may be regenerating, (c) to attempt a prediction of vegetational response under different management alternatives, and (d) to discriminate statistically between vegetational components of different Landscapes.

No attempt has been made to classify or map detailed natural vegetational communities; that would be extremely difficult here due to the extensive and complex patterns of man-altered environments. Vegetation was inventoried and analyzed as it exists within each Landscape. A suggested



successional model is shown in figure 3. Detailed vegetation descriptions in each Landscape will indicate the relative position of the major vegetation component within the model.

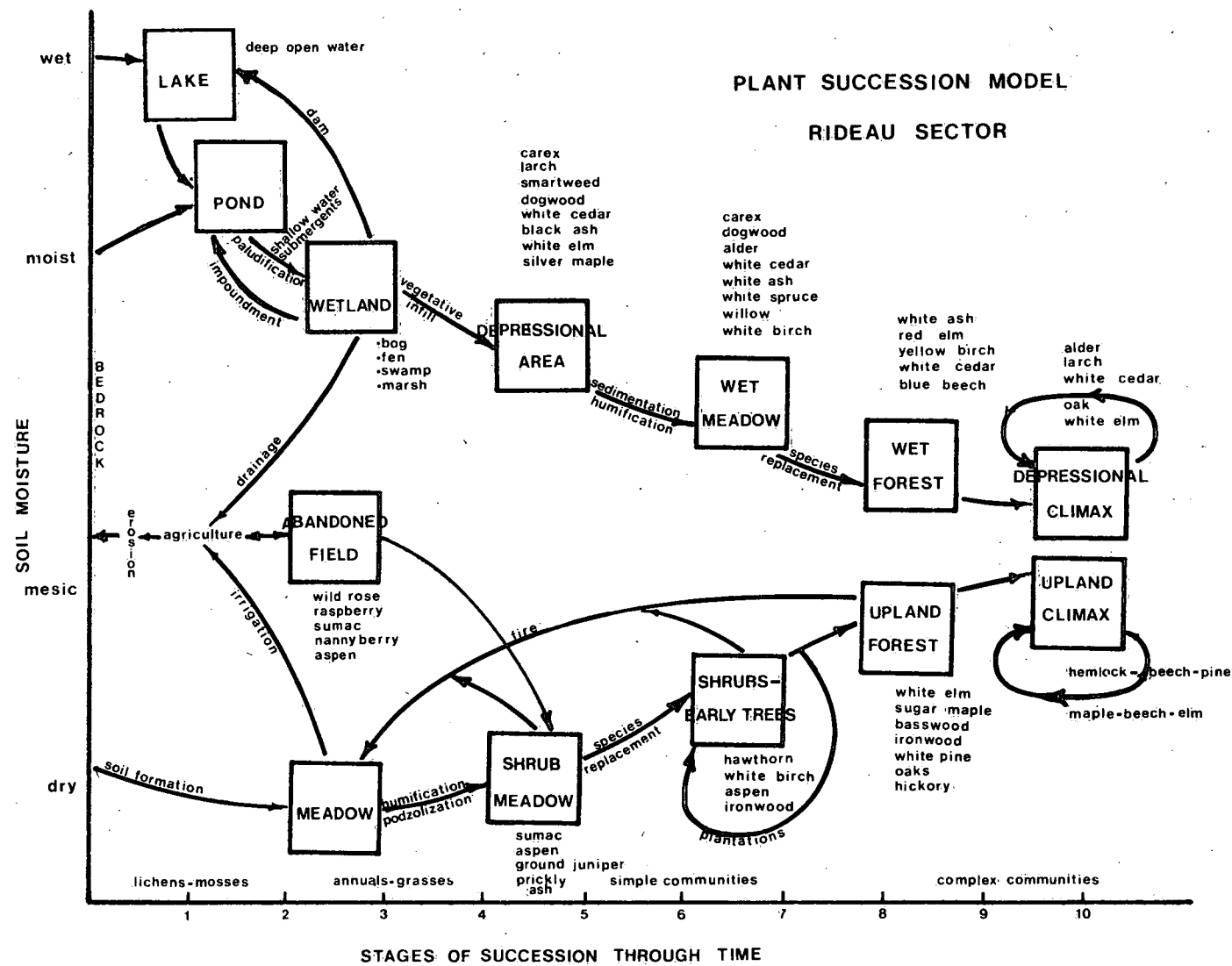
The specific vegetation codings for the Landscapes are shown on the summary map.

The physical structure of the Corridor derives from various ages of bedrock deposition modified extensively during the Recent period through glaciation. Figure 4 sets out the periods of geologic time, and those are referred to within the individual Landscape descriptions.

#### Land Districts

The Corridor falls into three Land Districts. They are areas of distinctive patterns of topography, geology, geomorphology and associated vegetation. The Land Districts are subdivisions of the Land Region. They are separated principally upon their physiographic and geologic patterns. The Land Districts along the Rideau Waterway are shown in Figure 1.

District 000 is referred to as the Champlain District. That is in reference to the Champlain Sea episode which had a major effect on the landforms in that district. The area is characterized by flat-lying Paleozoic bedrock. Some of the most prominent formations are the March and Nepean (Ordovician) sandstones which cover extensive areas from Smiths Falls to Kemptville. The surficial deposits in the area are dominated by glacial till, which is overlain in lower areas by marine sands and clay. Many of the glacial features have been modified by the action of the Champlain Sea. An example is the glacial-fluvial ridge under the Ottawa (Uplands) Airport. It has lost the distinctive shape of a ridge and is capped with reworked beach sands. The most prominent physiographic features are the drumlins near North Gower. Those, however, are poorly defined and do not constitute good examples of drumlins. The District coincides with Rowe's Upper St. Lawrence forest section, with the vegetation responding to the flat, low-lying topography,



**FIGURE 3**

# SUBDIVISIONS OF GEOLOGIC TIME

ERAS	PERIODS		MOUNTAIN BUILDING	LIFE	YEARS BEFORE NOW
Cenozoic	Quaternary	Recent			15 thous
		Pleistocene		man	1.5 mill
	Tertiary	Pliocene	Alps, Cascades	mammals	30 mill
		Miocene			
		Oligocene		flowering plants	
		Eocene	Himalayas		
Mesozoic	Cretaceous			reptiles	180 mill
	Jurassic				
	Triassic				
Palaeozoic	Carboniferous	Permian	Appalachia	fish	225 mill
		Pennsylvanian			
		Mississippian			
	Devonian		Caledonia	ancient plants	370 mill
	Silurian				
	Ordovician				
	Cambrian				
Proterozoic	Precambrian			lichens	500 mill
Archaeozoic					
					3 bill

FIGURE 4

glacially-derived soils, and mainly calcareous parent material. Approximately 20% of the area remains in a natural or artificially-wooded condition.

Agriculture now occupies nearly 30% of the District as active farms, fields, and crops, with an additional 10% existing in an abandoned condition. It is in this District that the major wetlands exist as fluvial marshes along the Rideau River and Tay Canalway, covering some 5% of the total area. The open waters of rivers, streams and lakes cover about 15%. Ten per cent of the District is in urban development and 5% is occupied by utility corridors. The remainder is in cottaging and recreational use.

The dominant tree species were found to be sugar maple, white elm and basswood on the dry upland sites, and the ashes, white cedar, and alder in the poorly-drained lowland areas. The most common cover species on upland sites with deeper soils are sugar and red maple, and hornbeam. White cedar is most common on shallow soils and wet upland areas, with the ashes, willows and silver maple in poorly-drained low areas. In a large Land District such as this, a number of restricted specialized micro-environments exist, which provide conditions for the sporadic appearance of species such as beech, yellow birch and the oaks. Early successional species on abandoned agricultural areas and disturbed sites are balsam poplar, white cedar, trembling aspen, and white birch. Plantations of Scots pine and red pine are present in managed woodlots, with infrequent apple orchards and individual fruit trees near active and abandoned farm-sites. Within this Sector of the Corridor there are few natural stands of hemlock and spruce, while the white elm population is under severe pressure from Dutch elm disease and may soon disappear entirely.

The larger wetlands are located along the Tay, and on the Rideau from Smiths Falls to near Kemptville. Those have major significance as places for resting/feeding migratory birds in spring and fall; as well, small numbers of breeding waterfowl and fish-eating birds exist throughout the summer along with numerous blackbirds, marsh-wrens, amphibians, and fur-bearing animals.

The historical vegetation in the District has been described using early records of dominant vegetation encountered by original land surveyors while cutting their survey lines. Throughout the Champlain District, the major upland associations were those of maple-beech-elm and hemlock-birch with lesser amounts of basswood and pine. The wet areas were wooded with cedar and larch or ash-elm-alder. That compares well with what is left of today's natural woodlands, although with a great deal less of beech and hemlock on the uplands and larch in the low-lands. Today, the natural white pine is being replaced by red pine and white spruce plantations. The loss of extensive amounts of beech and hemlock seems to relate to modern woodlands being only in what might be termed a middle stage of succession following earlier logging practices. Soil and climatic conditions do not appear to have been drastically affected; therefore, it can be assumed that time for successional development is the factor limiting those species' numbers. A major factor in man's influence on the area has been the reduction in wet forest areas which have been drained for agriculture, or filled for urban uses. The extensive larch growths noted in original wet forests no longer exist within the Corridor, appearing there only in limited areas, though extensive stands are found in the large wetlands a few tens of miles to the east. It is unlikely that many wetland species will ever return to the Corridor in significant numbers due to the modification of the environment.

The Frontenac District (100 series) includes most of the Frontenac Axis. That is an arm of the Grenville province of the Canadian Shield. It is primarily composed of crystalline Precambrian limestones, metamorphic rocks and massive granitic plutons. The resistant nature of the Precambrian bedrock has resulted in a rugged landscape of steep ridges and high rock knobs. Some of the most striking features in this District are the massive rock dunders, large granitic plutons flanked by white quartzite, and the dramatic white marble bluffs on Rideau Lake near Westport. The surficial materials in this District are sandy tills referred to as ground moraine in the literature. On the edges of the District there are areas of lacustrine and marine deposition among the rock knobs. Those sand and clay deposits are the best agricultural lands in the District existing as pockets of CLI classes 1-3 for agriculture between ridges.

The District's forests are those of the southern half of Rowe's Middle Ottawa forest section. The vegetation there has responded to an uplift in elevation, reduced soil mineralization, soil pockets of poor drainage, exposure, and extremes in micro and macro climatic changes. Larger numbers of coniferous species begin to play a significant part in the vegetational community, while deeper soils with sunny aspect encourage greater concentrations of oaks than elsewhere in the Corridor. The major dominant species are sugar maple, white pine, basswood, and red and white oak on the upland areas with deeper soils. Moister lowland sites contain white ash and elm; wet-forest sites have silver maple and white cedar. Dominant early successional species appearing on abandoned agricultural areas are white birch, trembling and big-tooth aspens, and some white cedar. Most common

cover species of upland sites are hornbeam, sugar maple, the oaks, and white pine. Very dry, exposed sites are often covered by ground juniper, staghorn sumac, or prickly ash. Wet sites encourage white and black ash, silver maple, and white cedar. Aspens and white birch are the most common species where disturbances through fire or agriculture have set back succession. The great variety of micro-climates produces ideal, though limited, conditions for the occasional presence of other species: hemlock and beech in cooler, protected valleys; pitch pine upon high exposed ridges; while willows and blue beech often accompany white cedar in the swampy areas.

Slightly over one-half of the total area still retains relatively natural forest cover. Small wetlands and large open water, lakes, etc. areas account for 7% and 15%, respectively. Active forms of agriculture occupy about 15% of the District, while abandoned fields cover an additional 5%. The remainder is occupied by utility corridors, recreational cottages and facilities, and urban settlements. None of the wetlands of this District is large, nor significant beyond a local context.

Early survey field notes indicate a mixed forest, with deciduous trees on the flats and conifers predominant on the ridges. The main association was maple-beech-hemlock, the latter two of which are relatively scarce today. The wet areas were similar to today's associations of elm and ash, although larch was more apparent then and silver maple more so now. The original vegetation of the ridges was hemlock and pine, with lesser amounts of birch, maple and beech. Logging has reduced the conifers and increased the opportunities for the deciduous species such as the oaks, butternut, and hickory which were not noted earlier at all. Those species seem to appear at middle successional stages following the logging of the valuable conifers.

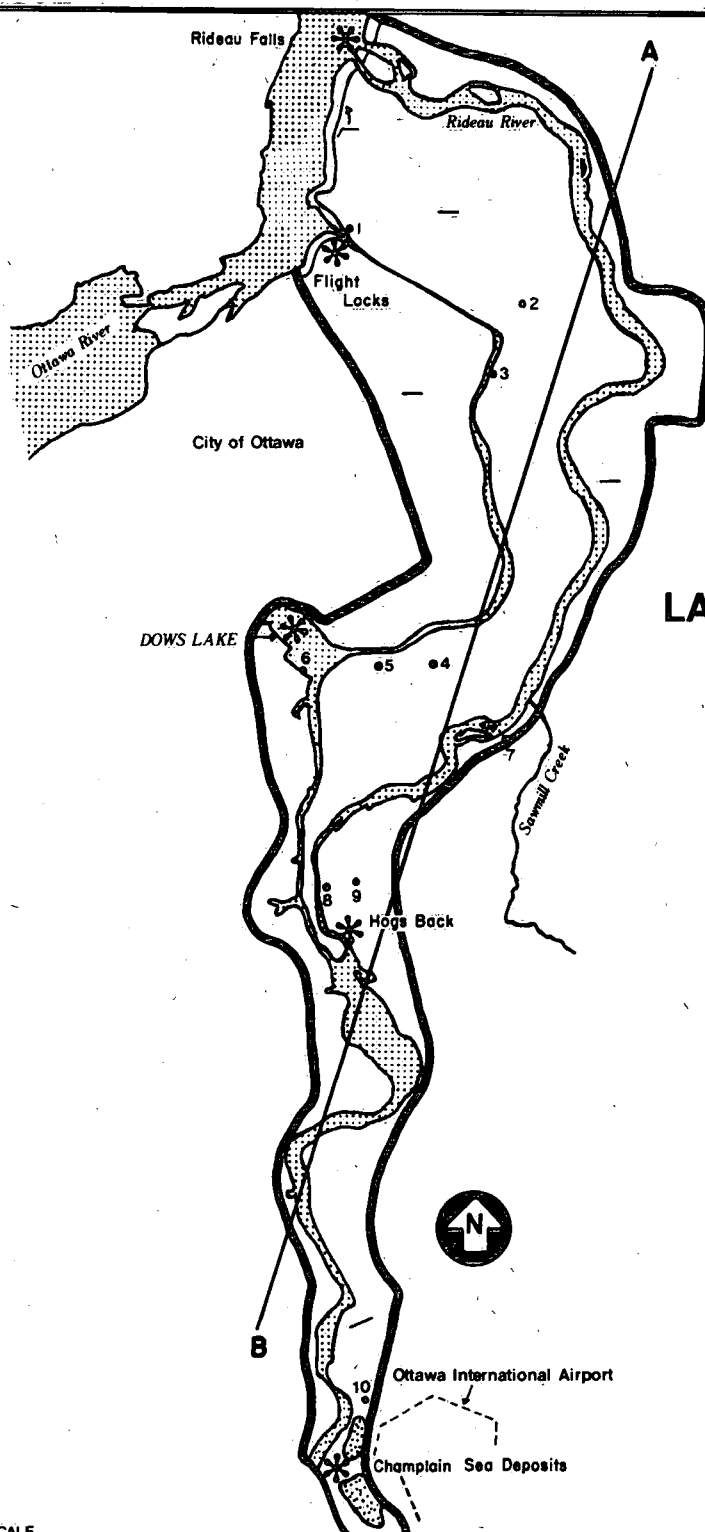
The Iroquois District (200 series) is located in that portion of the Lake Ontario basin which was inundated by pre-glacial Lake Iroquois. The underlying bedrock is mostly Ordovician sandstones and limestones. The lower areas, such as the Cataraqui River basin are underlain by the Potsdam Formation of fine-grained sandstones and siltstones. The upland areas include the Gull River Formations of limestone and dolomite. A band of Precambrian metamorphic rocks underlies a portion of the north central area of this District.

The surficial materials in this District can be separated into three major groups: lacustrine silty clays, ground moraine (a sandy till) and organic deposits. The silty clays cover the largest portion of the area, usually in the lower-lying terrain. There is a possibility that the waters of the Champlain Sea affected deposition here, although, the nearest definable evidence of the marine intrusion is at Brockville. The sandy till is a major component of the surficial deposits. It has been derived through the abrading action of glacial ice on the bedrock producing a stony calcareous material. Lowlying, poorly drained areas, and the river plains, contain most of the organic deposits.

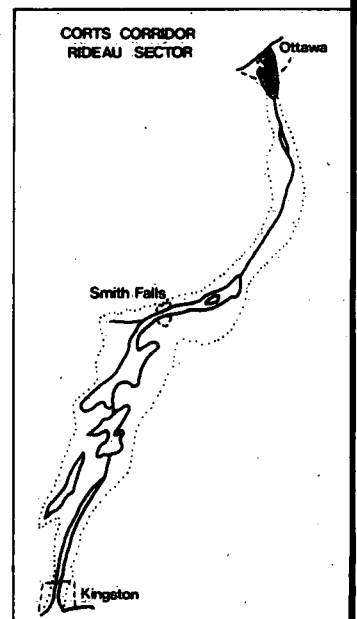
The topography is generally composed of flat plains, escarpments, undulating plains and low wide hills. Much of the land has been cleared for agricultural use. The clay loams in the low areas are well suited, and can be used for numerous crop types; however, the soils on the upland plains tend to be thin and have proven poorly suited to agriculture. Subsequently, many of those sites have been abandoned, or are used only for rough pasture.



Again in this District, coincident with the eastern portion of Rowe's Huron-Ontario section, sugar maple is the dominant species. A slightly milder climate and a wide variety of landforms, however, have allowed for a greater number of deciduous species to appear in this District despite the fact that natural wooded lands have been reduced to only a third of the area. White pine is also a dominant species along with the hickories and oaks on upland sites. In wet forest areas, white elm gives way to more red oak in association with white ash and white cedar. The most common cover species are hornbeam, sugar maple, hickory, red oak and white ash, the first four on upland sites and the last in wet lowlands. Disturbed areas are invaded by white birch and the aspens, with buckthorn and staghorn sumac on the drier sites, and lilacs around abandoned farm yards. Particular conditions provide for the presence of beech and hemlock in cooler sites, walnut on deeper soils, and some juniper along water edges. Hybrid poplars (Populus deltoides var. Caroliniana) and willows have been planted along roadsides. The third of the District that now has a natural woodland cover has been reduced by agriculture (25% active, 5% abandoned) and urban development (15%). Open water areas account for 10% of the District, and wetlands, mainly on the Cataraqui River, also occupy 10%. The Cataraqui Marsh, located near the mouth of the Cataraqui River, is one of the largest within the Corridor. It is described in detail in the publication on the wetlands of the Rideau Waterway (Hodges, 1981).



## LANDSCAPE 001



Landscape #  
001

The Landscape is characterized by flat limestone and shale plains ending abruptly in steep escarpments at the Ottawa River.

Geo-Env.

The surficial materials are predominately sandy till, alluvial deposits and marine beach deposits. The alluvium is found in the Ottawa and Rideau River plains. The marine beach sands cap a glaciofluvial ridge under the Ottawa airport.

The land-use has altered the drainage patterns extensively in this area, particularly in the urban plain. Approximately 70% of the area is urban, 20% is recreational or open space and a small portion is urban forest.

Botanical

The vegetation is primarily restricted to residential lots, parks, and roadways with sugar Maple, Ash, Elm and Cedar predominating. The small remnant portion of urban forest along the river bank contains a Jack Pine plantation and dry land species as aspen, sumac and Manitoba maple. There is little other natural succession in this area with almost every tree having been planted rather than taking root naturally.

Significant Features

- Rideau Falls: where the Rideau River drops over the escarpment into the Ottawa river near Ottawa city hall.
- Dows Lake: a once treacherous cedar swamp now drowned during the formation of the canalway through the (now) Ottawa city area.
- Flight Locks: a series of eight locks lifting from the Ottawa River to gain the top of the escarpment at the commencement of the waterway in Ottawa.
- Hogs Back: an arched set of limestone bedrock layers which has been split open, and through which the Rideau River flows. There the canalway is held artificially well above the bed of the river.
- Champlain Sea deposits: a deposit of marine sands which have subsequently been reworked by the Rideau River, and by man in the construction of Ottawa Uplands Airport. Located west of the airport, the deposits have been extensively exploited.

Landscape  
002

The landscape is mostly urban-agricultural in nature.

Geo-Env.

The terrain is interesting since it includes the only drumlin field in the area. The drumlin form is quite subdued, however, due to the effect of the Champlain Sea washing over them as the glaciers withdrew and the ground surface reappeared.

Surrounding the drumlins is a marine-clay plain, left from Champlain Sea sedimentation.

The hills are well drained; however, the clay plain tend to be imperfectly or poorly drained.

Hay and grain crops predominate in this area. Assorted uses, such as utilities and residential, occupy a major portion of the area with a lesser use being woodland.

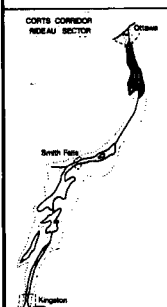
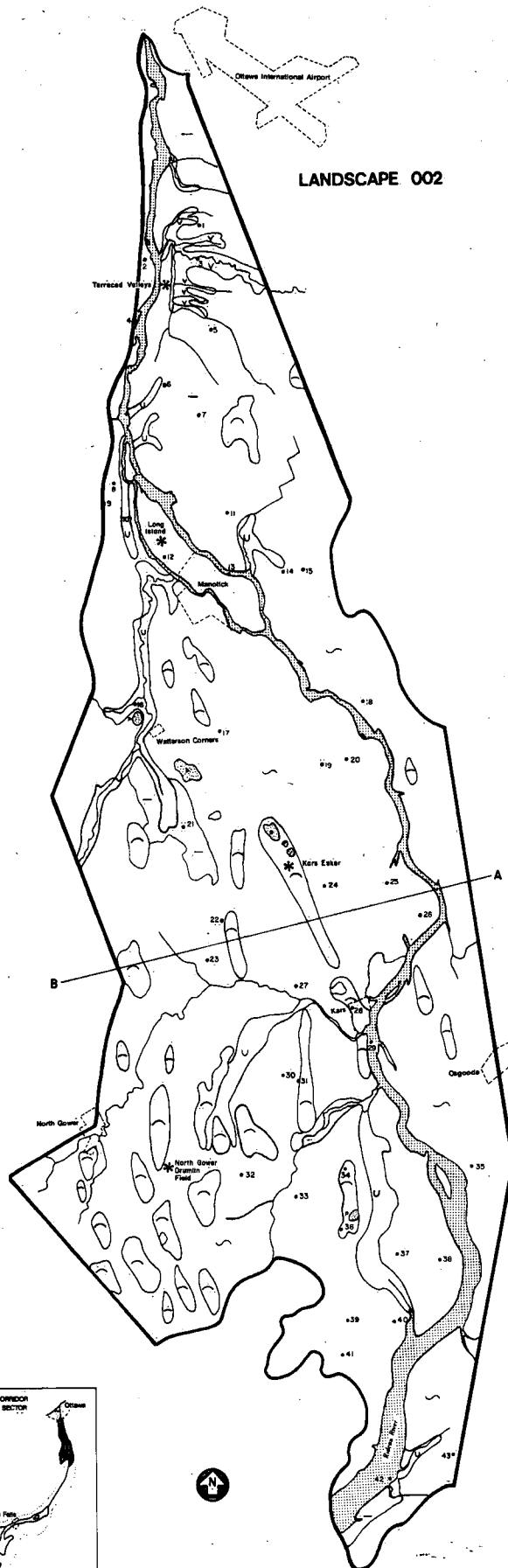
Botantical

The Landscape contains numerous small woodlots interspersed throughout the agricultural areas, mainly on wet, depressional sites, or thin soils. The natural vegetation is dominated by red maple, basswood and poplar on the drier sites, with white cedar, white birch, ironwood, and hawthorne being most common. On shallow soils, and abandoned farm land, white cedar is both dominant and most common. As sites grow wetter, the ashes dominate while white cedar and alder, willow, and dogwood shrubs are most common. Larch, once predominant on these wet soils, is now restricted to boggy areas and marsh edges.

Generally, the successional stage for the drier sites is at about stage 7, with species such as beech, hemlock, hickory, white pine and sugar maple only becoming present. Many historically wet sites have been drained, moving them from wetland stage 8 to a more mesic stage 2. Remaining wetlands are generally fluvial marshes along the Rideau shoreline.

The Kars marsh is a fluvial marsh formed along the shoreline of Cranberry Creek just short of its outflow to the Rideau River. The marsh of cattail, sedge, and submergents hugs both shorelines with a solid, abrupt frontal edge. The marsh acts mainly as a good waterfowl migration resting spot, and as a buffer between the stream and the adjacent crop-lands.

# LANDSCAPE 002



Significant Features:

- Kars esker: a winding glacial deposit roughly paralleling the western shoreline of the Rideau from Kars to Manotick.
- North Gower drumlin field: a group of subdued drumlins (drawn-out glacial hills) from Kars to North Gower.
- Long Island: a long island dividing the Rideau River into two channels. Now mostly covered by the town of Manotick, with the dam and historic mill-site on the west branch, and the locks on the east branch.
- Terraced valleys of the streams leading into the Rideau: these stream banks have slumped, due to their heavy clay make-up, into a series of terraces. The terraces are emphasized by the trails of the local dairy cattle using the sloping shelves to get down to water.

Landscape  
003

The terrain varies little in this Landscape. The basic pattern of the area is flat to undulating with thin till over Ordovician limestone.

Geo-Env.

The surficial materials are a thin sandy till, with limited pockets of marine sands and clays.

Drainage in the terrain types is usually classed as well drained. Lower areas of thin soils tend to be poorly drained and moist.

Botanical

With the shallower soils, agriculture begins to give way in this Landscape to larger tracts of woodland (30%). Hay crops now occupy 30% of the area, and a further 28% have become abandoned fields. The urban centre of Kemptville and other permanent residential developments occupy another 20%.

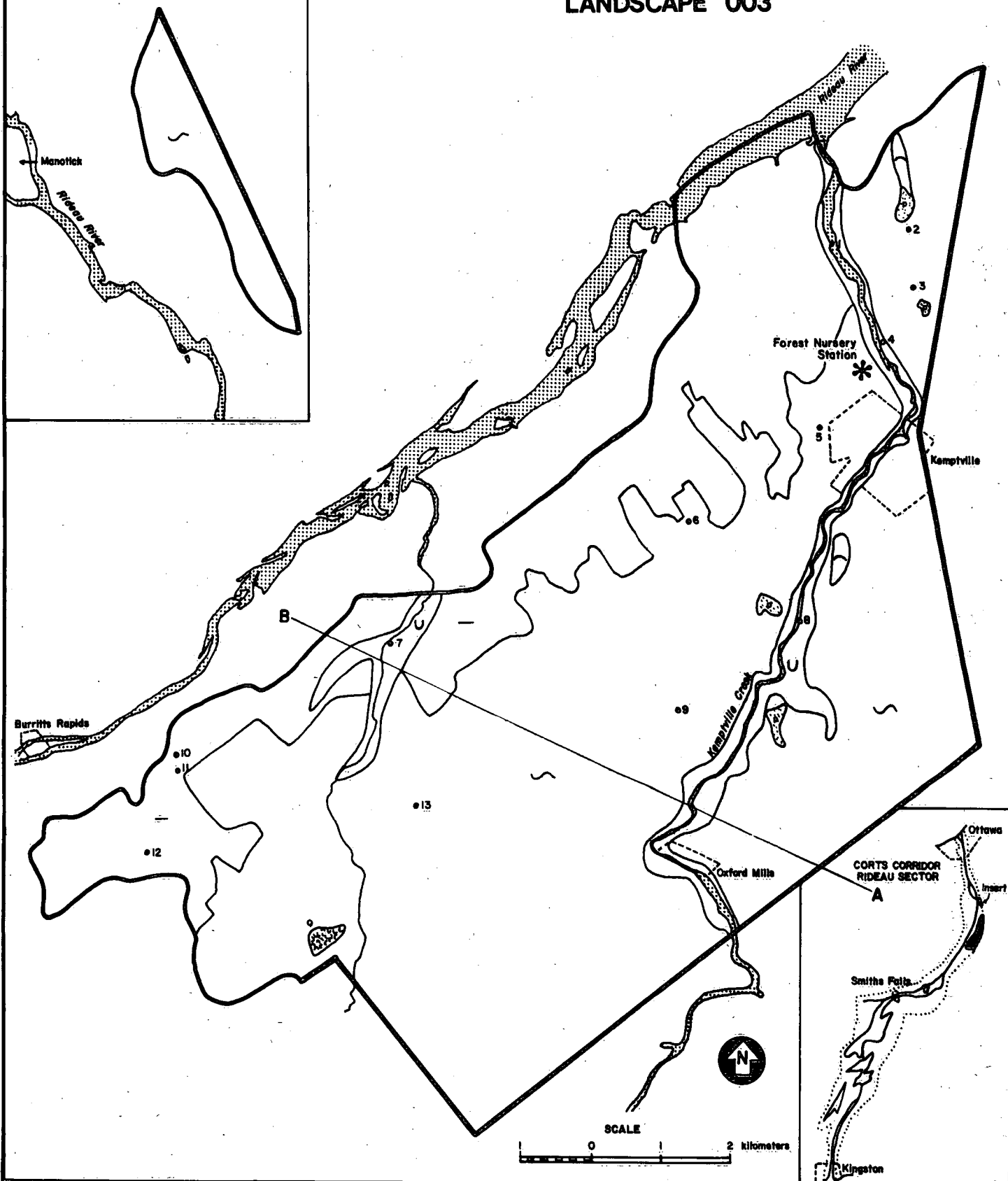
Wooded areas consist of early successional (stage 1) moist-land species, the dominant of which are red ash, balsam poplar and white birch. Other common species are alder, white cedar, and trembling aspen. Generally, the only trees of large size, and those normally associated with a later natural stage of succession, are woodland remnants located within the town of Kemptville, the forest nursery, or the Rideau River Provincial Park where they have received varying degrees of protection.

Significant Features:

- OMNR forest nursery station: this is a large nursery station used to produce reforestation and experimental tree seedlings. Open to the public and educational institutes with guided tours if requested (613-258-3413).
- Kemptville Creek: a major, and navigable, tributary to the Rideau. The western shore from near Kemptville to the Rideau forms the edge of the forest nursery. The creek suffers from a heavy aquatic weed and algae problem due to heavy nutrient inputs upstream from Kemptville. The Kemptville sewage treatment plant is being improved to reduce the nutrient inputs at that point.

INSERT

# LANDSCAPE 003





Landscape #  
004

The terrain is similar to the previous Landscape (003) except for the broad valleys running through the centre.

Geo-Env.

The surficial material is primarily of two types, the sandy, glacial till in the uplands, and the deep marine sands and clays in the valleys.

The large flat plains with thin till have imperfect to poor drainage characteristics. The valleys are well drained along the slopes, but poorly drained in the low flats.

There is a fairly large portion of cropland on the marine deposits (40%) and wooded areas on the thin till (20%). The remainder is taken up by hay fields (20%), abandoned areas, and residential areas.

Botanical

Croplands on the better soils run heavily to corn, and on thinner soils to hay crops. The drier uplands are at about stage 8 with maples and elm, having both dominance and most common occurrence with the occasional appearance of beech, hemlock, and the oaks. The wetter valleys are approaching the mesic stage 7 with ashes and white cedar both dominating and being most common, albeit along with other moist-land species as alder, willow and dogwoods.

Significant Features:

Landscape #  
005

Geo-Env.

This is an area of deeper clay and sand deposits.

Related to Champlain Sea episode, those deposits are marine in origin and follow the low parts of the Rideau River valley.

The clay and sands are mostly well drained with poorly drained low areas.

Land-use is dominantly agriculture. The largest use is as cropland (mainly corn) with significant percentages (35%) of hay and pasture.

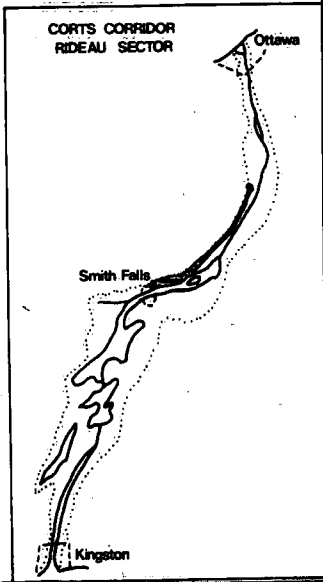
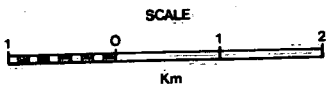
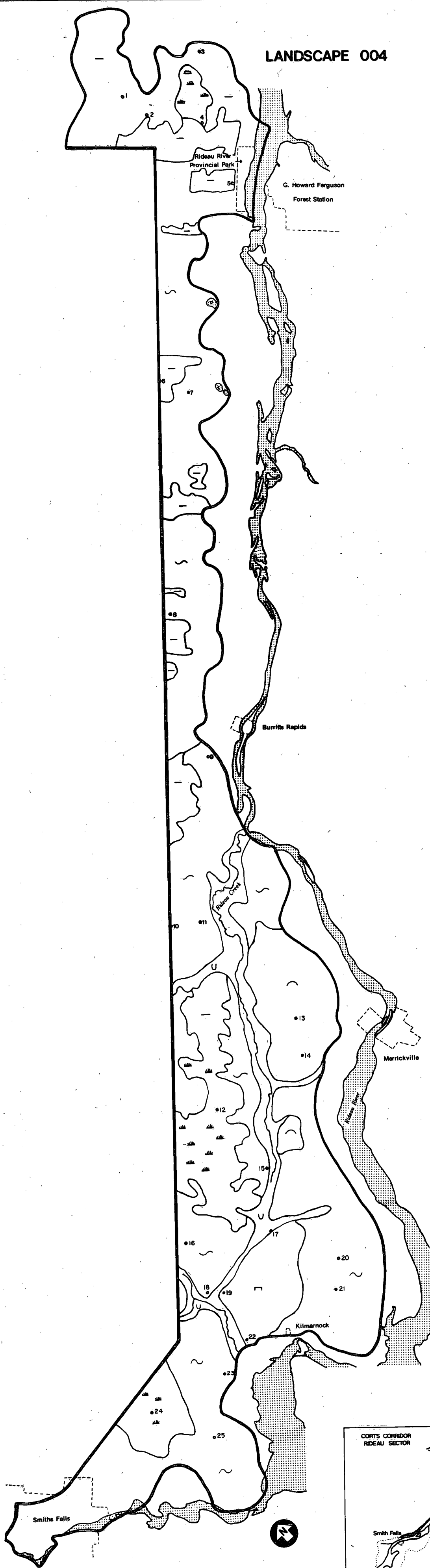
Botanical

With the deeper soils and better drainage of this Landscape, the natural vegetation has been removed in favour of the crops mentioned above. What remains are those species adapted to moist-land forests and wet-land areas. The woodlands, which occupy less than 10% of the Landscape, are dominated by white ash, elm, and balsam poplar, with the latter also being one of the most common species as are white cedar, willow and alder. As a whole, the Landscape has been set-back by man's activities; the agricultural areas to mesic stage 2, and the woodlands to moist-land stage 8.

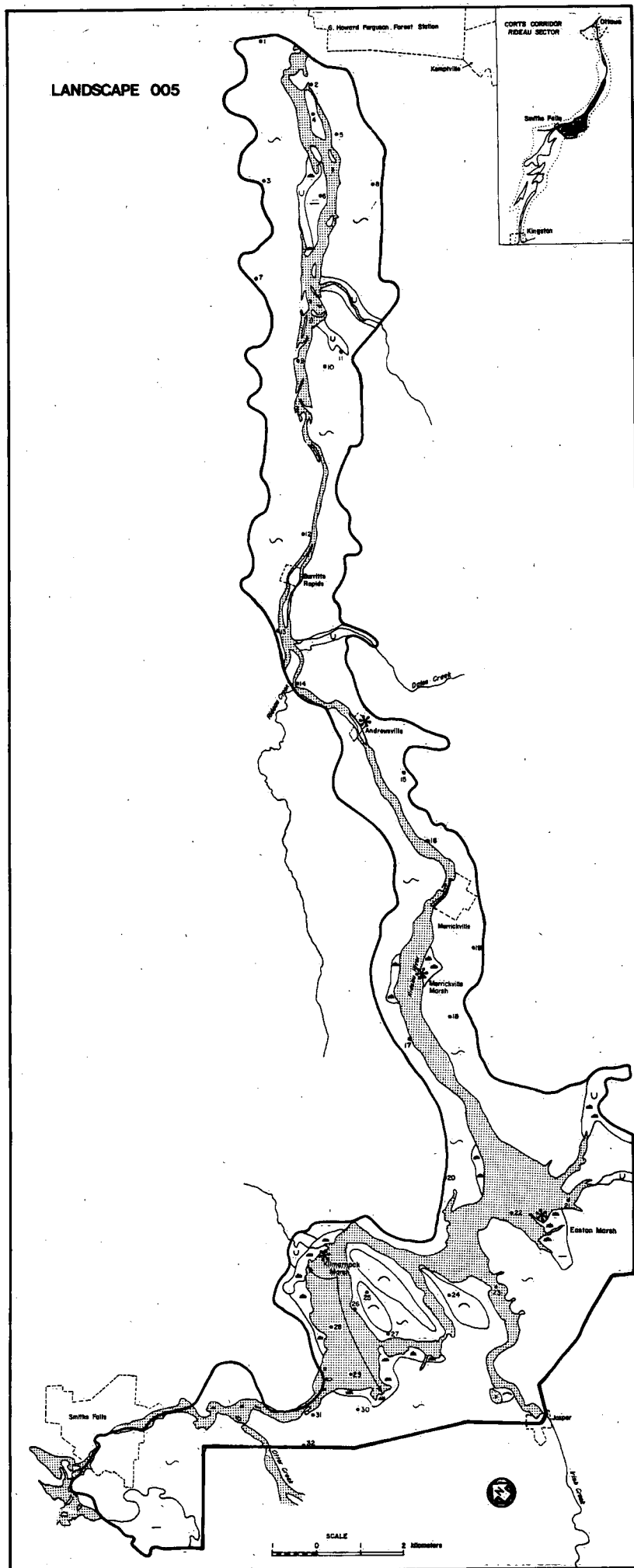
Three major wetlands occur in this Landscape at Merrickville, Easton, and Kilmarnock. The Merrickville marsh, which forms a part of the Merrickville Migratory Bird Sanctuary, is a drowned land area along the eastern shore. The marsh is still building with cattails, sedges, willow, and floating and submergent plants. Few migratory birds summer or breed here; however, the area is heavily populated (upwards of 5,000 at a time) by migrating ducks in the spring and fall.

Easton marsh is a flooded back bay of significant size (400 ac) and considerable diversity. Tight stands of cattail, willow islands, wild rice communities, and submerged aquatic areas are interspersed with open water areas. A number of streams flow into the bottom of the bay, draining upland areas from the south-east. That water flows through the marsh toward the Rideau which flows across the mouth of the bay. Aquatic plants growth is still vigorous and diverse. Access to the marsh is by boat, and only shallow-draft models can operate within the marsh. Limited waterfowl breeding occurs here. Fall migration is heavy, but militated against by considerable hunting pressure.

LANDSCAPE 004



LANDSCAPE 005



Kilmarnock marsh is a typical fluvial marsh of the Rideau. Strung out along each shoreline immediately above the Kilmarnock locks, the marsh is a tight cattail stand, paralleled by a thin band of floating and submerged aquatics. In 1977, Lemna trisulca, Vallisneria, and Myriophyllum spp grew as submergents across the entire river bed. Very poor cover for waterfowl and extensively boat traffic limits the wildfowl use of this marsh.

#### Significant Features

Historic houses: a number of good examples of period housing are located in Merrickville, and along the river roads on either side of the Rideau from Merrickville to Burritts Rapids.

Andrewsville is now one of Ontario's ghost-towns.

Old Sly's woods: a highly diverse wooded area containing more natural species of upland trees than any other location noted along the Waterway. Located on the easterly bank just below Old Sly's lock, the area is in private hands, although Parks Canada had shown an interest in acquiring it. (The woods were clear-cut in 1979, after this survey was completed).

Landscape #  
006

The Limestone plains of this Landscape which are flat to rolling, and overlain by sandy till are characteristic of the Champlain Land District.

Geo-Env.

The surficial deposits are a sandy till referred to as a ground moraine. It is characteristic of an ablation till of unsorted stony materials like sand, gravel and boulders.

The area is well drained due to the porous nature of the surface materials.

There is a large amount of woodland (60%) in the area as well as abandoned fields (10%). Hay fields occupy approximately 20%. Residential development and the Rideau River cover the remainder of the Landscape.

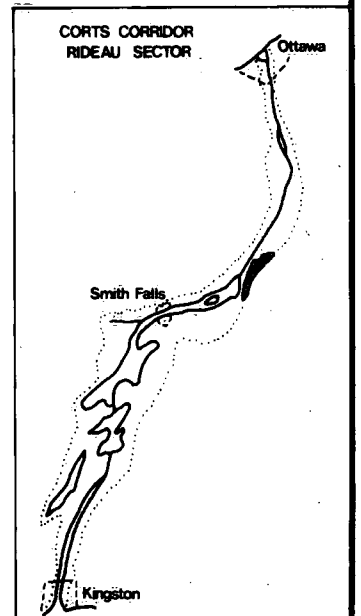
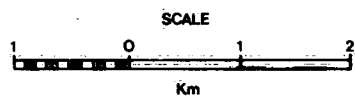
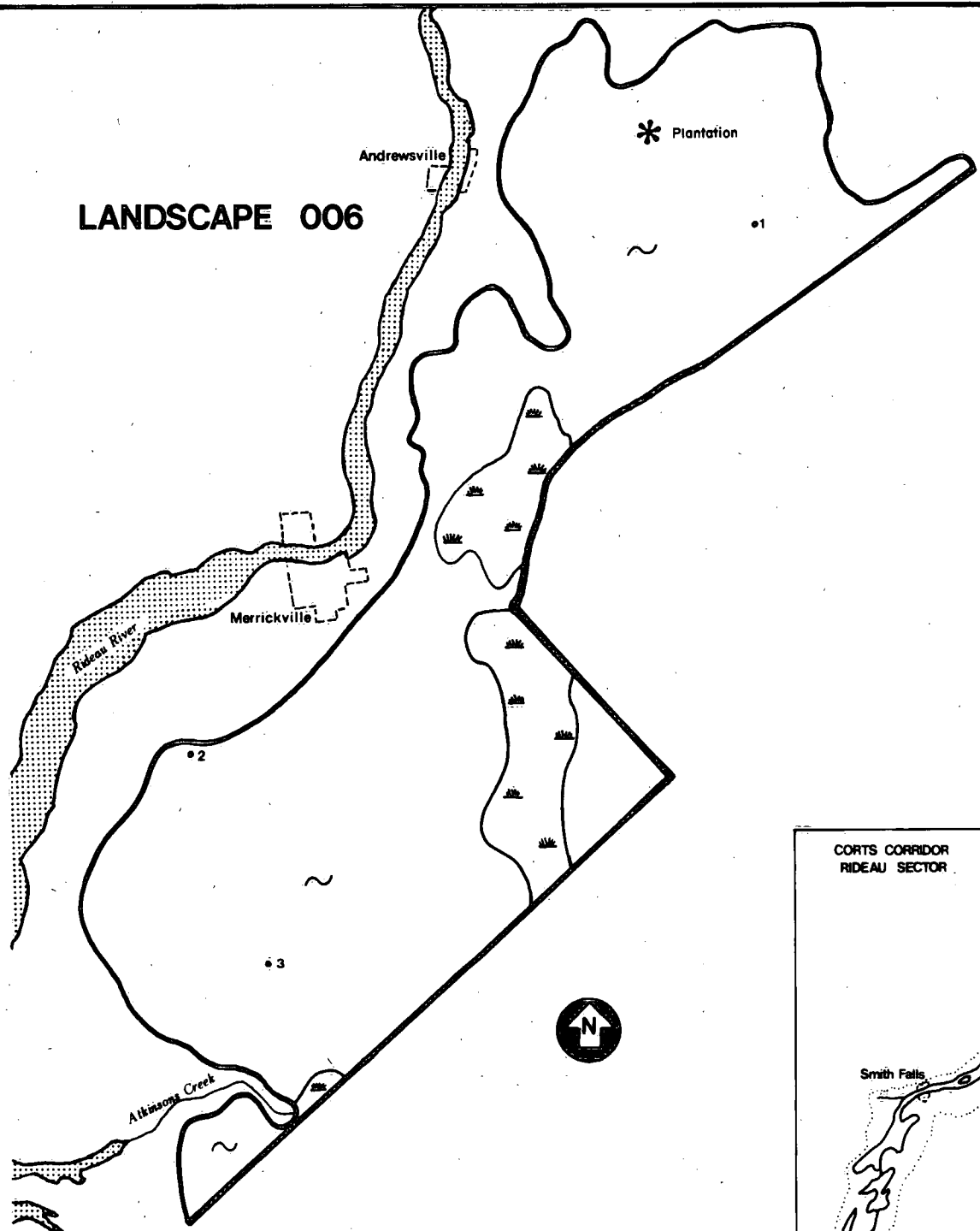
Botanical

As surface materials permit good drainage, the extensive woodlands of this Landscape are dominated by tree species of dry upland characteristic in stage 8, such as sugar maple and the oaks. The most common species there is ironwood, with plantations of jack and red pine on managed forest sites. The moist-land areas have dominants of red ash and blue beech with white cedar common, indicating an middle period near stage 7.

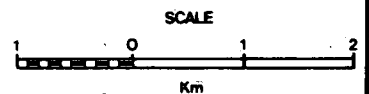
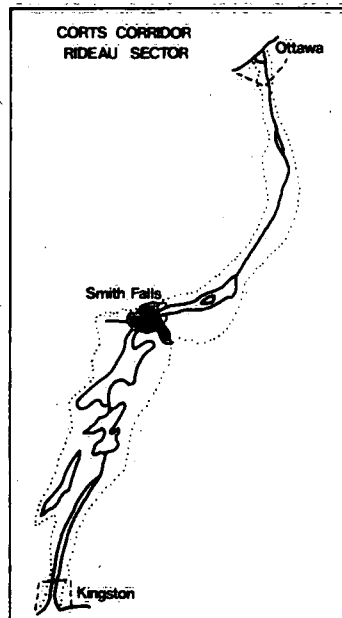
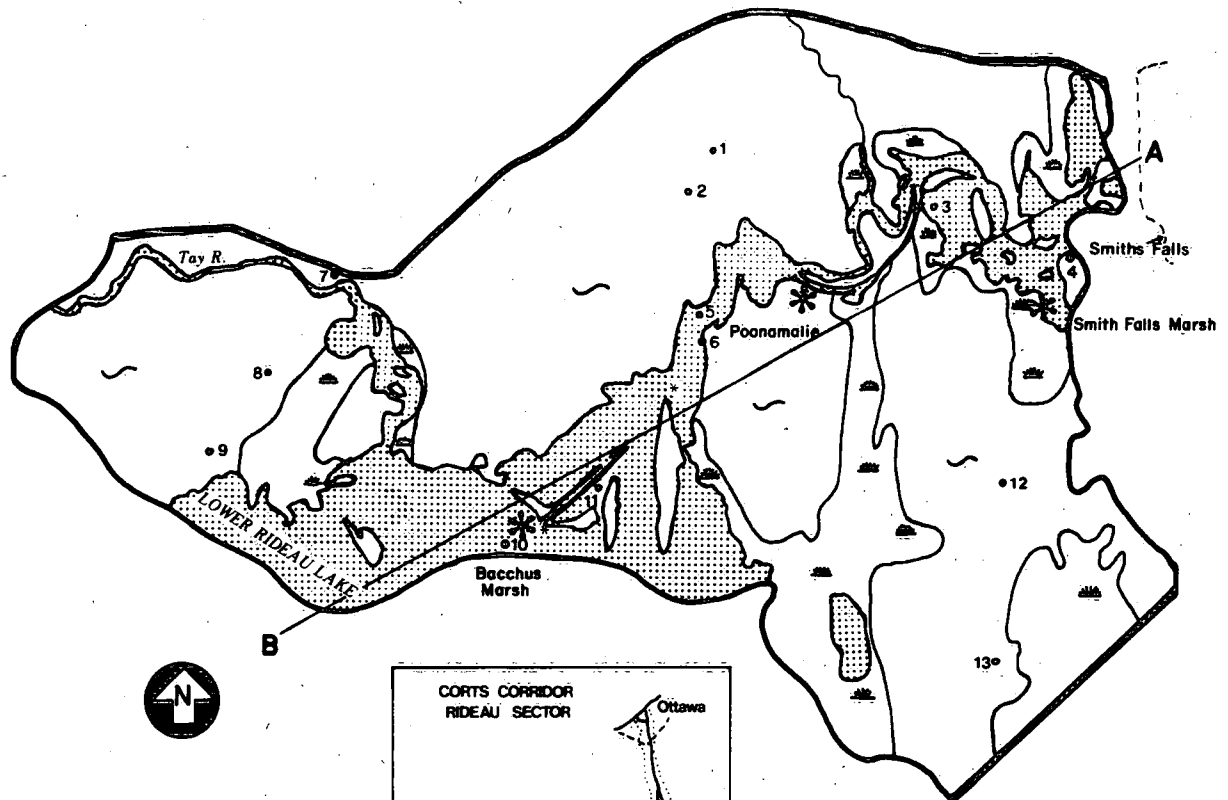
Significant Features

OMNR plantation of thin soil area: on Highway 43, at the Burritts Rapids turn-off, OMNR have a plantation of pine and cedar.

# LANDSCAPE 006



# LANDSCAPE 007





Landscape #  
007

This is a Landscape of undulating plains and wet depressional areas.

Geo-Env.

The landform is a sandstone plain. It is capped by sandy till; there are two subdued drumlin shaped forms in the Bacchus Marsh area.

The drainage is dominated by the poorly-drained low areas, and the well-drained till plains. A portion of Lower Rideau Lake is also in the Landscape.

The well-drained plains are utilized predominantly for pasture and to some extent for hay and crops.

The poorly-drained areas are unusable for agricultural purposes.

Botanical

The wooded areas in this Landscape exist either as small upland farm woodlots, or as large moistland forests on the poorly drained depressional areas. In the former case, red oak, basswood, and sugar maple dominate; sugar maple also becomes a most common species along with red maple and ironwood. Those woodlots tend to be held at a medium to late stage 9 in succession through management practices. Where the latter condition prevails, the ashes dominate and associate with silver maple as most common species as the site gets wetter. Those sites are tending toward a more mesic transition at about moist-land stage 6.

The Smiths Falls marsh is a drowned lowland adjacent to the Rideau waterway. Once a depressional area drained by Lousy Creek, back-flooding for navigation in the adjacent canalway has drowned the back vegetation allowing a tight cattail area to develop. Closer to the canalway, flooding and dredging created new submerged habitat which is still developing. Cattail growths surround the area, and exist as island areas throughout. Extensive wild rice areas are being invaded by cattail, and without deliberate management the rice may disappear by the mid-1980's. A large muskrat population exists in the marsh, keeping back some of the cattail growth. The marsh is generally protected from the canalway by intermediate islands and a

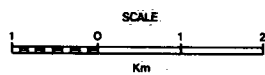
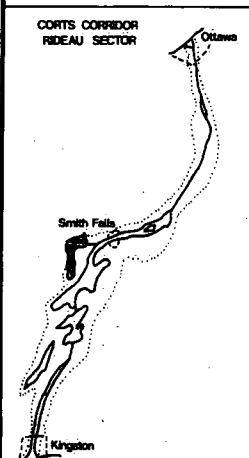
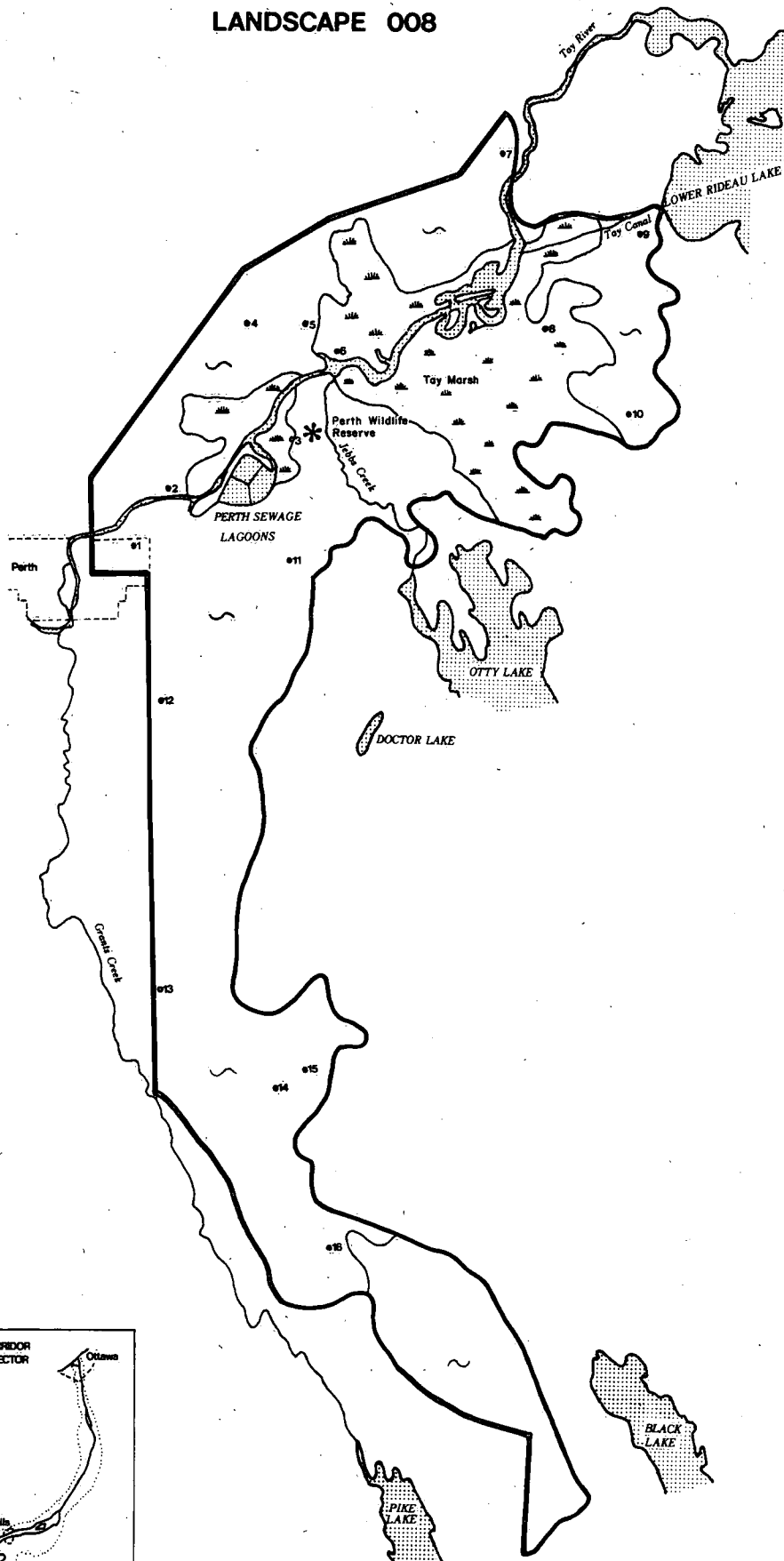
levee paralleling the navigational canal. Although few ducks breed here, there are good populations of bittern, green and blue heron and the ubiquitous blackbird. Owned by Parks Canada, there is good hope for this marsh's continued existence through a wetland management program.

#### Significant Features

Eastern white cedar at Poonamolie Lock: the upstream navigational channel leading to Poonamolie lock is flanked by a pleasing stand of white cedar. They stand on a form of levee, above the canal on one side, and a cedar-dominated depressional area on the other.

Osprey nest: upstream of Poonamolie, ospreys have nested on a hydro pole for many years. The birds are often seen fishing the Smiths Falls marsh.

# LANDSCAPE 008



Landscape #  
008

This Landscape borders the northwestern side of the corridor, running from the Tay Marsh southwest to Pike Lake.

Geo-Env.

The topography ranges from rolling in the south end to undulating in the north, with a large depressional area east of Perth (the Tay Marsh).

The surficial materials are predominately sandy till. The deposits are deeper in this area than in Landscapes 004 to 007.

Drainage varies from 'well' in the rolling to undulating area to 'poor' in the flat depressional areas.

Land-use is predominately cereal crops and pasture on the till plains, with small woodlots. The flat depressional area is too poorly drained to be suited to agriculture. Some parts of it are densely wooded.

Botanical

In this predominately agricultural Landscape upland species exist almost entirely in urban settings or in hedge rows between fields. Most upland species can be found there, but none in significant amount. In the depressional area, the large Tay Marsh is surrounded by tree species characteristic of the wetter soils. White cedar dominates and is a most common species. So, too, does larch wherever wetter conditions allow. Willow and dogwood are common accompanying the tree species down to the high-water level where the cattail marsh begins.

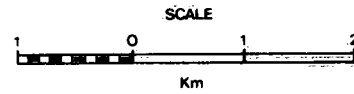
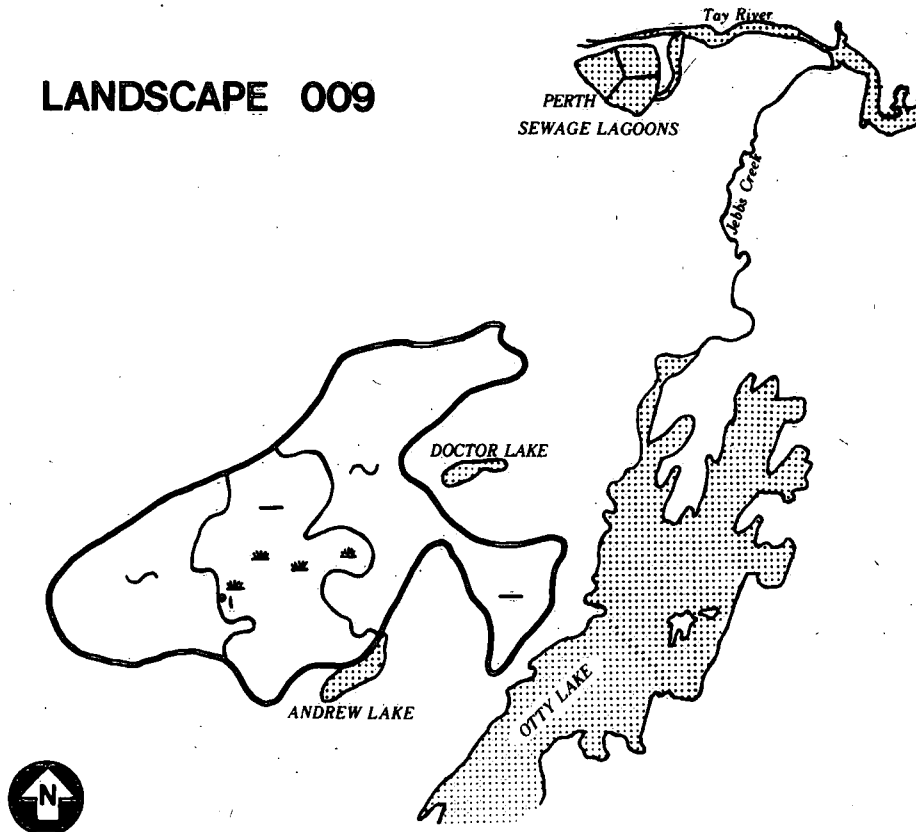
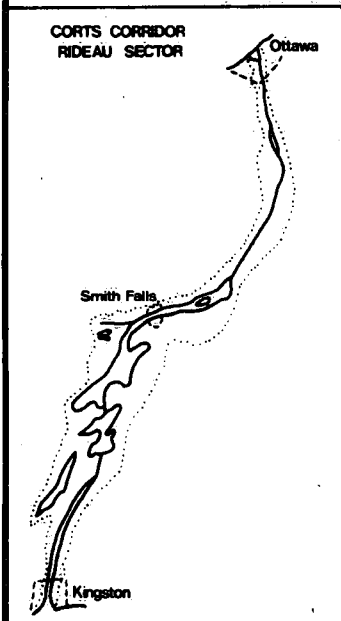
The Tay Marsh is a product of the combination of a natural depression and the damming required for navigation on the Tay Canal bisecting it. Covering almost 1,000 acres, the marsh has been highly productive of such wetland species as muskrat, bullfrogs (OMNR 1977) and the smaller marsh birds. The existing density of the cattail stands precludes any significant amount of waterfowl breeding. Recent water-level management practices have been thought instrumental in the large reduction in the muskrat and bullfrog populations (RVCA 1977). Before extensive management practices can be undertaken on this marsh to return to its biological potential, the problem of ownership

must be solved. Parks Canada is investigating this with cooperation from the RVCA and CWS. It is expected that once that is resolved, those agencies along with OMNR will form a management agreement for the total marsh. Meanwhile, the marsh is still an attractive sight for users of the Tay canal from Beveridges lock to Perth, and a useful adjunct to the existing Perth Wildlife Reserve situated near the upstream end of the marsh.

**Significant Features:**

Perth Wildlife Reserve: located south of Perth on Regional Road #1 to Lombardy, this Reserve is owned and managed by the RVCA. The area is still under development with a captive Canada goose flock, numerous transient wild birds, and an attractive crop and shrub planting program.

# LANDSCAPE 009



Landscape #  
009

This Landscape rests on the transition line from the Champlain District to the Frontenac District.

Geo-Env.

The topography ranges from flat to rolling, with rock knob exposures in the rolling areas.

The surficial material is the same over most of the area, a thin cover of sandy till.

The area is well drained over 50% of its area and poorly drained over the lower 50%.

The land-use has more wooded areas in the poorly drained areas. A wide, central portion of the low area is limited in use due to the poor drainage.

Botanical

The upland transitional areas are relatively far along in successional terms compared to other Landscapes, and beech and hemlock are in modest association. Nevertheless, the area is somewhat back of any climax position, at stage 9, still dominated by sugar maple, basswood and balsam fir (within the rock outcrops) which tend also to be most common. The wetter sites have associations of white cedar and larch as expected of undisturbed sites.

Landscape #  
010

The terrain ranges from flat areas along the NE to the knobby rolling plains on the SW side.

Geo-Env.

The surficial deposits include some ice-contact stratified drift and ground moraine

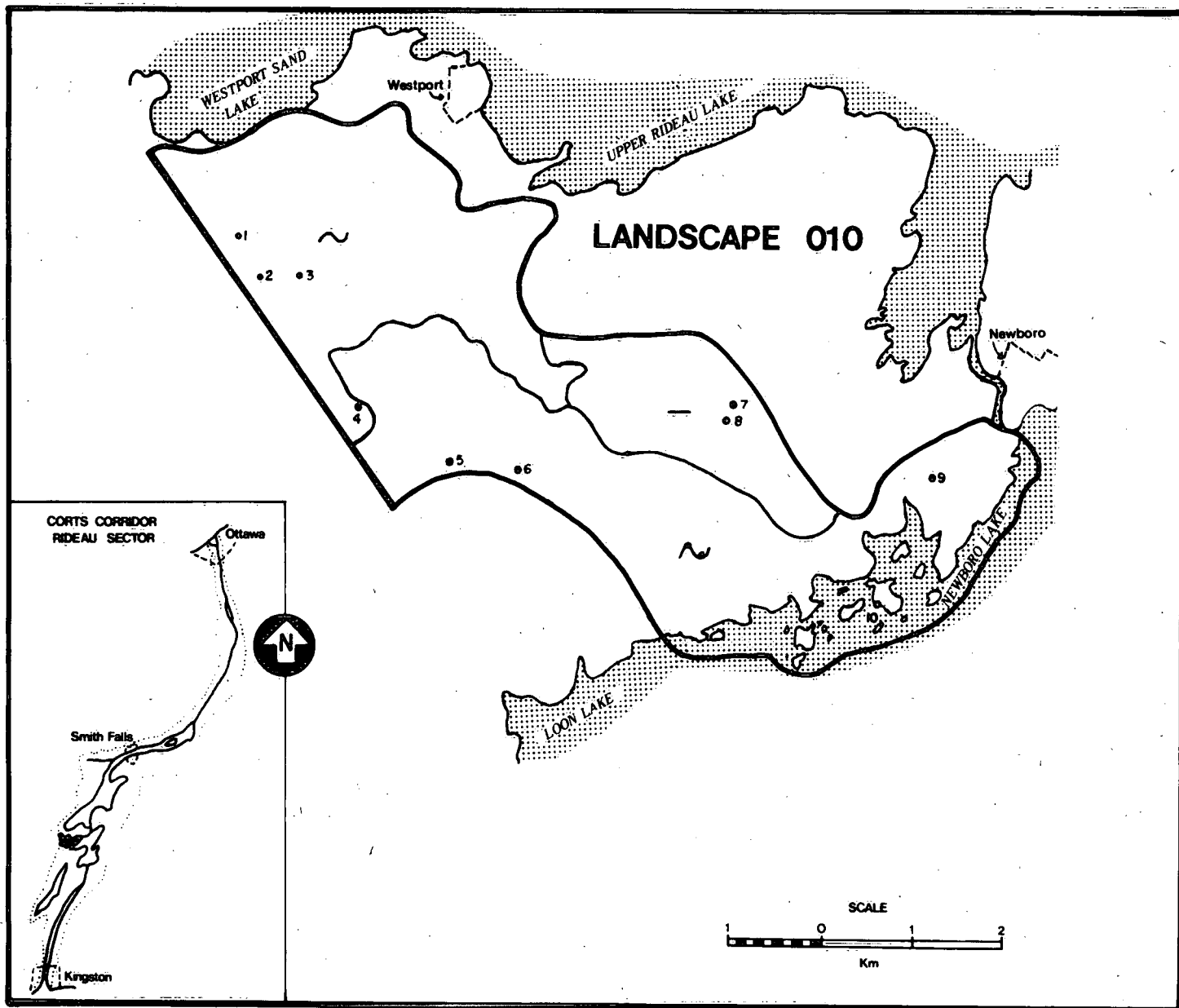
The area is well drained, with a few limited depressional areas showing poor drainage, and some imperfectly drained clays.

Land-use is predominately rural, with hay and pasture prevalent, and some cropland. The south end borders along Loon and Newboro lakes, with shoreline wet areas. Wooded areas are limited and small in this Landscape, making up less than 10% of the area. In the few wooded areas, the dominant species are white elm and sugar maple. The common species are ash, cherry and silver maple, indicative of moist to wet conditions. The silver maple is often the result of association with beaver ponds. In some locations, that has gone too far resulting in the dying-off of the silver maple, and creation of open-water ponds, or dead-tree swamps. Those areas, therefore, have been moved backward in sequence quite extensively from about moist-land stage 5 to open pond stage 2.

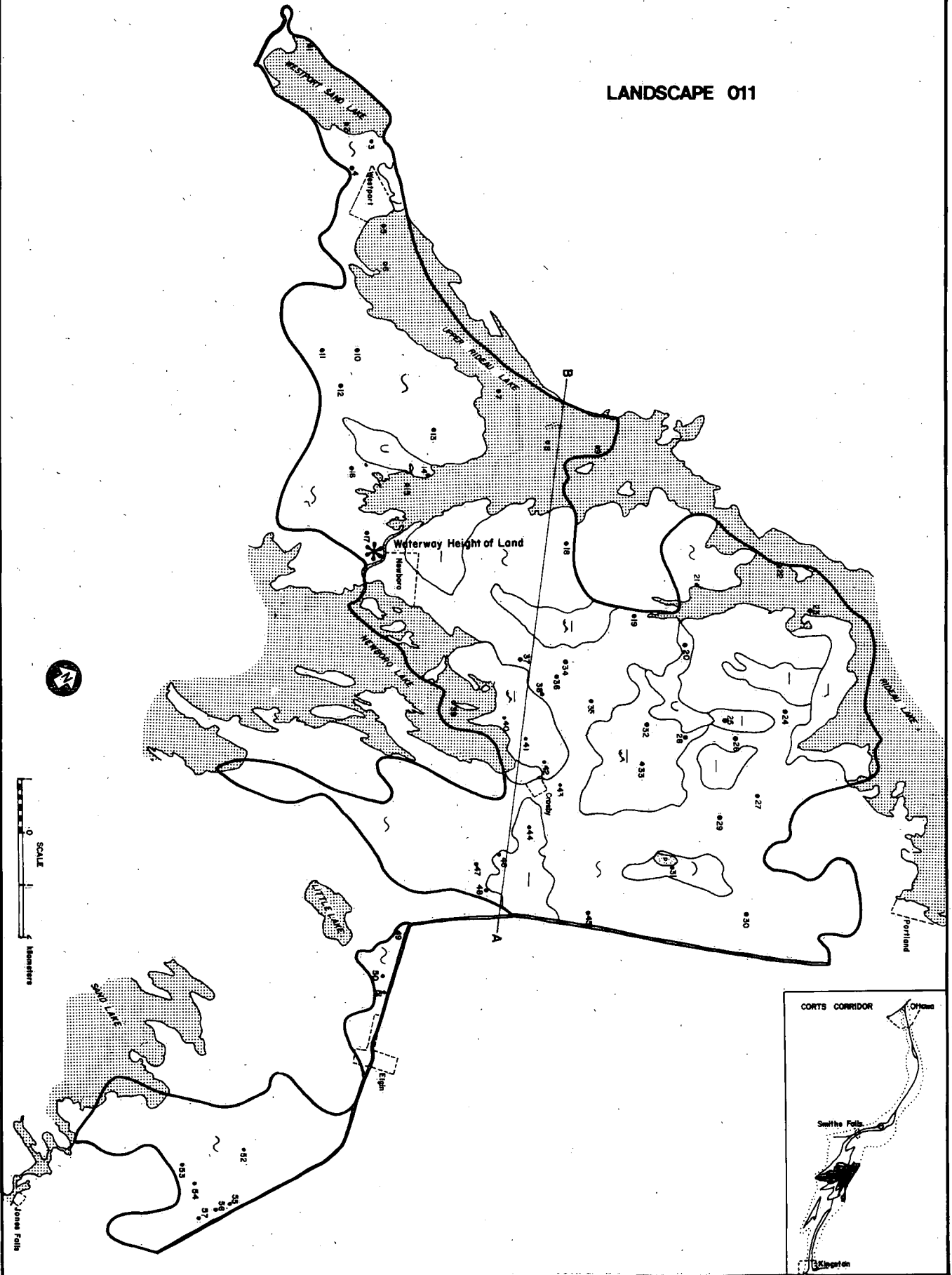
Significant Features

Red cedar replacement: it is along the old Perth Road to Kingston, some 10 km south of Westport, that red cedar (Juniperus virginiana), which has slowly decreased northward from Kingston, is totally replaced in the vegetational community by white cedar (Thuja occidentalis).





# LANDSCAPE 011



Landscape #  
011

This Landscape makes up the major portion of an arm of the Champlain District which cuts through the Frontenac axis.

Geo-ENV.

The terrain ranges from flat to rolling plains, with an occasional hill.

The terrain reflects the bedrock geology of the area, which is Ordovician sandstone (flat lying).

The surficial materials are mostly ground moraine, and limited deposits of clay with some ice-contact stratified drift.

Botanical

Land-use in the Landscape is 50% agricultural, half in crops and half in pasture. An additional 10% appear to be abandoned fields. Woodlands are sparse and generally confined to the rugged uplands and depressed areas unsuitable for clearing for agriculture. The uplands are typical hardwood areas in stage 8, dominated by elm and sugar maple, with those two and white pine being most common while associated with ironwood, red maple and red cedar in lesser numbers. The stream edges and depressed areas are near stage 5, dominated by silver maple and the ashes with elm common on mesic sites, and white cedar or willow more common as sites become more moist.

Significant Features

Newboro shoreline: height of land: the isthmus at Newboro is the height of land for the canal. Here, an artificial channel was created to join the Rideau and Cataraqui river systems.

Landscape #  
012

The terrain types are predominately rolling or knobby-rolling plains, with flat low-lying areas.

Geo-Env.

The Landscape parallels the eastern boundary of the Rideau Corridor.

The surficial deposits are mostly ground moraine, organic deposits and small pockets of clay.

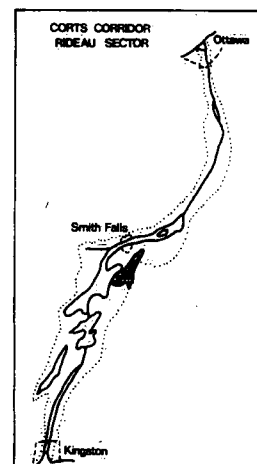
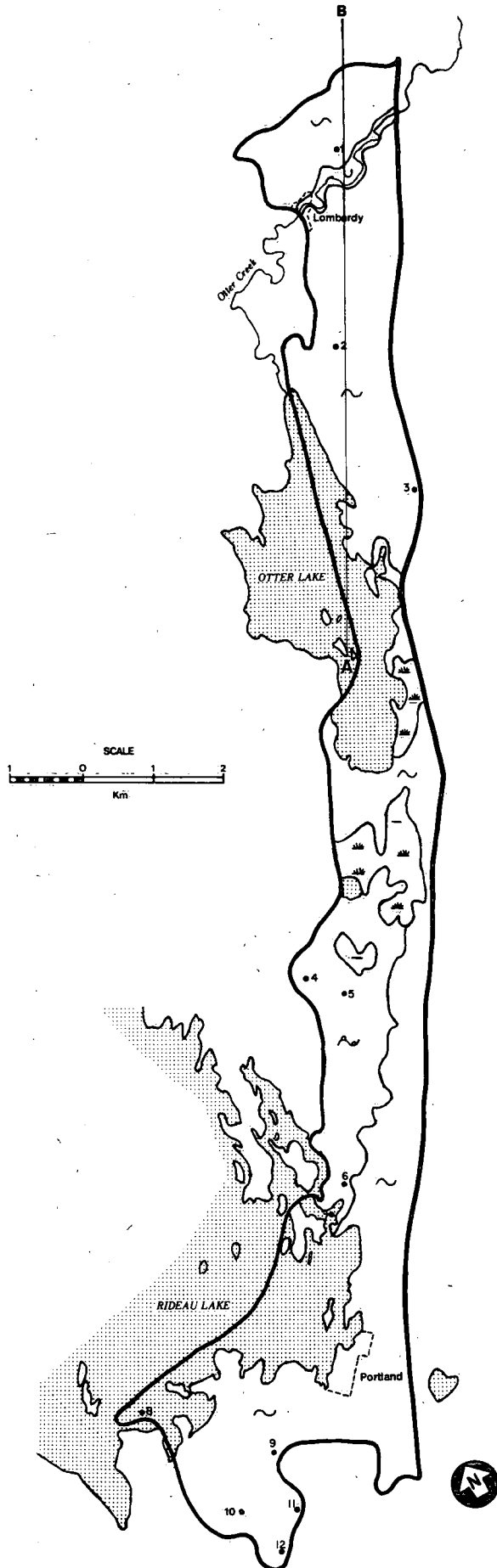
The uplands areas are well to rapidly drained; however, where there are extensive stretches of organic materials drainage ranges down to poor.

The land-use is predominately wooded and wetlands, with some areas, mainly along the east, of hay and corn.

Botanical

The wooded areas of this Landscape are quite large, covering 60% of the area. The dominant trees include white pine, yellow birch, hickory and basswood. The most common are red maple, white ash and ironwood. That combination of vegetation reflects the trend to dry-site conditions which exist in the knobby-plain terrain. The presence of white pine dominants suggests the vegetation of this Landscape has remained undisturbed for some time, and has probably reached stage 9.

# LANDSCAPE 012



Landscape #  
113

The Landscape is located over the transition between the Champlain District and the Frontenac District.

Geo-Env.

The eastern side overlies Ordovician sandstones, while the western edge overlies the edge of the Precambrian metamorphic rocks.

The terrain is almost all rolling plain, with flat plains along the shoreline areas. The Landscape includes several lakes, thus it is 30% lake and 70% land area.

The surficial deposits are ground moraine and clay with organic deposits to a limited extent.

The land is well drained except for the shoreline flats which are poorly drained.

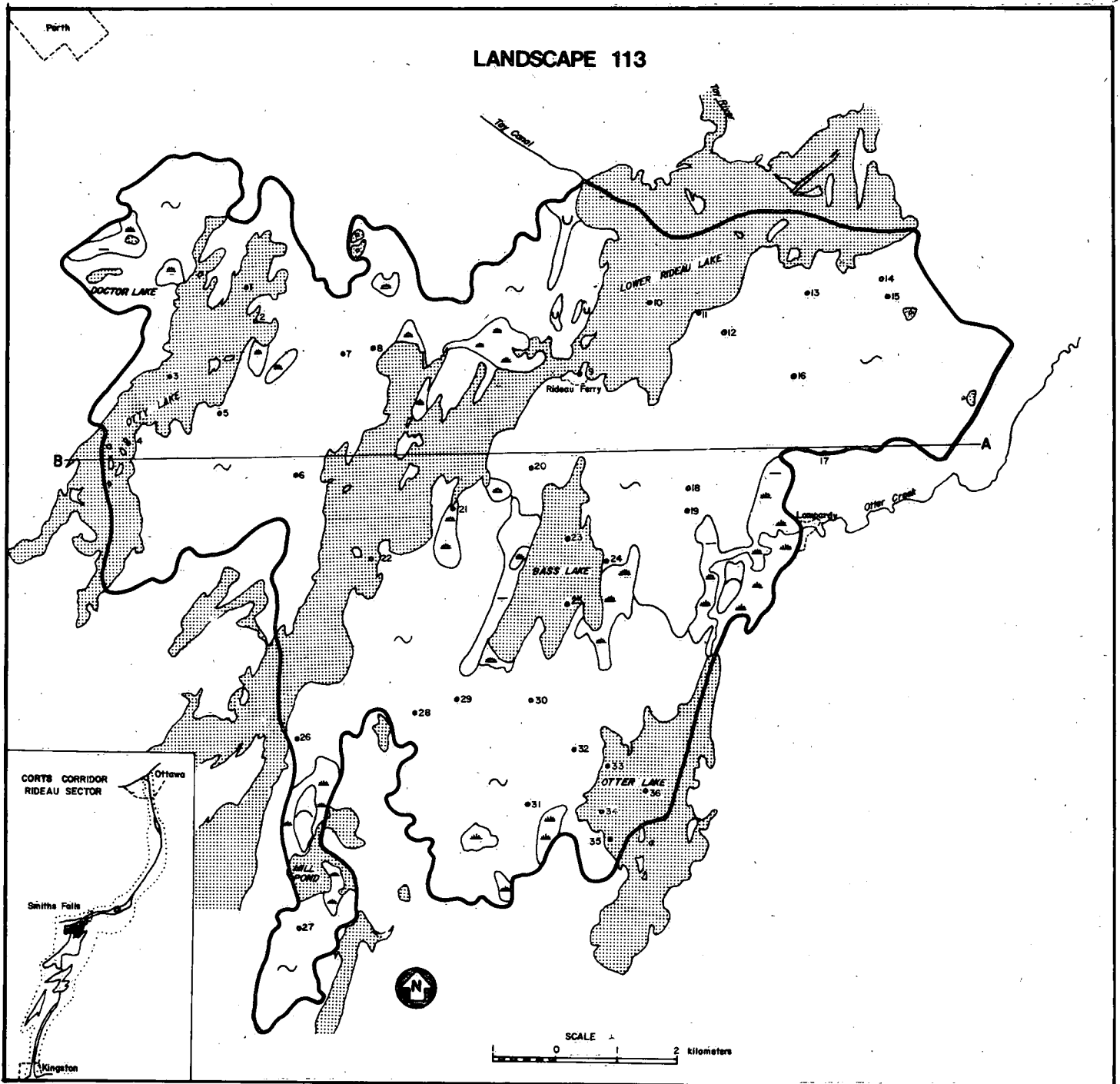
The land-use is mostly hay and pasture in the north half, with an increasing number of wooded areas in the southern portions.

Botanical

Although predominately a rural-agricultural area the Landscape is extensively wooded, more so in the south end. The dominant trees of the uplands to the west are sugar maple, white elm, white pine and basswood. Those are characteristic of well drained sites. The common vegetation is ironwood, sugar maple, and white pine. Very dry sites begin to carry shrub juniper and oak species in restricted locations. Also present in smaller numbers are beech, hickory and basswood of significant size, suggesting those woodlands are near a dry stage 2.

To the eastern end, moister area vegetation is expressed by white ash dominating, with white cedar being most common. Silver maple, blue beech, and paper birch suggest that those sites are passing out of the earlier stages into approximately stage 7.

LANDSCAPE 113



Landscape #  
114

The terrain is complex in this Landscape. There are extensive areas of knobby plain, narrow valleys, depressional areas, nob-and-ridge areas, and lakes.

Geo-Env.

Surficial deposits are entirely ground moraine with organic materials in depressions.

The area is underlain by metamorphic gneiss and crystalline limestone bedrock.

Drainage is well to rapid in the uplands, and poor in the depressions.

Land-use is mostly wooded or lake area. A limited amount of abandoned agricultural land is also evident and some pasture land.

Botanical

Almost all of the land area of this Landscape is wooded, the remainder abandoned fields. The dominant vegetation is made up from white pine, sugar maple, large tooth aspen, white cedar and beech. The most common are junipers, sugar maple, ironwood, white pine, white birch. The dry site types are becoming increasingly most frequent on the Landscape, corresponding to the rugged upland terrain.

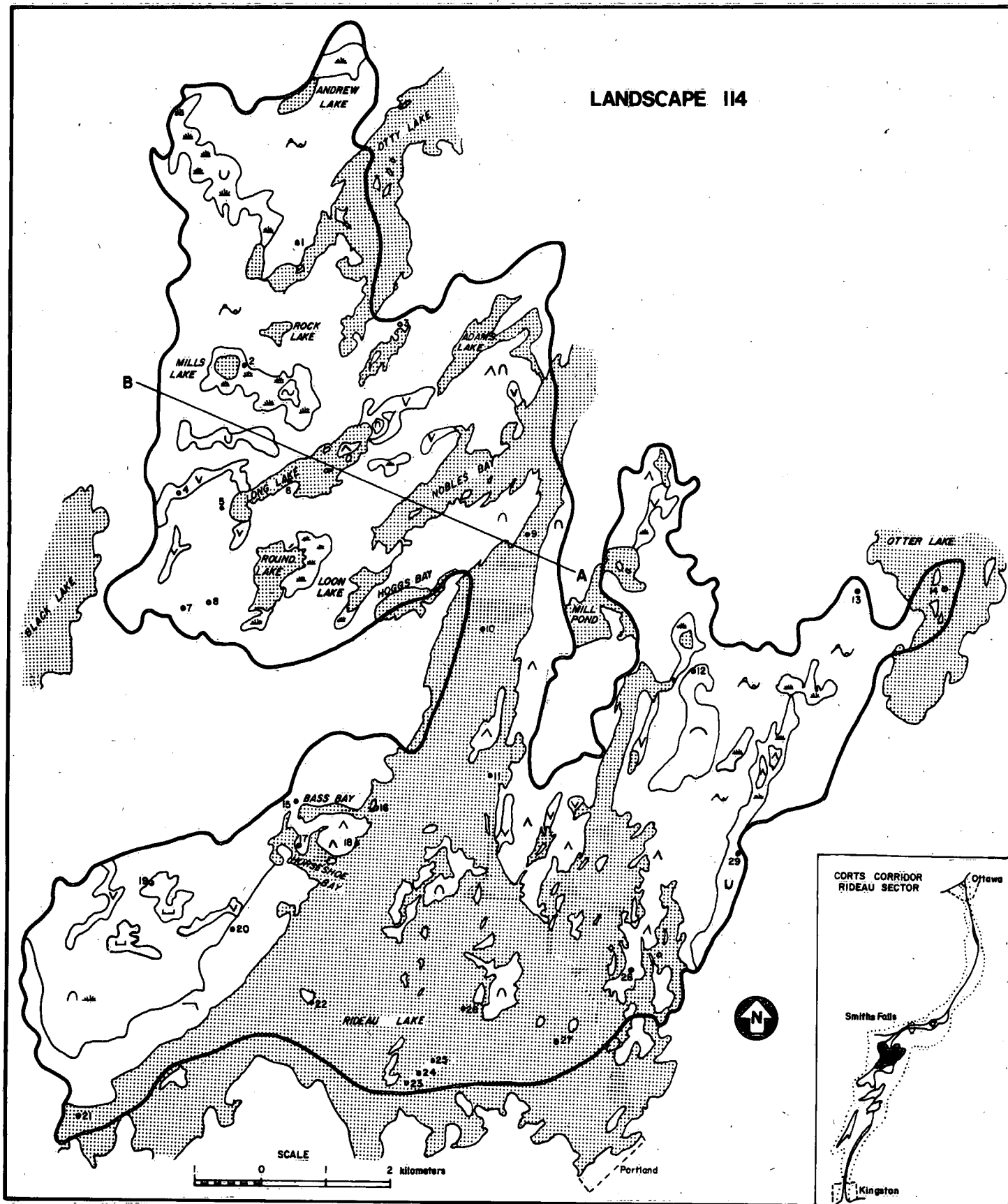
The upland vegetation is well along in succession (stage 9) with white pine becoming a major dominant species, and beech moving from a less common species to one of dominance in the Landscape. That is contrasted sharply along woodland and shoreline edges where there is a preponderance of white birch, young basswood, and white ash dominated by an early stage species, big-tooth aspen. That may suggest these zones are being subjected to harsher environmental factors delaying, or constantly returning, the zone to an early stage 6. Any development creating an edge-effect here might well set back the existing woodland to a similar early stage.

Significant Features

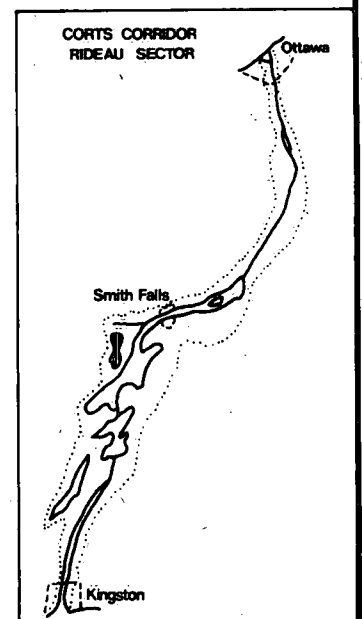
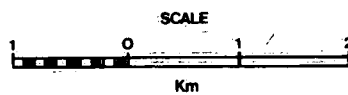
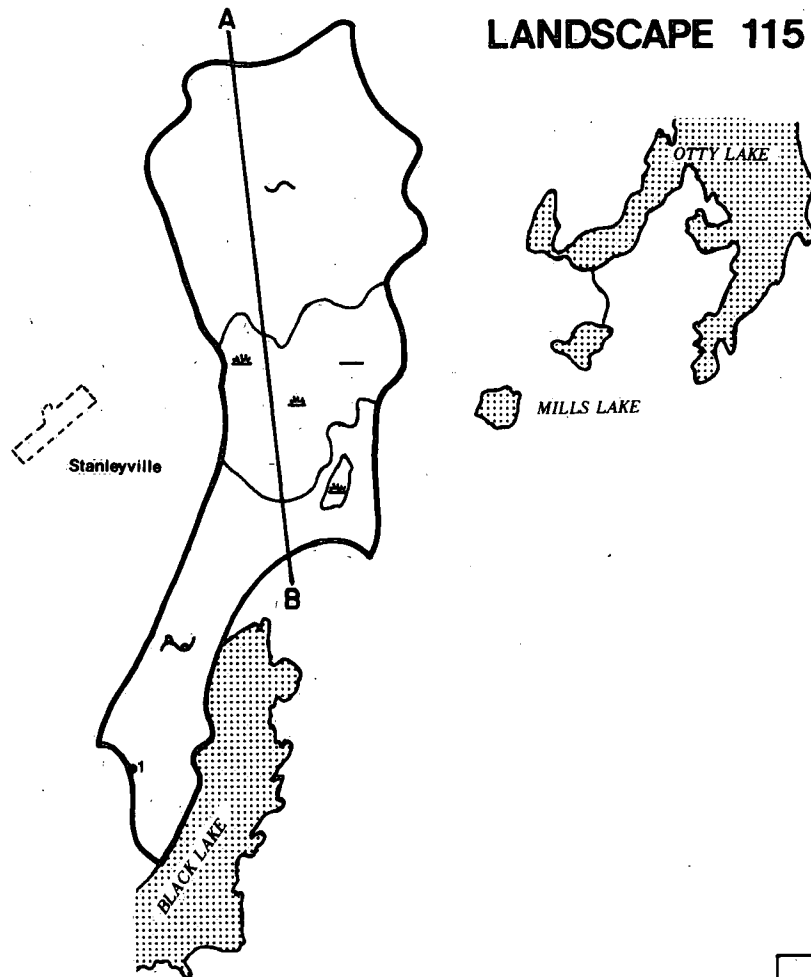
Murphy's Point Provincial Park: located within the park are a number of mica mines. The park is presently under development, but limited facilities are available.



LANDSCAPE 114



# LANDSCAPE 115



Landscape #  
115

The terrain is quite uniform in this Landscape, ranging from rolling plain in the north to a flat central area and rolling plain to the south.

Geo-Env.

The area is underlain by Ordovician sandstones.

The surficial materials are mostly ground moraine, with a large organic deposit in the central area.

The drainage characteristics reflect the local soil materials, well-drained sandy materials, and poorly-drained areas with organic materials.

The land-use varies from hay and pasture in the north to wetland areas in the central portion and woodland to the south.

Botanical

The wooded areas are fairly extensive, covering 60% of the land area. Balsam poplar, white elm and sugar maple are dominant with sugar maple, red maple, white pine and willow common. The poplars are common in the regenerating abandoned fields often found around the rocky areas.

The moister sites are at about stage 7, with white elm dominating while white ash and white cedar are commonly associated. As conditions get more moist, shrub willow becomes more common.

Landscape #  
116

This is predominately a rolling uplands area, with extensive areas of outcrop. Internally, there are broad flat areas.

Geo-Env.

The Landscape is almost all underlain by a massive syenite formation (Wilson, 1930).

The surficial materials are limited to thin ground moraine and organic deposits.

The land is rapidly to well-drained in the rock areas and poorly drained in the central flats.

Most of the land is wooded or wetland with a small portion of abandoned agricultural areas.

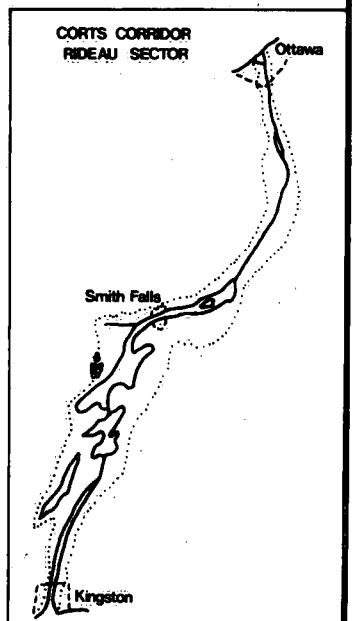
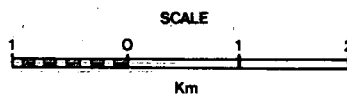
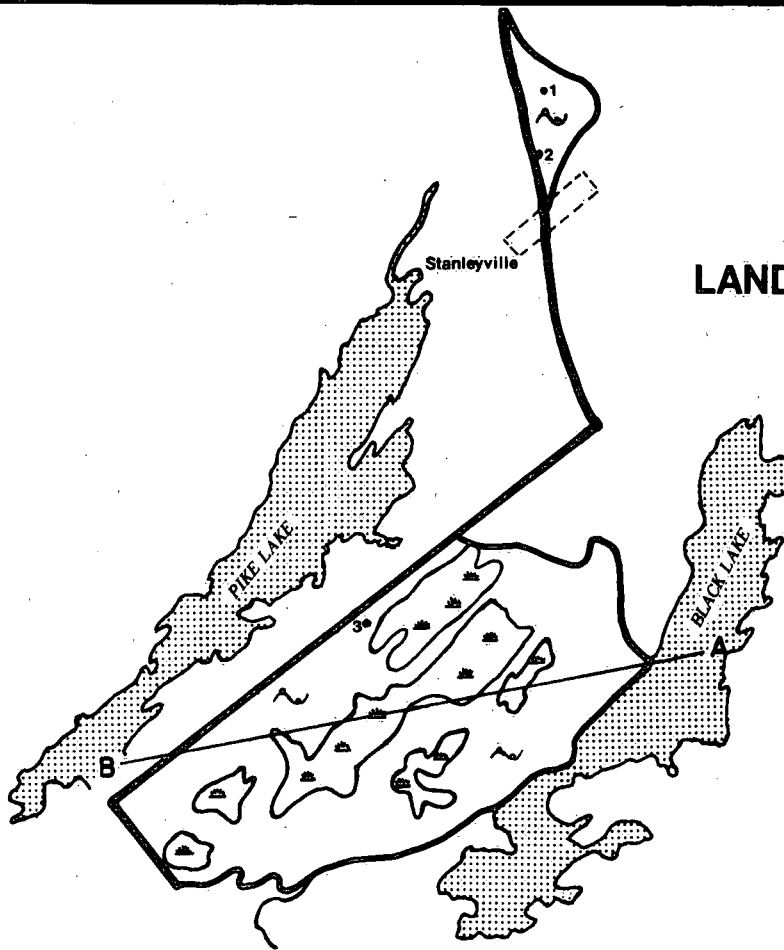
Botanical

The Landscape is covered by wood or wetland, with the majority of the area being wooded. The dominant vegetation is generally of a dry upland type; that is, sugar maple, white pine, white birch, large-tooth aspen and red oak. The common vegetation includes ironwood, white birch, white pine and sugar maple.

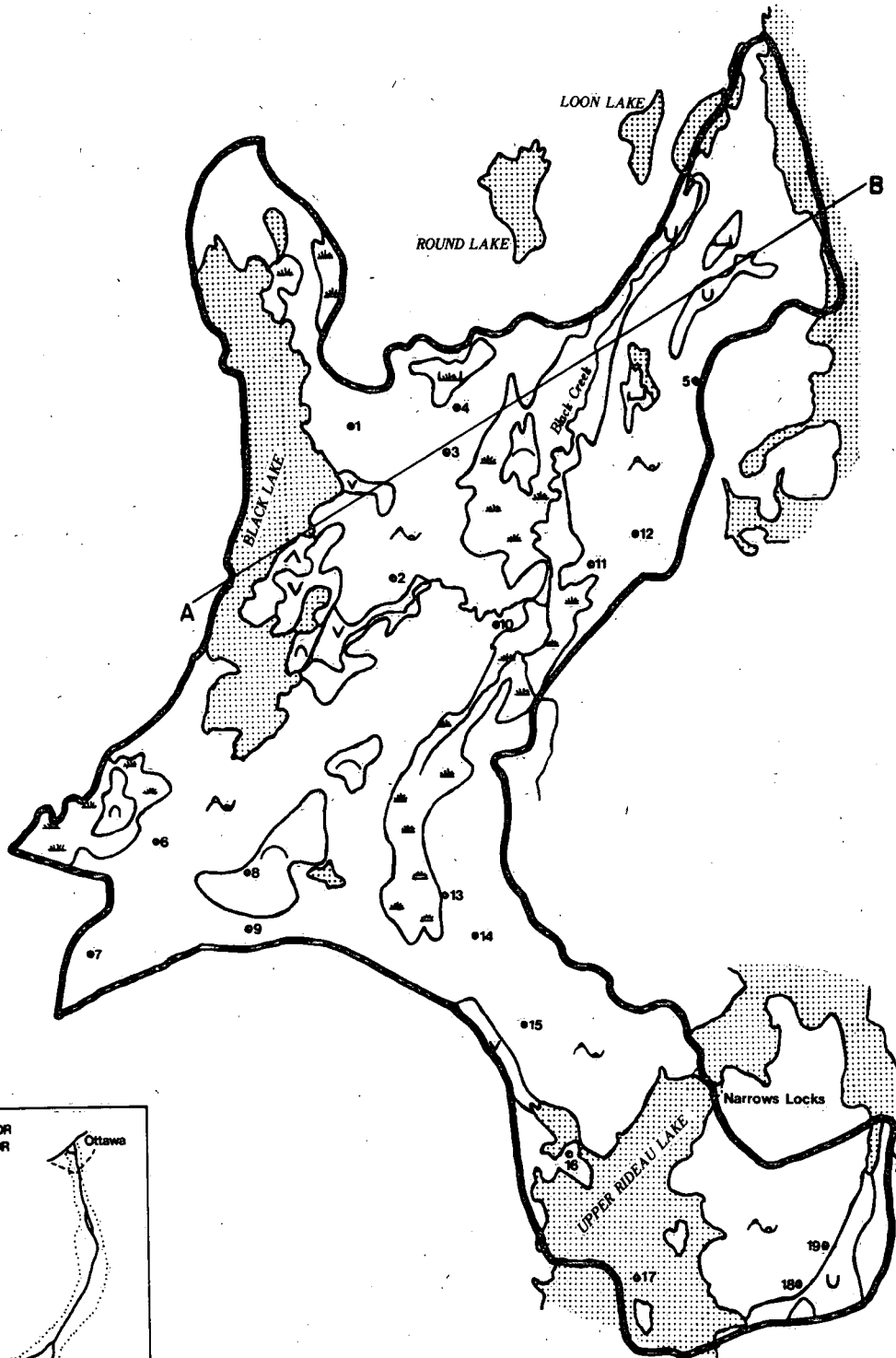
The general forest cover appears to have passed beyond stage 8, while on drier, exposed sites there are shrub meadows of sumac, oak, and ground juniper typical of stage 5.

In the inter-ridge areas, where moisture collects, white birch dominates and red oak is often associated at about stage 7.

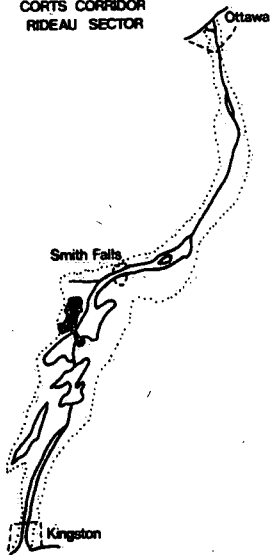
# LANDSCAPE 116



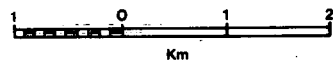
# LANDSCAPE 117



CORTS CORRIDOR  
RIDEAU SECTOR



SCALE



Landscape #

117

The Landscape contains very rugged terrain types, predominately rock knob-and-ridge, steep valleys and steep-sided, wide depressions.

Geo-Env.

The bedrock is predominately syenite, and crystalline limestone.

Overlying the bedrock is a very thin mantle of ground moraine, and organic deposits in the depressions.

The drainage characteristics range from rapid on the rock areas to poor in the depressions.

Most of the area is wooded, some abandoned farms are found, but to a limited extent.

Botanical

The wooded parts of the Landscape are quite extensive. Dominant tree types on the uplands are basswood, white elm, white oak and jack pine. The most common trees are ironwood, jack pine and basswood. The knob areas tend to be quite dry and barren with most of the vegetation in the intervening moist areas.

The rapidly-drained, dry uplands still exist as shrub meadows of sumac and ground juniper within later stages of woodland (stage 7-8). Progress through time will be very slow in that area due to slow soil accumulation. Relatedly, any development will greatly affect the area, setting it back significantly. The wetter depressions have deeper, albeit highly organic, soils supporting white elms, white cedar, and the ashes as stage 7. Those are more resilient in that recovery after disturbance would be more rapid.

Landscape #  
118

The Landscape terrain is predominately rolling plain with rock knobs, steep bluffs and large depressional areas.

The Landscape takes in a large area of syenite bedrock.

Geo-Env.

It is capped with a thin mantle of ground moraine in most areas and with organic deposits in depressional zones.

The plain area has extensive exposed bedrock expanses and is rapidly drained. The depressional areas are almost always poorly drained.

Land-use is predominately wooded or wetland with a few abandoned farms included.

Botanical

In the extensive wooded areas the dominant tree types on the uplands are red oak, white elm, white oak, basswood and sugar maple with some beech appearing (stage 8-9). Although the areas are extensive, there is a lot of rock outcrop which tends to be quite barren and dry. The vegetation there is quite scattered. The most common tree types are ironwood, red oak, beech, rock elm and white cedar.

The wetter depressional areas contain white cedar, white ash and dogwood at about stage 7.

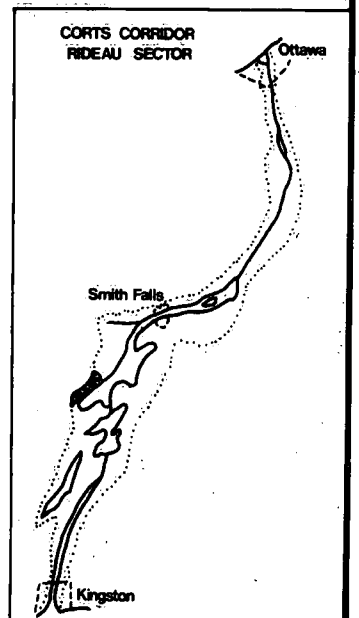
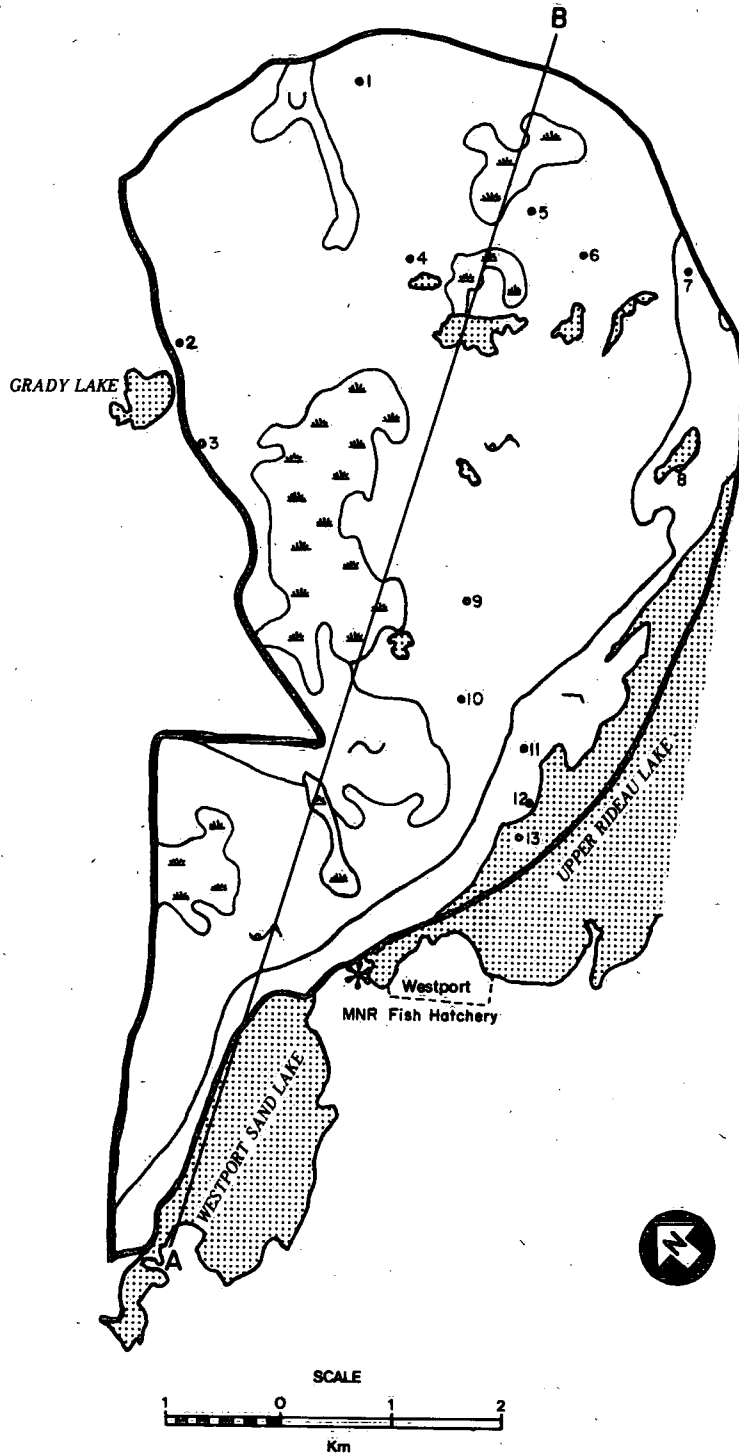
Significant Features

Foley Mountain Bluffs: located north-east of Westport along the shore of Rideau Lake, the pink rock bluffs rise abruptly out of the water to form the highest point in the area.

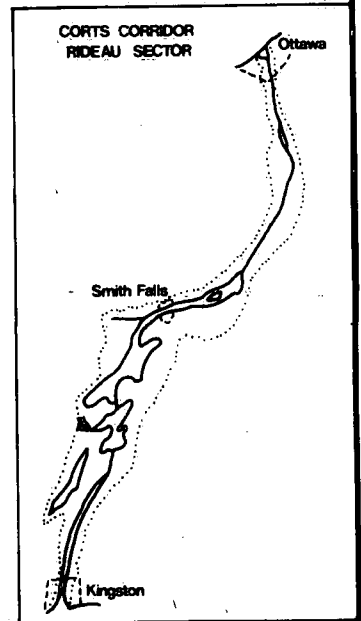
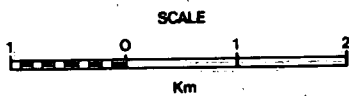
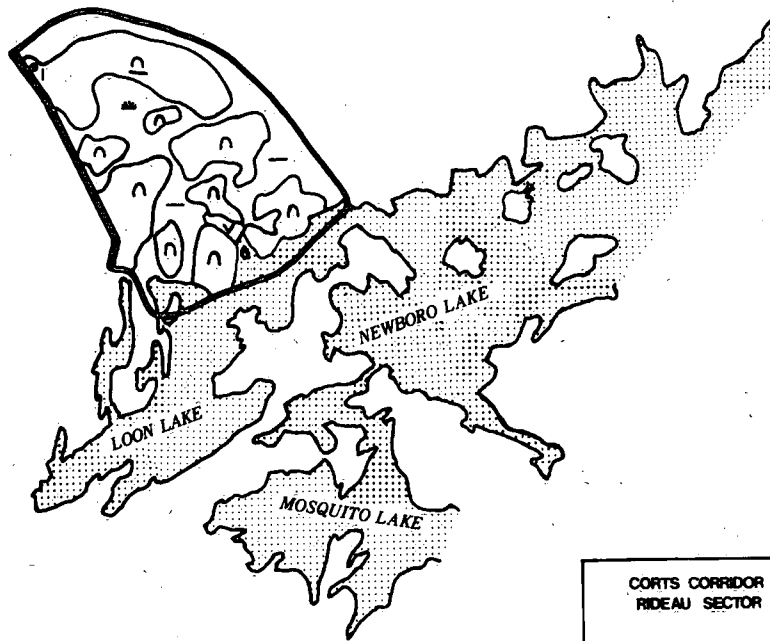
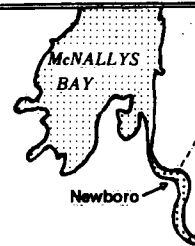
Westport Fish Hatchery: run by OMNR, the hatchery provides a large percentage of the fingerlings of trout, whitefish, etc., used to stock Ontario's sport-fishing waters.



# LANDSCAPE 118



# LANDSCAPE 119



Landscape #  
119

This is a Landscape of large rock knobs and flat interknob areas.

Geo-Env.

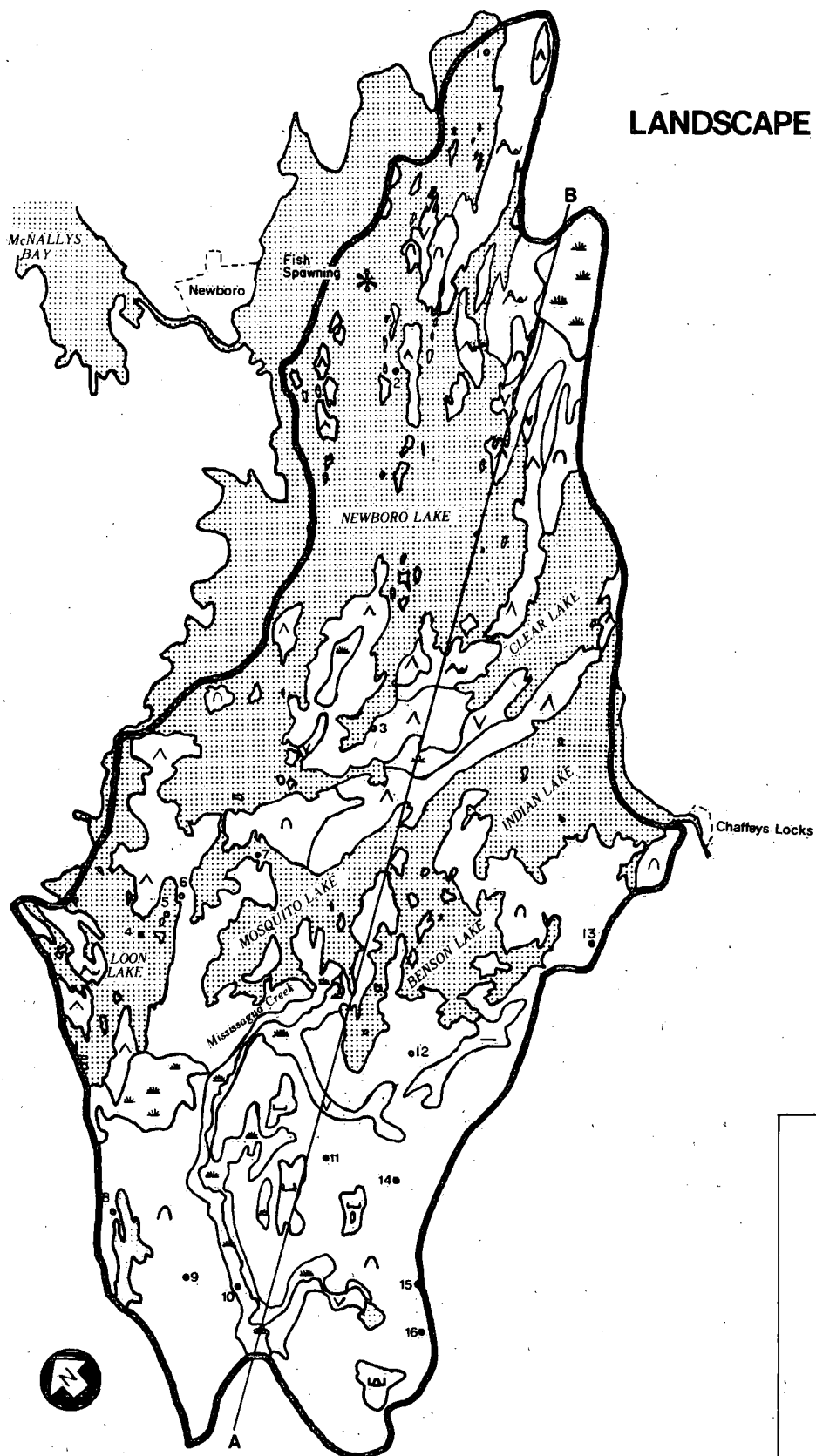
The knobs are predominately covered with a patchy blanket of ground moraine. The interknob areas have organic materials on sandy and silty clay.

Drainage is either rapid to well on the knobs to poor in the flats.

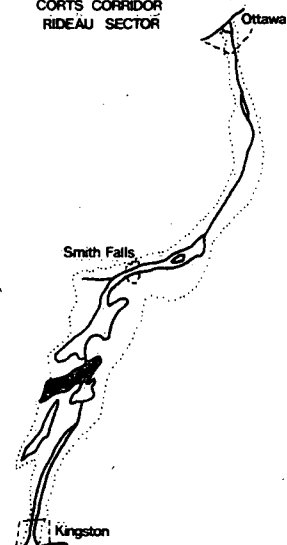
Botanical

The Landscape is extensively wooded with openings occurring as exposed bedrock in the dry knob areas, and as agricultural fields. The dry knobs contain mostly oak, ground juniper and white pine where soil depth permits. Mesic sites are at about stage 8 with white pine dominating and basswood and white oak being common. The depressional areas retain much of the run-off of the higher knob areas, and remain quite wet. There, the elms dominate with the common species being silver maple, dogwood, and white ash, forming communities at about wet-stage 6.

# LANDSCAPE 120



CORTS CORRIDOR  
RIDEAU SECTOR



Landscape #  
120

The terrain of Landscape 120 is almost entirely steep, rock ridges and knobs, long, narrow valleys, and lakes.

The surficial materials are entirely composed of thin ground moraine over bedrock.

Geo-Env.

The bedrock geology is dominated by metamorphic gneiss and schist. Those rocks are extensively folded and are mostly biotite-garnet-hornblend gneiss.

Drainage characteristics are either rapidly drained on the rock areas, or poorly drained in the valleys and depressions.

Almost all of the land area is wood or wetlands, with a limited amount of abandoned pasture.

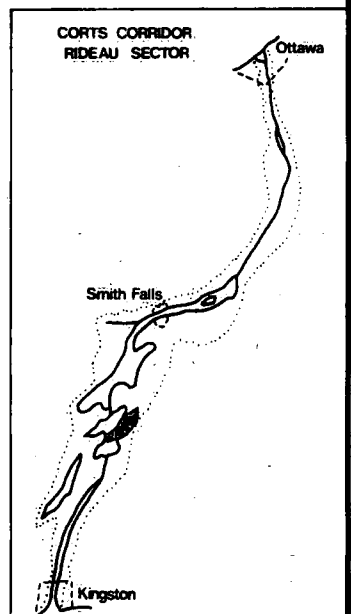
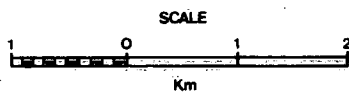
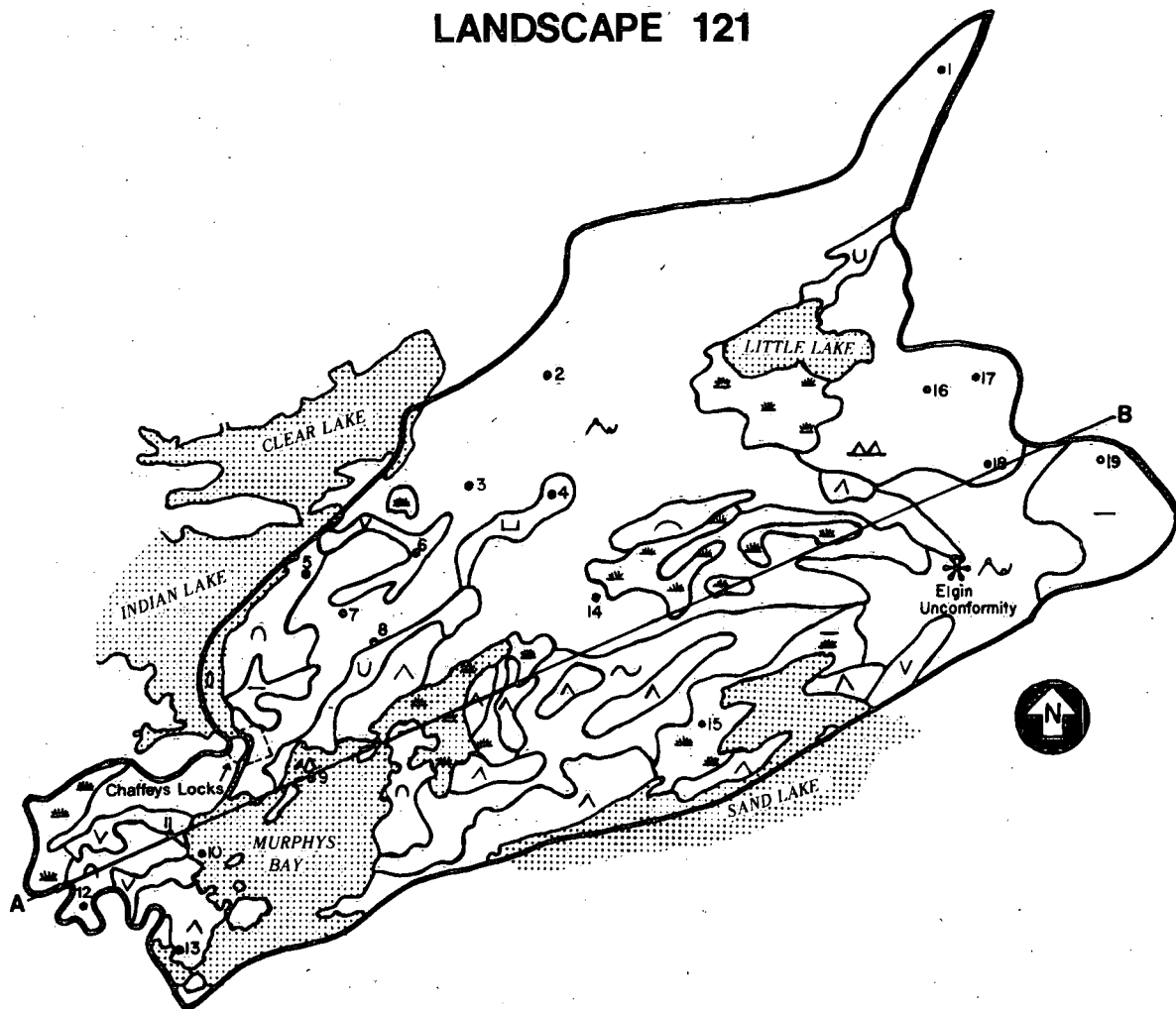
Botanical

The Landscape is quite rugged, and vegetational patterns are a reflection of that. The dry knob areas have oak, ground juniper, and the upland elm, or rock elm (U. thomasi) interspersed among the exposed bedrock portions. The uplands with better soils have white pine and white oak dominants, with ironwood and sugar maple as most common representing about stage 8. The moister areas contain white cedar, red maple, ash and large-tooth aspen at about stage 7. Shorelines tend toward white birch and red cedar borders.

Significant Features

Fish Spawning Area - OMNR: raising the level of the lakes flooded some backwater bays; in this instance a large area of shallow protected water forms a fine location for spawning fish.

# LANDSCAPE 121



Landscape #

121

The terrain varies considerably in this Landscape from very-steep ridges to gently-undulating plains.

The Landscape lies along the transition from the flat-lying Champlain areas to the rugged Frontenac Axis.

Geo-Env.

The surficial materials are consistently a thin mantle of sandy till over bedrock. The depth of the overburden increases along the eastern side.

The bedrock geology is almost entirely metamorphic gneiss and schist except for a small amount of the crystalline Grenville limestone.

The drainage characteristics are rapid on the knob and ridge areas, well drained in the plain areas and poorly drained in the valleys.

The land-use is almost exclusively wood (70%) or wetland (in the valleys). A small portion is taken up for roads or used for pasture.

Botanical

Again topography has a decided influence upon the vegetation. Upland species are those tolerant of rapid drainage conditions, such as white pine, beech, and sugar maple as dominants with ironwood and sugar maple most common, and ground juniper common on very dry sites. That association tends to reflect a stage 9 pattern. The moister sites support white ash as a dominant species with alder and white birch common, reflective of stage 6.

Significant Features

The Elgin Unconformity: on Highway 15 near the Elgin turn-off 400 million-year-old limestone rock lies directly upon billion year-old granite. Where the rock representing the intervening years has gone is unknown.

Landscape #  
122

The terrain in this Landscape is entirely composed of steep ridges and narrow, steep-walled valleys.

The lakes make up a significant portion of the system (30%). Most of them have steep or rocky shorelines.

Geo-Env.

The surficial materials are mostly ground moraine, which is generally very thin except in the valleys.

The bedrock is variable within the Landscape with much of it composed of metamorphic biotite, garnet, hornblend gneiss and schist. The Grenville limestone shows up in the Sand Lake area

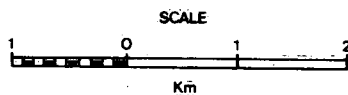
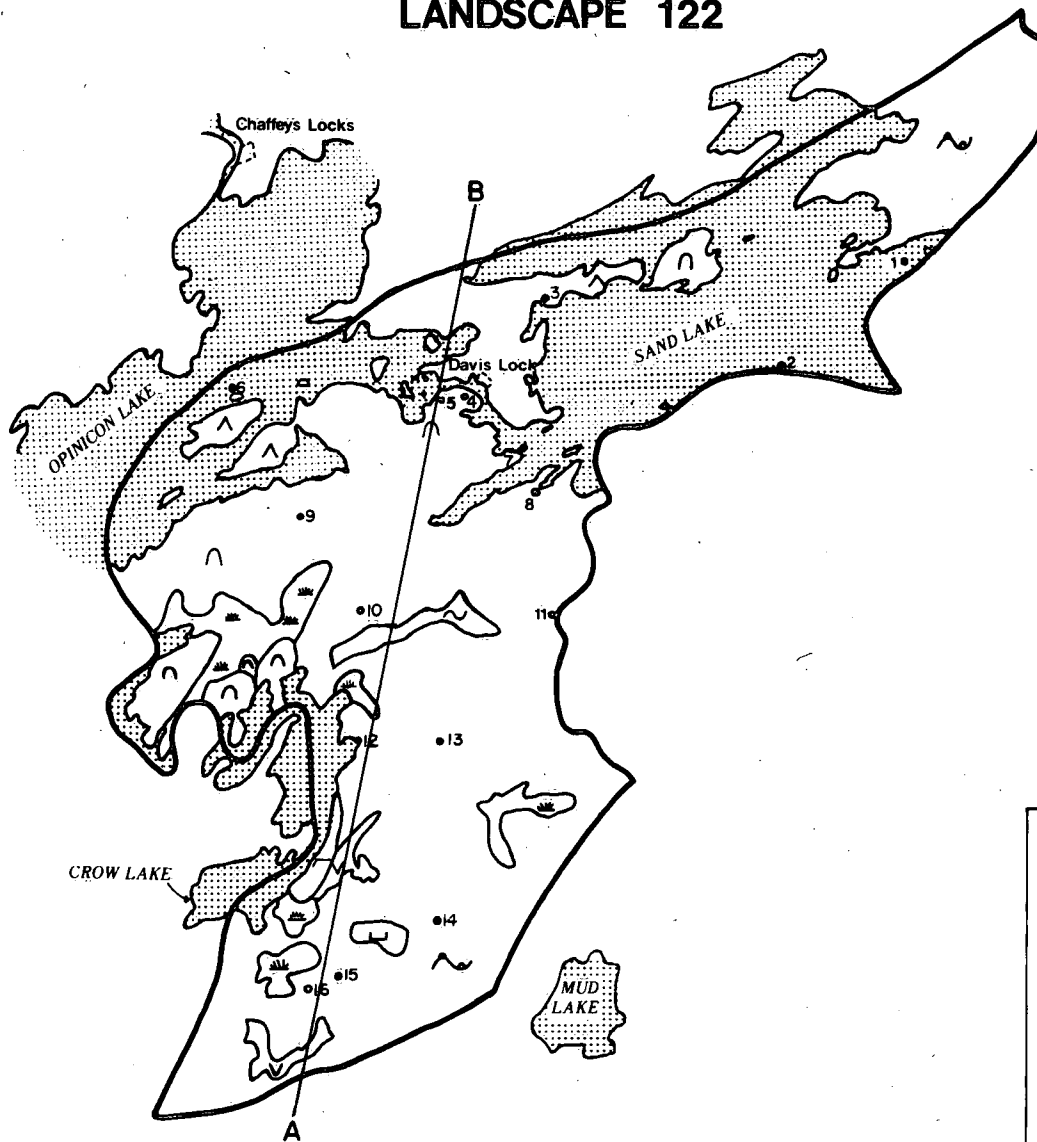
Outside of a few areas used for utility corridors, roads and pasture, the area is entirely wooded.

Botanical

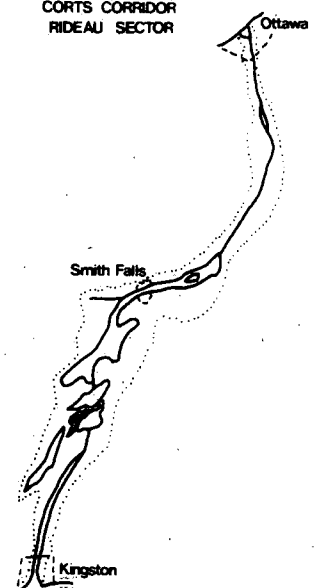
The vegetation in the Landscape is predominately that of upland areas with only narrow wet areas between ridges and along shorelines. Pine and oaks dominate the uplands, with the maples and ironwood commonly associated as expected of a stage 8-9 forest. The lack of significant growth of hemlock and beech suggests logging has occurred. As with all the Landscapes of the District, development will be not only difficult, but highly disruptive of the ecosystem due to the shallow, slowly-developing soils, and restrictive drainage patterns. Where drainage is slowed, or along shorelines, white elm and white ash dominate while white birch and red cedar are commonly associated with them.



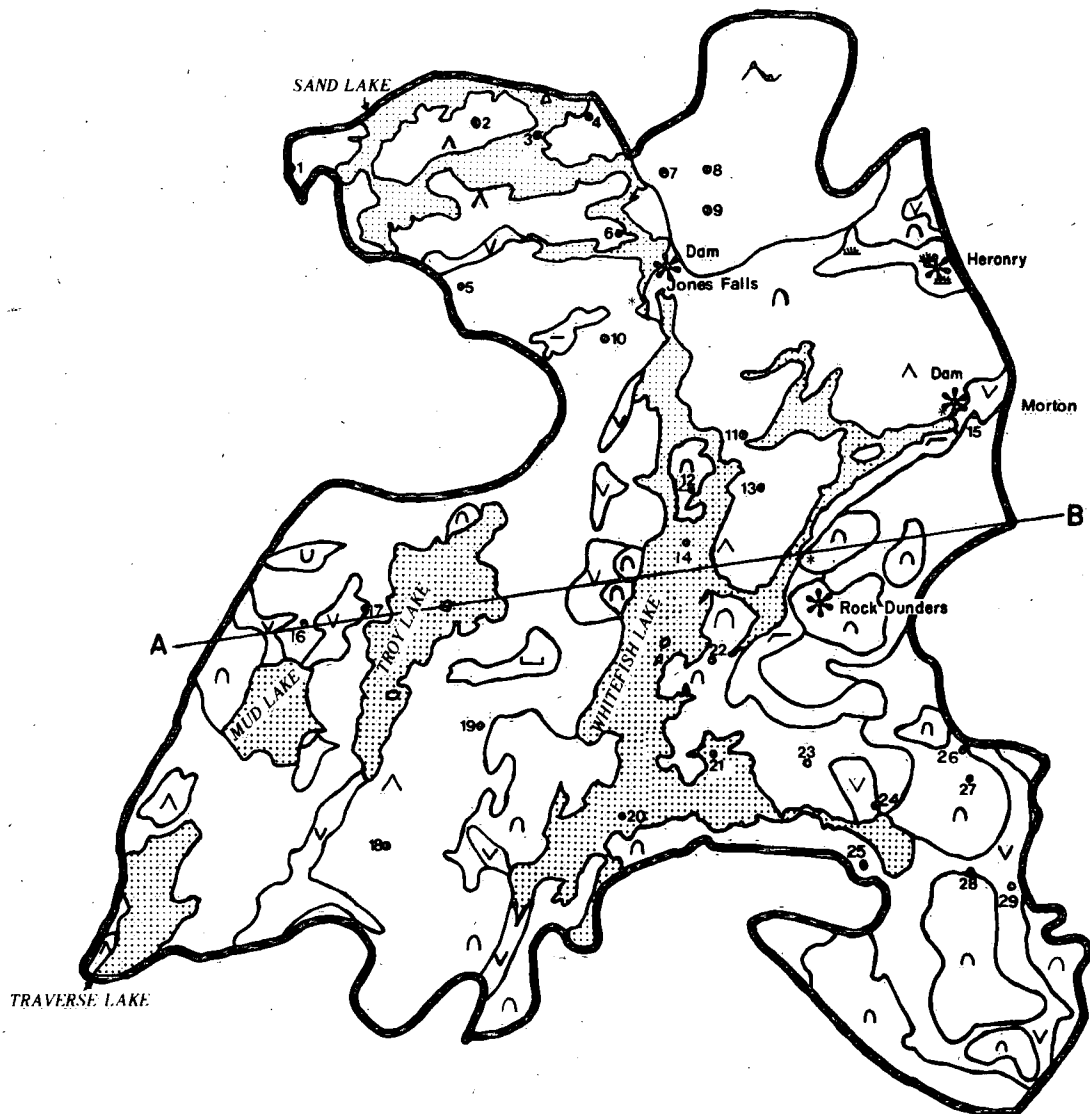
## LANDSCAPE 122



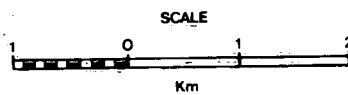
CORTS CORRIDOR  
RIDEAU SECTOR



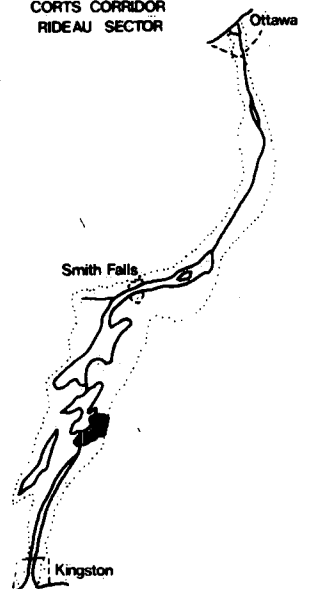
# LANDSCAPE 123



TRAVERSE LAKE



CORTS CORRIDOR  
RIDEAU SECTOR



Landscape #  
123

The terrain in this Landscape is also characteristic of the Frontenac Axis. It is predominantly steep-sided ridges and valleys.

The surficial materials are uniformly sandy till, laid down as ground moraine. It tends to be quite thin and patchy.

Geo-Env.

The bedrock is a combination of metamorphic schists, gneiss, and resistant quartzite and skarn formations.

Quartzite forms the very steep shorelines of Whitefish Lake.

The drainage reflects the terrain in that the uplands are rapidly drained, and the short valleys are poorly drained.

Land-use is strictly woodland, except for roads, utility corridors, and the northeast corner which contains some pasture areas.

Botanical

The dominant trees are upland species such as white oak and white pine along with white elm, white ash and sugar maple. The common trees are even more indicative of dry upland sites; white elm and red elm. Also found in the area are the rare pitch pine, usually found on large bedrock outcrops such as the rock dunders.

This may be the Landscape having vegetation at the furthest stage (9+) of succession. Particular care should be taken, therefore, that any development, or altered land-use, protects those values.

Significant Features

Rock dunders: large plutonic-rock formations rising abruptly at the eastern shore of Whitefish Lake. The site also contains a number of uncommon botanical species.

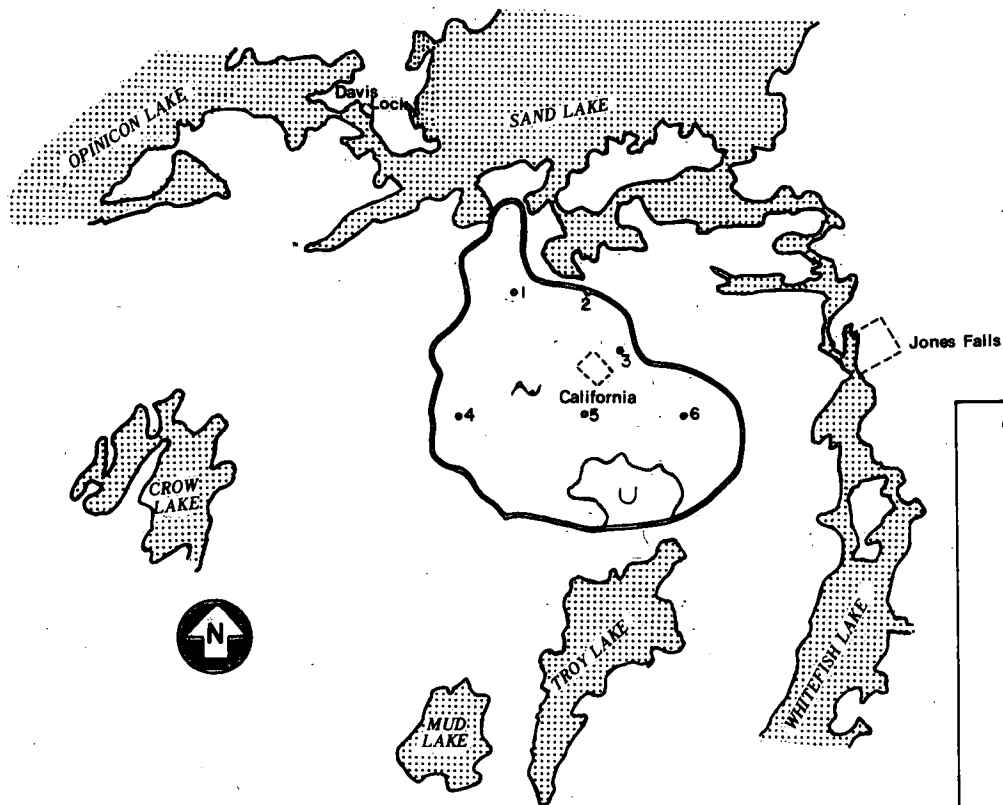
Jones Falls dam: a unique and inspiring feat of engineering and technical skill, the dam is both highly functional and beautiful.

Heronry: on Highway #15, near the turn-off to Jones Falls, a beaver dam has drowned a forest area, and the dead trees have been taken over by a colony of heron as their nesting area.

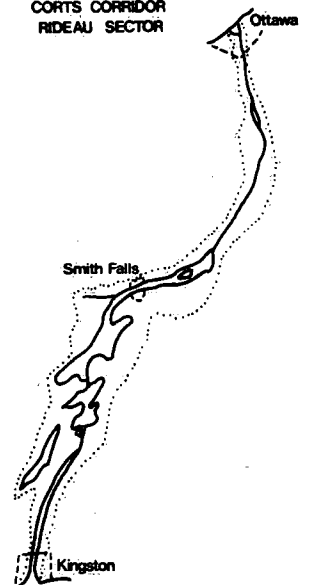
Morton dam: from that point water flows south within the Rideau system, or east into the Gananoque. During the planning of the canal, the Gananoque River was considered as an alternative route.

Pitch pine: a unique stand of this uncommon pine species exists in the hinterland; however, a few also exist within the Jones Falls community as ornamental individuals.

## LANDSCAPE 124



CORTS CORRIDOR  
RIDEAU SECTOR



Landscape #  
124

This is a small Landscape of rolling terrain nestled amongst the rugged, ridged areas.

The surficial materials are deeper there although still the same ground moraine as in most of the area.

Geo-Env.

The bedrock is almost entirely grandiorite with a small inlier of Ordovician (possibly Cambrian) sandstone.

The land-uses reflect the gentler slopes. Up to 30% of the area is used for hay and pasture. The remaining 70% is wooded.

Botanical

The dominant tree species in the wooded areas are sugar maple, red oak, red maple, red ash and white pine. Common trees include ironwood, white pine, white birch and red ash. The occurrence of red ash and red maple is reflective of moister conditions while the others reflect the drier upland conditions. Hemlock, too, is present in the colder valleys suggesting a relatively undisturbed Landscape progressing toward upland stage 9.

Landscape #  
125

This is one of the largest Landscapes in the Frontenac District.

The surficial deposits are similar to the remainder of the Frontenac District; sandy ground moraine forms a thin mantle over the bedrock, while in the low areas organic materials accumulate under poor-drainage conditions.

Geo-Env.

The bedrock is almost entirely metamorphic schists and gneiss. Small areas of granitic rocks can also be found.

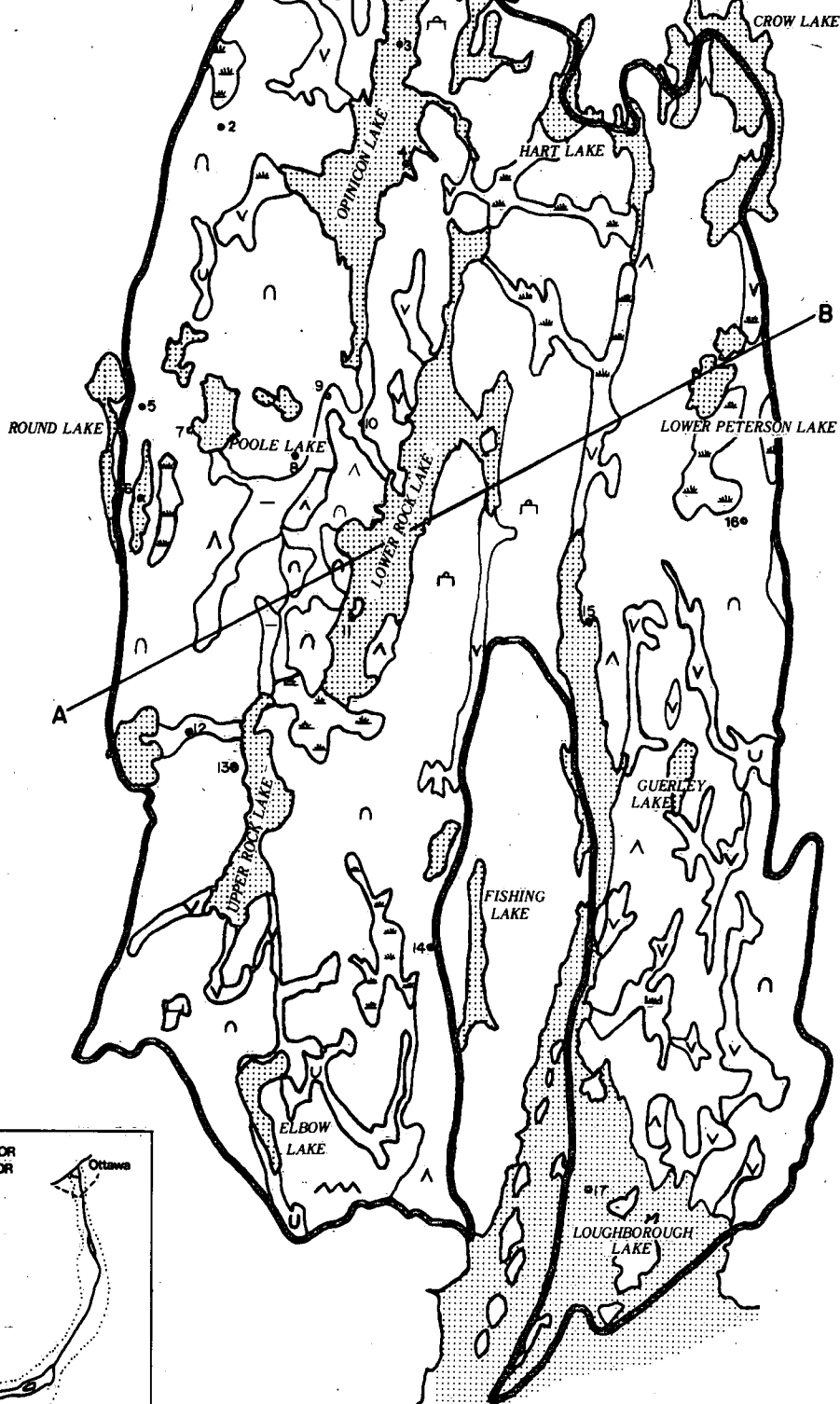
Drainage corresponds to the terrain, rapid on the uplands and poor in the valleys.

The land-use is predominately woodland (40%) except for a small area of pasture on a deeper deposit of till in the southern end.

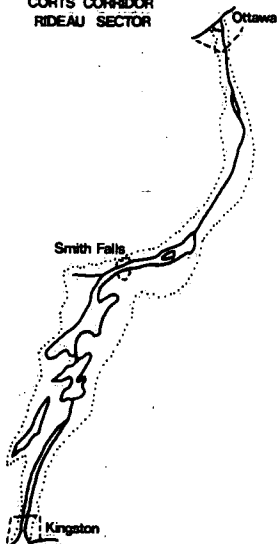
Botanical

Red oak, basswood, sugar maple and red maple are the dominant upland trees. Common are ironwood, sugar maple and bitternut hickory. The few moister sites are mainly at early successional stages with white ash, dogwood, and white birch.

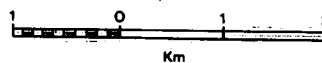
# LANDSCAPE 125



CORTS CORRIDOR  
RIDEAU SECTOR

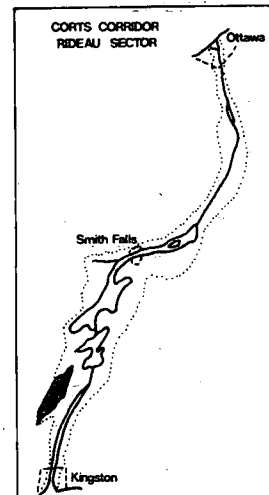
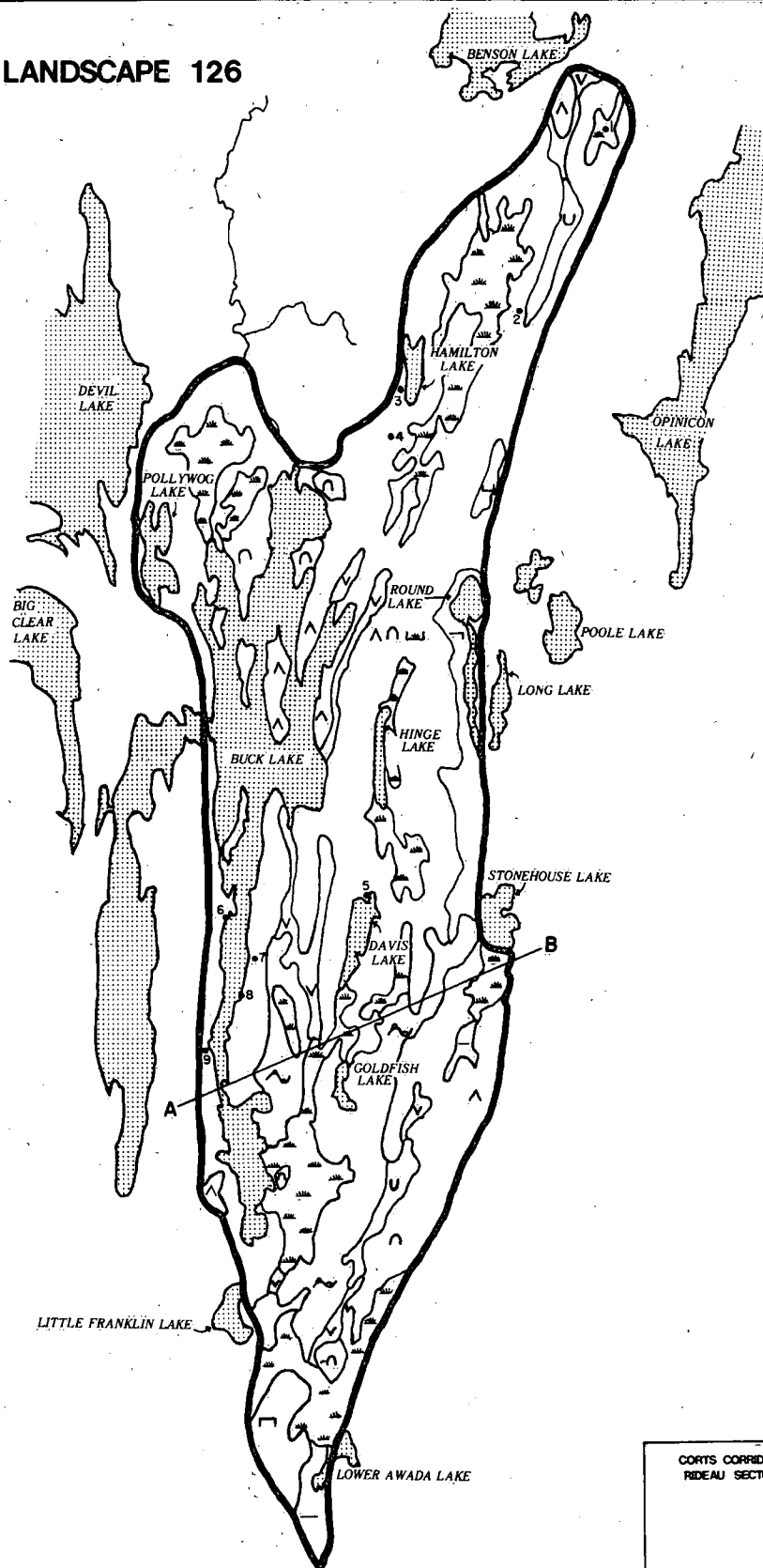


SCALE





# LANDSCAPE 126



Landscape #  
126

In this Landscape, the terrain is a little more subdued than in other parts of the District.

Geo-Env.

That reflects the predominance of the limestone bedrock (Grenville) in the Landscape. That material is less resistant than the adjoining rocks and weathers to more rounded landforms. The bedrock also contains fairly extensive areas of apatite.

The land drainage differs little from the remainder of the District, rapid on the uplands and poor in the valleys.

Land-use is predominately wooded (50%).

Botanical

The soils of the Landscape are somewhat deeper, providing conditions for a greater diversity of species; however, there is a larger presence of early seral species as white birch and trembling aspen than expected. Logging is more extensive there, and may be affecting that condition. Upland dominants are sugar maple and white oak, while additional common species are ironwood and white pine. Wetter sites are dominated by white elm and balsam poplar. Again, in addition to the other early species, those sites have common associates as white ash and dogwood.

The Landscape vegetation seems easily set back by development, and care should be taken in any new proposals.

Landscape #  
127

The Landscape is composed predominately of the ridge-and-knob type of terrain. The valleys tend to be long and narrow, running in a north-south direction.

Geo-Env.

The surficial deposits are primarily sandy ground moraine, with lacustrine clay being found in some of the deeper depressions.

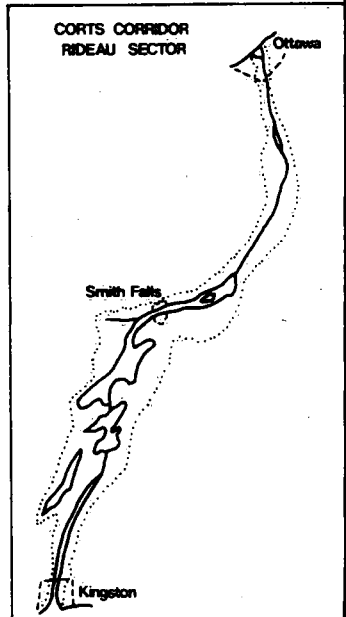
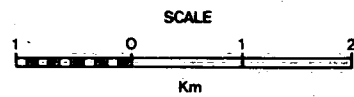
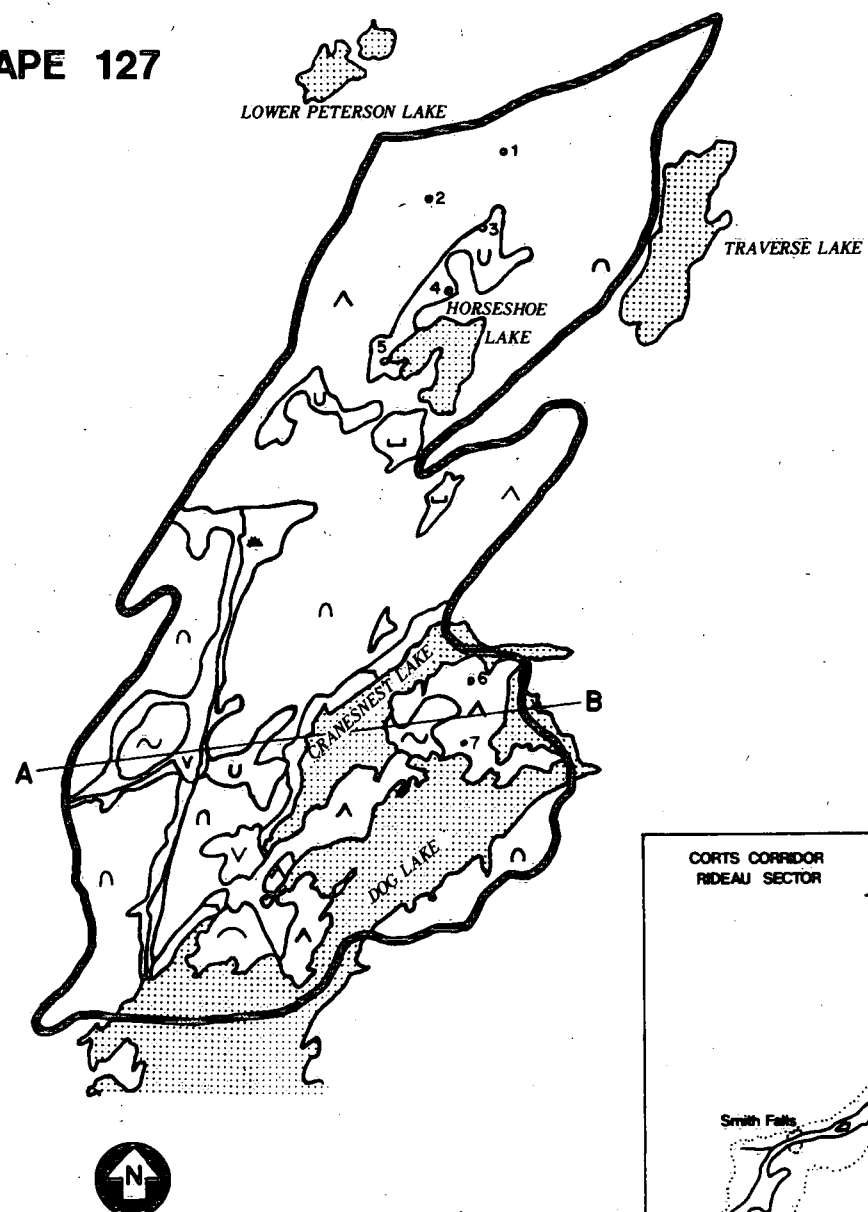
Bedrock is entirely composed of pyroxene, Battersea Pluton, biotite, metamorphic gneiss and schist

The Landscape sits on the southern edge of the Frontenac District. The surficial deposits become deeper toward the southern end. Those areas tend to be well drained and suitable for hay and pasture (10%); the remainder of the area is wooded (70%) on the upland ridges, and wetland (10%) in the low areas.

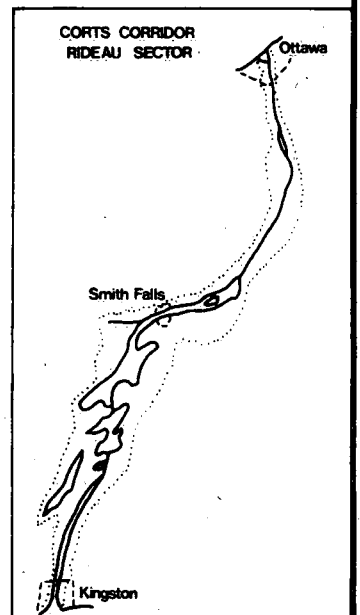
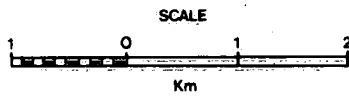
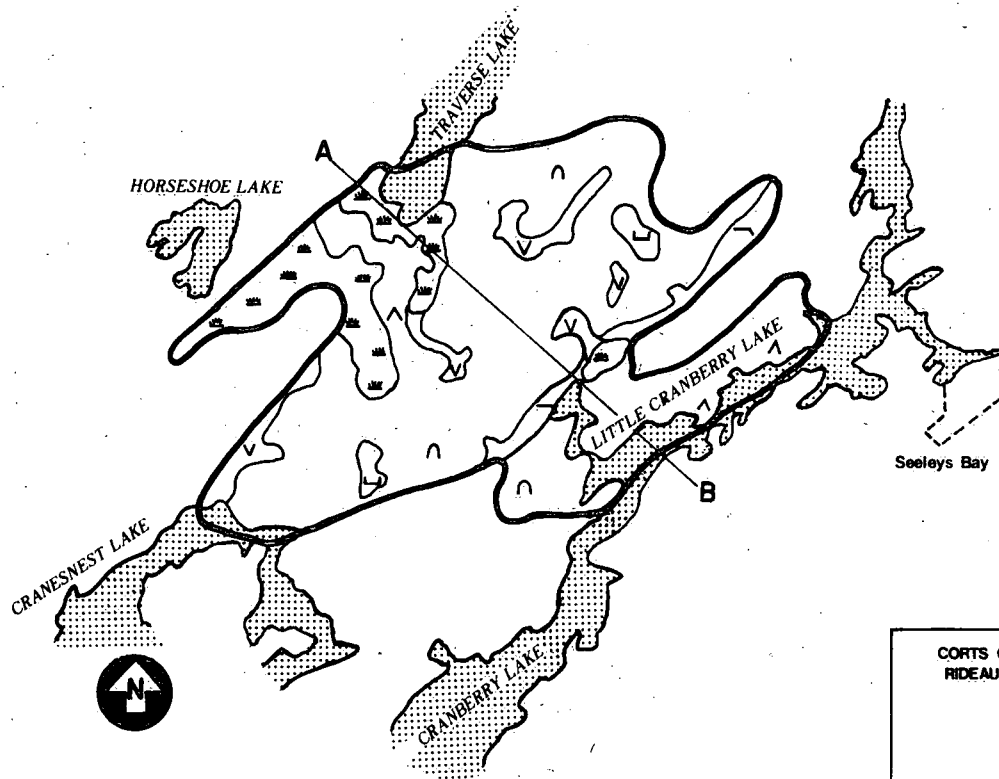
Botanical

Dominant on the ridges are white pine and sugar maple. White pine is also most common, along with the hickories. Burr oak and ground juniper occur on the very well-drained, exposed ridges. Where drainage is poor, white ash dominates and is commonly accompanied by red elm and willow. Red cedar, white elm, and large-tooth aspen also occur there.

LANDSCAPE 127



## LANDSCAPE 128



Landscape #  
128

The Landscape is uniformly distributed with ridges and knobs, except for a major depressional area south of Traverse Lake, and a very steep valley in the central area.

Geo-Env.

The surficial deposits are a uniform mantle of ground moraine and accumulations of organic material in the depressions.

The bedrock is of one type throughout the Landscape; that is, a quartzofeldspathic gneiss with inclusions of quartzite and marble.

Due to the rugged nature of the area, the land use is restricted to woodland on the uplands and wetland in the low areas.

Botanical

The dominant vegetation is of white pine, white oak and sugar maple. White oak and shagbark hickory are common. Those three types are tolerant of the dry ridges and knobs. The wet or moist site species are found in limited numbers in the poorly drained valleys in depressions, with silver maple being both the dominant and most common species. The presence of beech and burr oak in the uplands is suggestive of stage 8; however, the large number of early seral species in the wetter sites such as white birch, red ash and balsam poplar suggest an earlier stage, probably 5-6.

Again, developmental programs in this Landscape must take particular care with drainage, as that will greatly affect the natural process of vegetational composition.

Landscape #  
129

This is a small Landscape resting on the Grenville limestones of the District.

The topography is quite rugged with knobby plains or knob-and-ridge terrain types.

Geo-Env.

The surficial deposits are deeper along the northeast end of the Landscape, although still restricted to ground moraine for most of the area, with some clay in the central plain.

Land-use distribution changes in that part of the District, the rolling plain being better suited to hay and pasture (50%). Those areas tend to be well drained. The steeper rock knobs and ridges are rapidly drained and generally wooded (50%).

Botanical

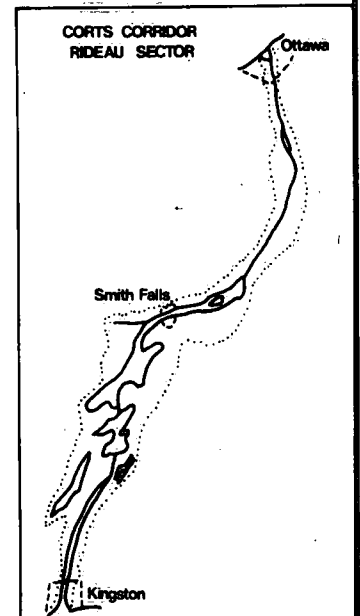
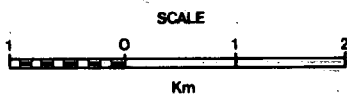
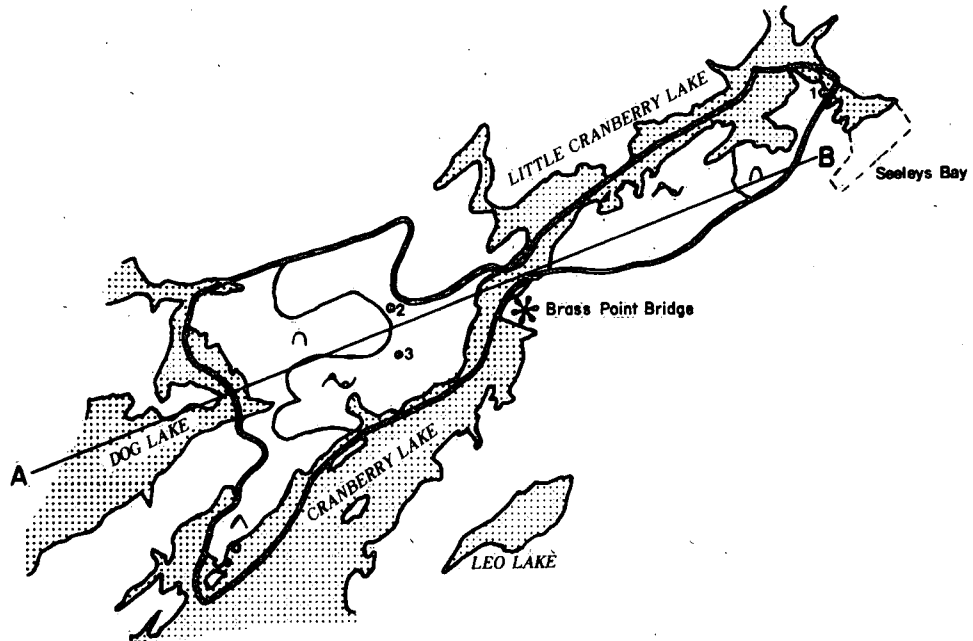
The dominant vegetation is sugar maple and white pine for almost all of the Landscape with sugar maple, ironwood and white oak common.

Moister sites have white cedar and the ashes, white and red depending upon the increasing amount of soil moisture.

Significant Features

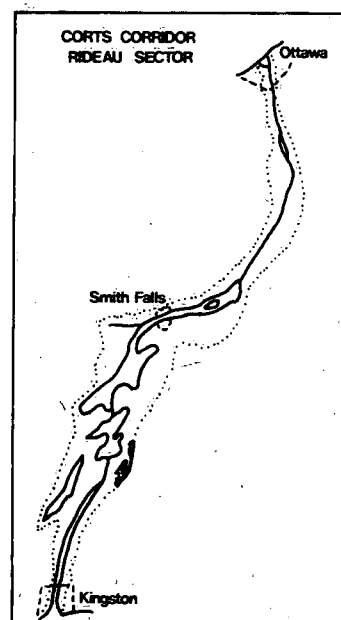
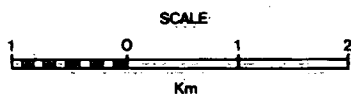
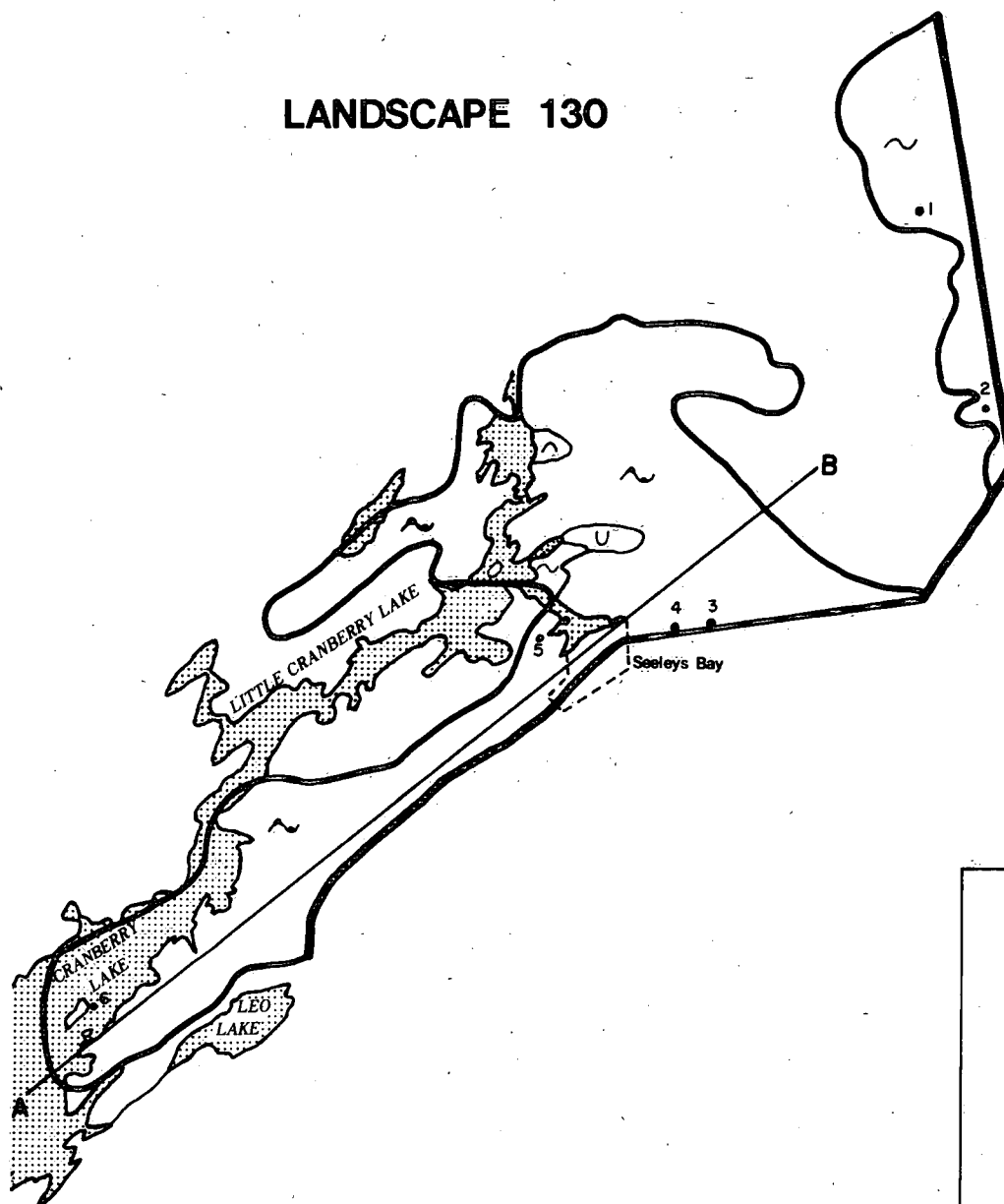
Brass Point bridge: overlooks the drowned Cranberry bog, site of much malarial fever during construction of the canal.

## LANDSCAPE 129





# LANDSCAPE 130



Landscape #  
130

This Landscape lies along the edge of the Frontenac District.

The terrain is mostly rolling, knobby plain, with shallow valleys.

Geo-Env.

The surficial material is variable across the Landscape predominately a sandy clay, or sand, which could be of lacustrine origin.

The bedrock is entirely Grenville limestone.

The surficial materials are much better suited to agriculture here than in the interior of the Frontenac District. Much of the area is in agriculture, most of that as pasture, but with a significant portion cropped in corn.

Botanical

The dominant vegetational species are white pine, and sugar maple. Common tree species are sugar maple, white birch, and red maple. Most of the terrain in the Landscape is upland, mesic, and with deep soils, producing vegetation at a current stage 8. On the moister sites, white elm is both dominant and most common. Trembling aspen, white birch and white ash are also common, the former two suggesting early stages of development nearer to stage 6.

Landscape #  
131

This Landscape parallels the boundary of the CORTS corridor.

The terrain is characterized by long, steep ridges and rolling plains amongst the ridges.

Geo-Env.

The surficial deposits are predominately sands and sandy clays of lacustrine origin.

The bedrock is primarily Grenville limestone, and quartzite/granite combinations.

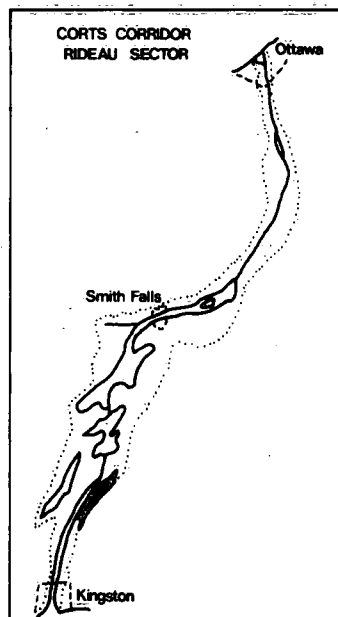
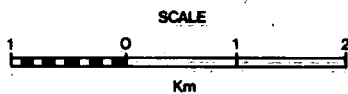
The Landscape is evenly divided into land-use classes, 40% wooded, 30% agriculture (pasture and corn crops) and 30% water bodies.

Botanical

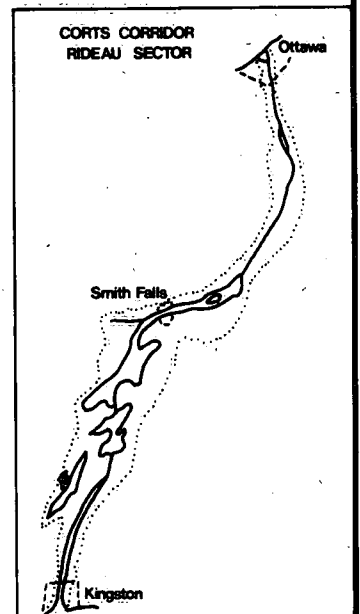
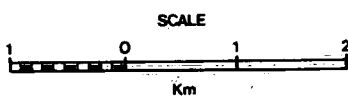
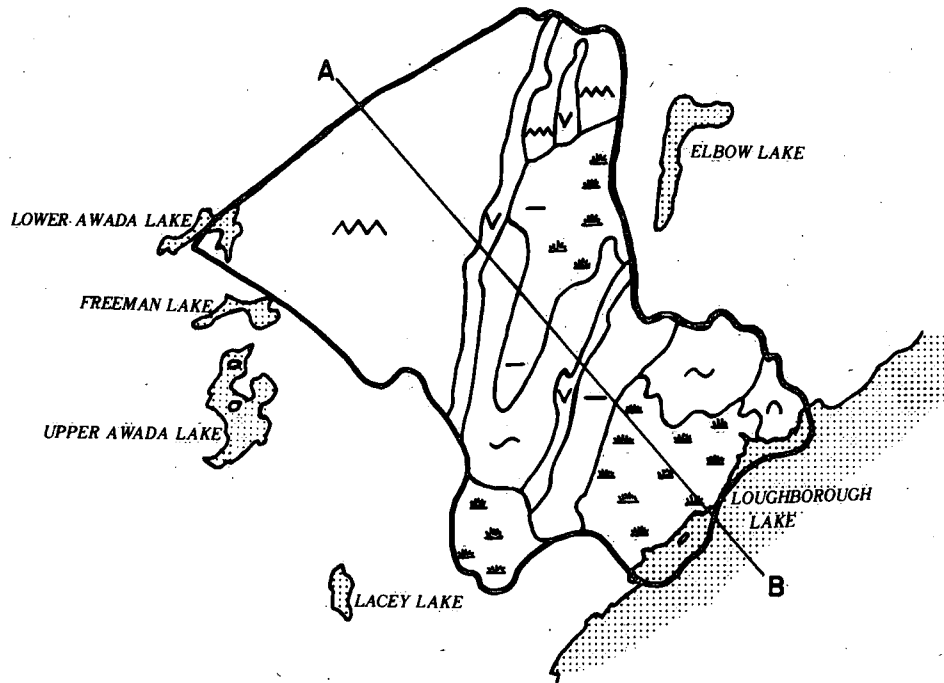
The dominant trees are sugar maple, basswood and white elm. Associated common trees are ironwood, prickly ash and eastern cottonwood. Those species reflect the deeper lacustrine soils overlying the low areas and the sides of the rockland areas.

Where conditions are more moist, white elm is accompanied by red ash typical of stage 5. On the exposed, dry, rock ridge-tops prickly ash and sumac form localized clumps with the oaks frequently appearing forming a late shrub-meadow community.

# LANDSCAPE 131



## LANDSCAPE 132



Landscape #  
132

The Landscape is a broad and rough plain. The terrain is limited to a rough, rocky plain, a broad flat area, and narrow valley.

Geo-Env.

The surficial deposits are restricted to thin sandy tills (ground moraine), and organic deposits.

The flat terrain in this Landscape is underlain by Ordovician limestone, and the rough terrain by metamorphic gneiss and granite.

Man's land-use activities are limited to the lower portion of the Landscape where some crops (corn) are raised. The northern portion is nearly entirely wooded (80%).

Botanical

Again, the dominant trees in the uplands are sugar maple, red maple, basswood and white pine. Common trees associated with those are eastern cottonwood, ironwood, white ash and trembling aspen.

The rapidly changing terrain is producing a mixed pattern of development. Along with the familiar dominants, woodland meadow species like service berry and the cherries make a significant contribution in the rough open areas.

Human activities in the Landscape can be tuned to the specific site by protecting the older, and later-stage species, as the meadow species will be quick to recover.

Landscape #  
133

The Landscape lies within the Ordovician plains. It is characterized by rugged, ridged terrain types.

Geo-Env.

The bedrock geology is the primary feature of the Landscape. It is a band of metamorphic gneiss and granite. The east side is delineated by a fault zone

The surficial deposits vary from sandy clay in the north to clays in the south.

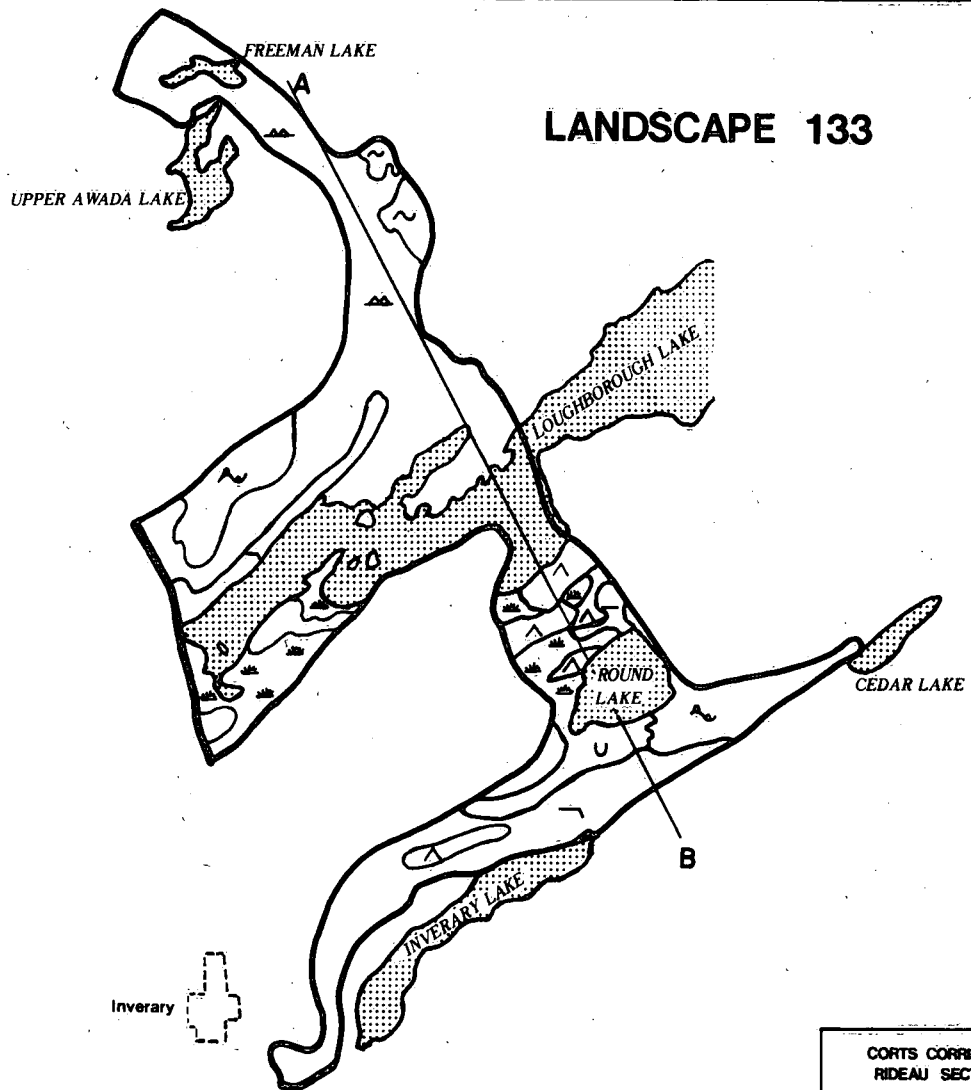
The land-use is mostly wooded (40%) or wetland (20%) with a few pasture areas in the better drained areas.

Much of the system is poorly drained.

Botanical

The upland sites are dominated by white pine and sugar maple communities indicative of stage 8. Wetter lowland sites have considerable white elm (with evidence of die-off) and white cedar. Associated with those are alder, white ash and dogwood as a late wet-meadow stage 7.

# LANDSCAPE 133



CORTS CORRIDOR  
RIDEAU SECTOR

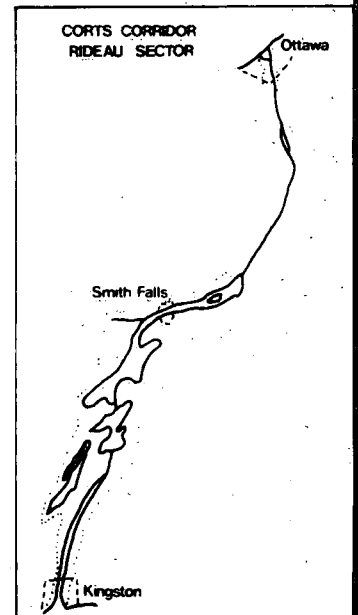
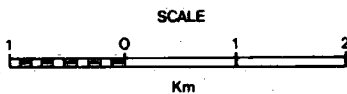
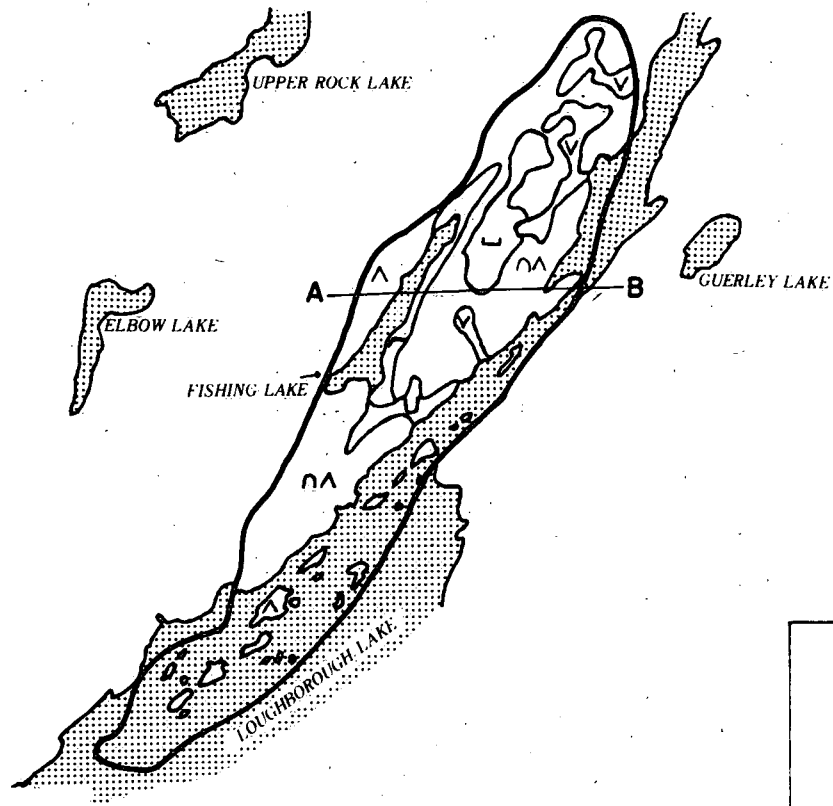
Smith Falls

Ottawa

Kingston



## LANDSCAPE 134



Landscape #

134

The Landscape is a narrow elongate area of ridges and knobs.

It follows a formation of quartzofeldspathic gneiss, quartzite and marble.

Geo-Env.

The ground moraine is the predominant surficial material on the Landscape, along with organic materials and exposed bedrock.

Most of the land area is either rapidly drained (upland) or poorly drained.

Land-use is predominantly woodland (50%), with a small portion as wet woodland (10%).

Botanical

The topographic extremes of the Landscape cause sharp divergences in vegetational pattern.

The ridge tops have the sugar maple/white pine dominants associated with oaks and ironwood; the areas of poorer drainage contain silver maple, and white elm with some white ash and white birch. Those latter sites are still accumulating sufficient mineralization to accompany the soil organics holding the vegetation near stage 5.

Landscape #  
235

The Landscape is separated into two parts by part of Landscape 133.

The northern part has rough terrain underlain by pink pyroxene mononite bedrock.

Geo-Env.

The surficial deposits are sandy ground moraine.

The southern part is underlain by Ordovician limestone and dolomite which forms a plateau-like area. That portion is covered in sandy morainic material.

Land-use is split between agriculture (20%) (hay, pasture) and woodland (80%).

Botanical

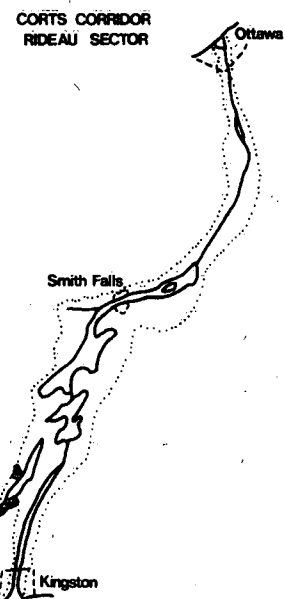
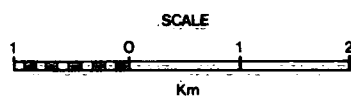
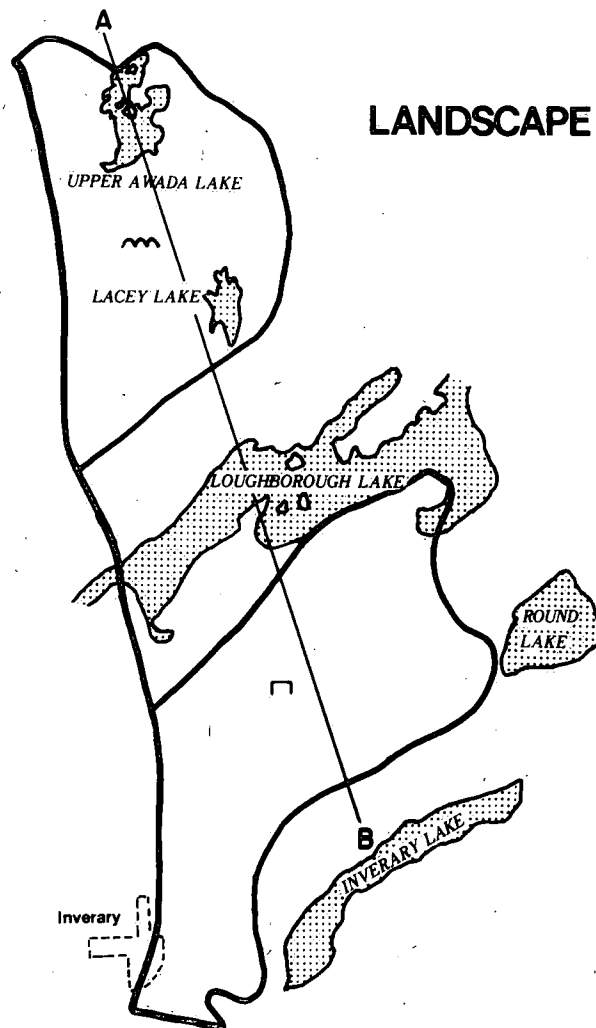
The dominant tree species are hickory, sugar maple and white pine. The associated common trees include white birch and ironwood.

On the drier sites cork elm and hawthorn are common. The moister sites have a greater variety of early stage species as white birch, white ash, and blue beech.

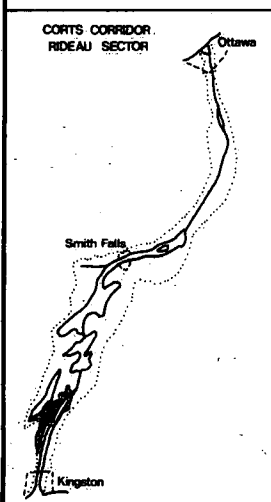
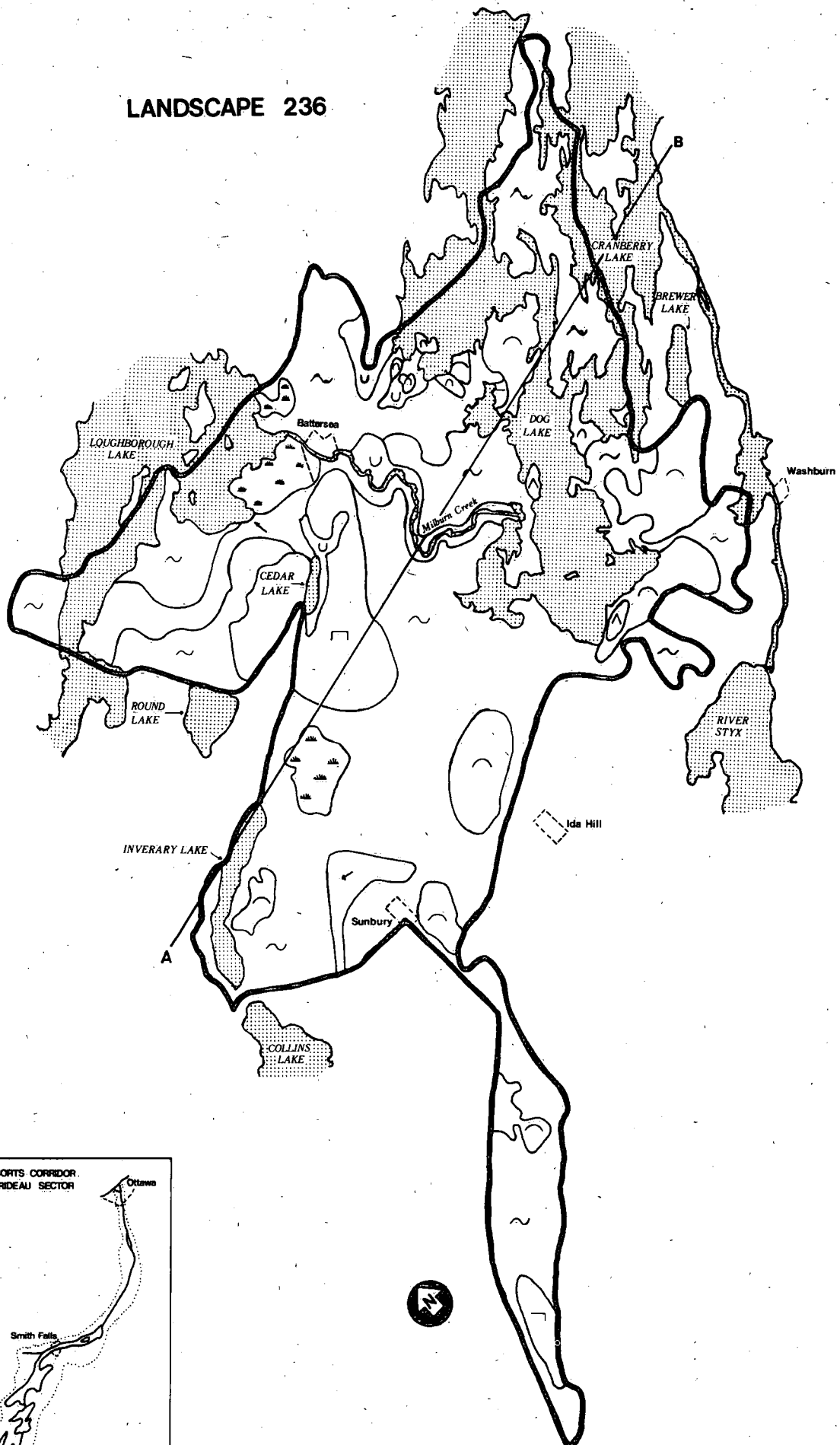
# LANDSCAPE 235, 239

LANDSCAPE 235

LANDSCAPE 239



# LANDSCAPE 236



Landscape #  
236

The terrain in the Landscape is quite varied, including low hills, rolling plain, undulating plain, flats and escarpments.

Geo-Env.

The surficial deposits are predominately glacio-lacustrine clays and sandy clays, and clays that may have been affected by marine inundation.

The bedrock is mainly Ordovician limestone and sandstone. Some areas are also underlain by Precambrian metamorphic gneiss.

The land-use is dominated by hay and pasture (50%) although a few corn fields can be found in the uplands areas. Wooded areas cover only 20% of the Landscape.

Botanical

The dominant trees are sugar maple, hickory and white elm. The common species are sugar maple, white elm, and ironwood. In this Landscape, the woodland is limited to wet or poorly drained areas or rockland.

Landscape #  
237

This Landscape covers a wide area, including the River Styx.

The terrain is rolling to undulating and includes some broad hills.

Geo-Env.

The surficial deposits are primarily composed of glacio-lacustrine clays and sands, and sandy till.

Bedrock is predominantly Ordovician limestone and sandstone, except for a band of metamorphic schist and gneiss that crosses the northern end of the Landscape. That area is identified as a hummocky plain.

The Landscape drainage ranges from well on the hills and rolling plains to poor on the hummocky areas and the shoreline flats.

Land-use is quite variable, including wooded areas, abandoned wetlands, and significant areas of cropland.

Botanical

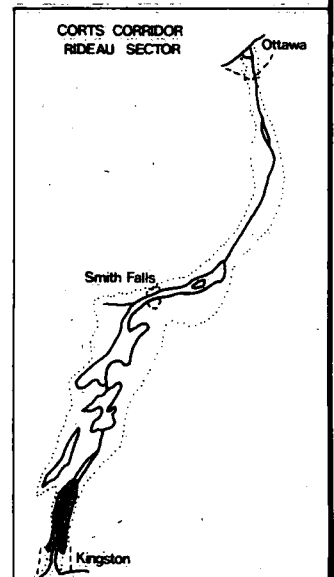
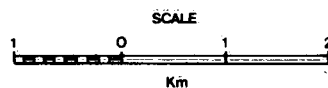
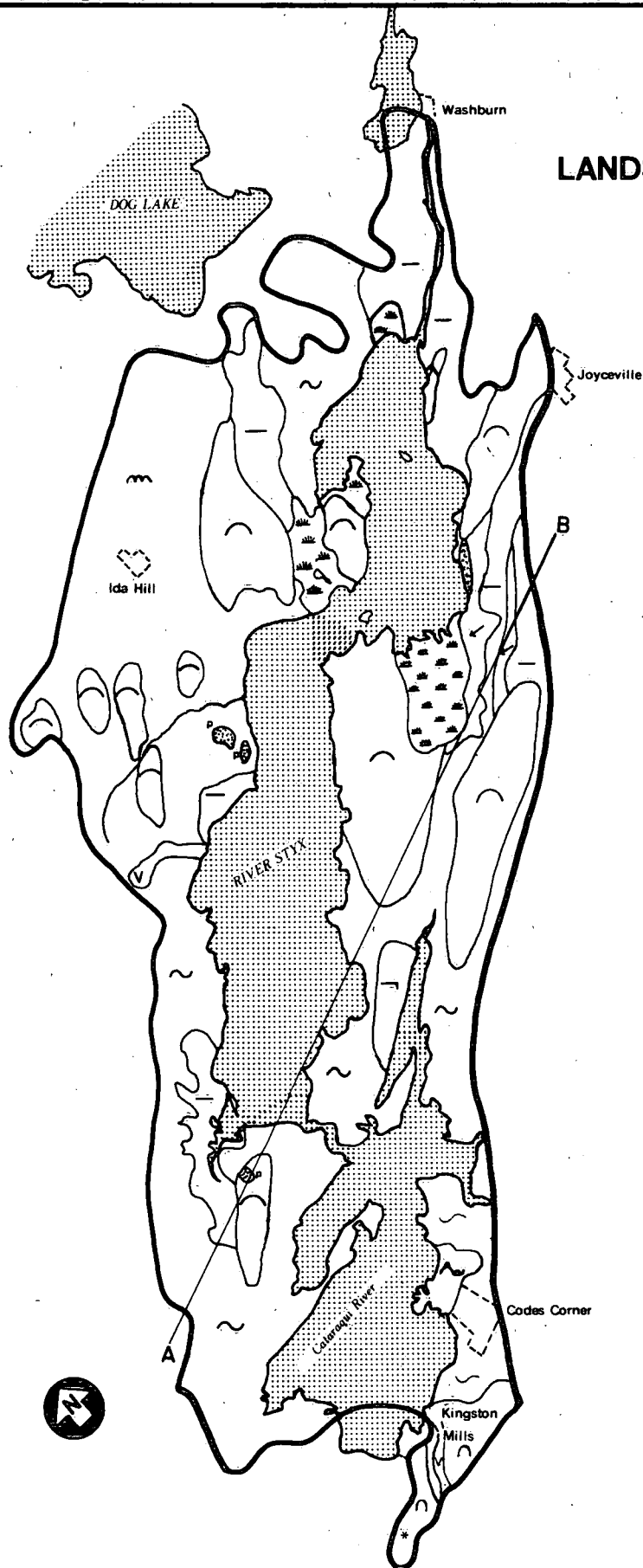
Dominant tree species on the dry sites are sugar maple, cherry and red oak with shrub meadows and hedgerows dominated by hawthorn. Sugar maple and hawthorn are most common. As sites become more moist, elm begins to dominate with white ash common, and shrub willows and dogwood as sites turn wet. Dry sites are near stage 8, while moist sites are approaching 7.

Significant Features

River Styx: a drowned land still shallow, full of stumps and floating vegetation. A disquieting site still under-going a reformation from past forest to drowned land to, perhaps, a future marsh.

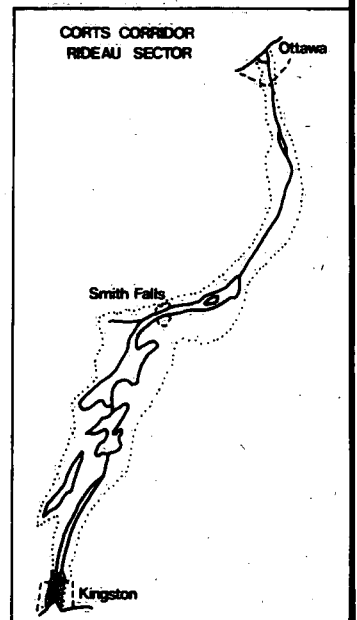
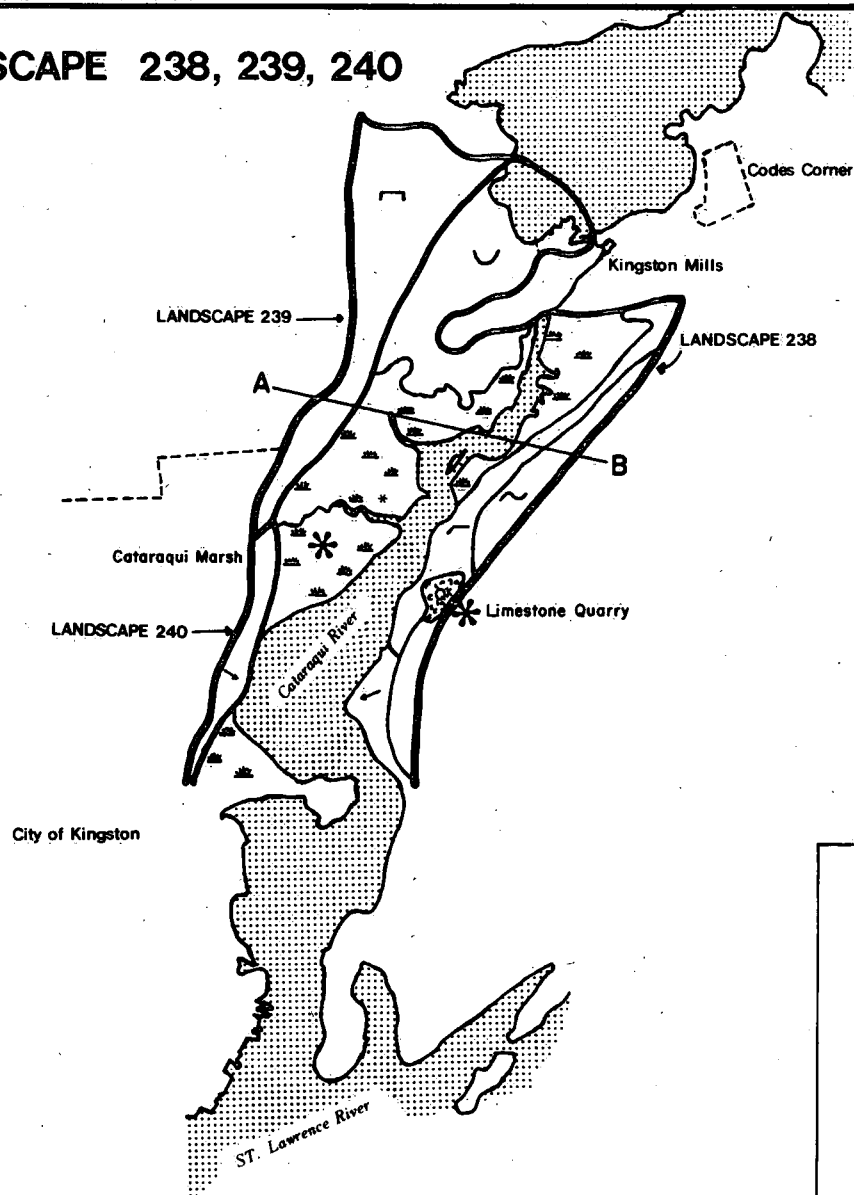
Granite quarry: billion-year-old rock is quarried from there for decorative stone facings.

# LANDSCAPE 237





# LANDSCAPE 238, 239, 240



Landscape #  
238

The Landscape follows the Cataraqui River out to Lake Ontario.

The terrain has two main types, shoreline flats and escarpments.

Geo-Env.

The major feature is the Cataraqui marsh.

The surficial materials are clays on the uplands and organic materials along the shoreline flats.

The bedrock geology varies little in the area. Ordovician sandstones are found under the river, while above on the escarpments limestones and dolomites are predominant.

The land area in the Landscape is primarily taken up with urban uses.

Botanical

The wooded areas are found on the escarpment to the east of the river in the Landscape. Dominant trees are sugar maple, red oak and red elm. Associated common species are sugar maple and red oak and red elm. Those are representative of mature deciduous trees growing on the clay soils.

The Cataraqui marsh has developed where the Cataraqui River drops to the level of Lake Ontario. Upon slowing its velocity the River drops much of its accumulated sediments. The marsh now covers some 700 acres including both sides of the river, and of Highway 401 which bisects it. The marsh itself is a dense, over-mature stand of cattail, mostly floating, with minimal openings or diversity. Much of the underlying sediment is glacial clay, which in places creates small islands covered with hardwood trees. The marsh is only lightly used by waterfowl, due more to poor habitat than recreational boating. Wake from boats is often disturbing to the frontal edge of the floating mat, however, precluding any nesting there. Spring and fall migratory waterfowl do use the marsh area, but they are mainly diving ducks rafting in the broader open waters beyond the cattails.

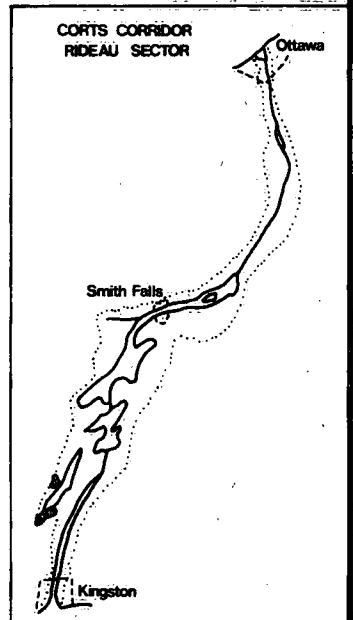
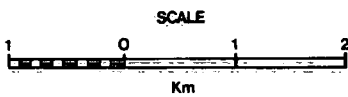
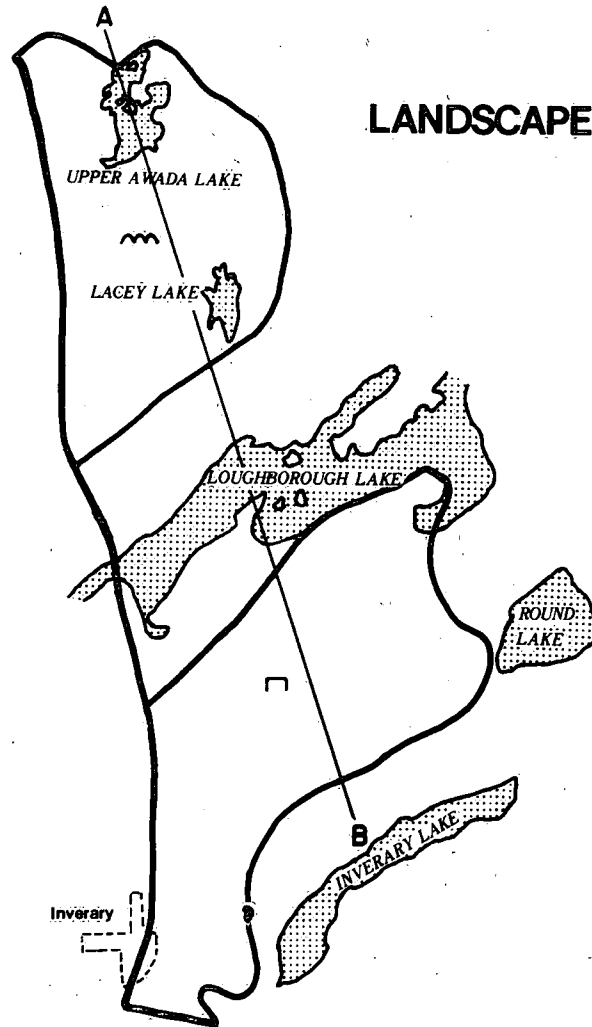
Significant Features

Limestone Quarry: situated at the escarpment on the eastern side of the Cataraqui, stone from the quarry has been used to construct many of the beautiful buildings found in and around Kingston.

# LANDSCAPE 235, 239

LANDSCAPE 235

LANDSCAPE 239



Landscape #  
239

The terrain in this Landscape is rolling to flat above limestone escarpments. The Landscape occurs as two parts along the west side of the CORTS corridor.

Geo-Env.

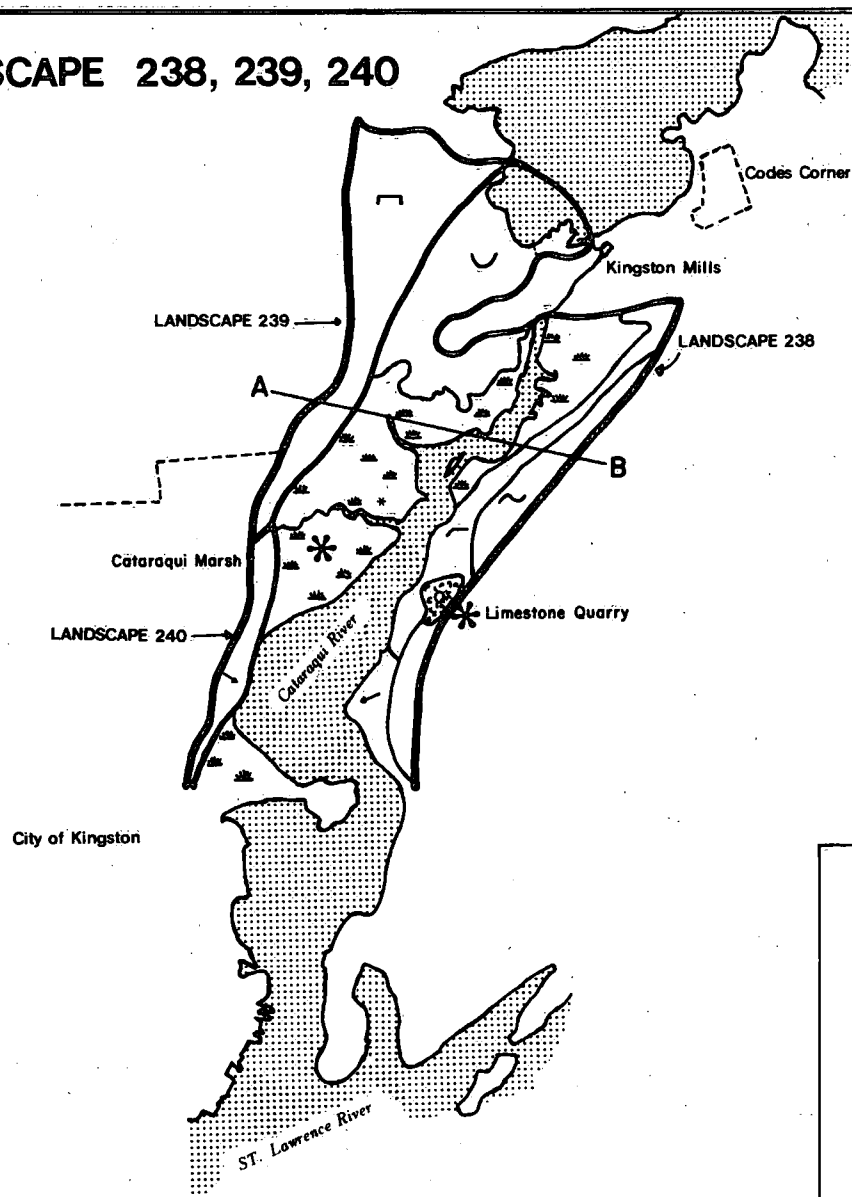
The Landscape bedrock corresponds to several plateau-like areas of the Gull River formation of dolomitic limestone.

The land-use patterns include agricultural area, grazing, hay and crops. There are some wooded areas and abandoned, regenerating fields, but urban areas are making significant in roads (30%).

Botanical

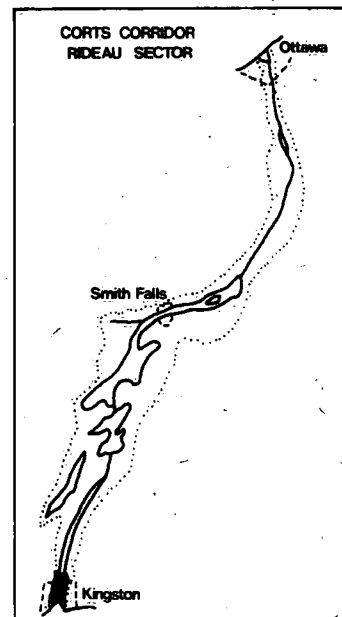
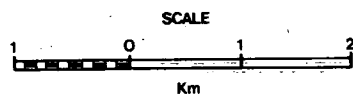
The dominant tree species are white elm and sugar maple. Associated common trees are ironwood and sugar maple. Those are characteristic of the rich soils developed on the lacustrine silt clays of the Landscape.

# LANDSCAPE 238, 239, 240



City of Kingston

ST. Lawrence River



Landscape #

240

The terrain is flat.

The geology is Ordovician limestone.

The land-use is urban.

Geo-Env.

The Landscape takes in the city of Kingston, subsequently the natural conditions of the area have been completely disturbed and can only be described as an urban landscape.

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