

COPELAND FOREST RESOURCES MANAGEMENT AREA



BOTANICAL INVENTORY

By: R.S.W. Bobbette 1979

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BOTANICAL INVENTORY
OF THE COPELAND FOREST
RESOURCES MANAGEMENT AREA

by R.S.W.Bobbette
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December 1979

Prepared for the
Ontario Ministry of Natural Resources
Huron District Office, Midhurst

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Research, Inventory and Planning in Plants and their Environments
for Development, Homes, Farms and Wildlands



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December 30, 1979

Mr. W. Dan Mansell
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Ontario Ministry of
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Dear Mr. Mansell:

I am pleased to respond to your request for a Botanical Inventory of the Copeland Forest Resources Management Area. Together with Ms. J. M. Webber (Erindale College, U. of T.) and the assistance of several specialists and local naturalists, it has been possible to document the occurrence of several rare and many valuable plant resources. The Copeland Forest vascular flora alone consists of over 600 different plants, or almost one half of the species known in Simcoe County.

Through the use of "vegetation specific" field notes and study of air photography and literature, it has been possible to organize vegetation, earth texture, drainage and landform conditions into Ecosite units, which are described and mapped in this report.

These Ecosite units are local communities or important community components and are logical management and development units. To this end, many characteristic opportunities and constraints are described for each vegetation in relation to site conditions and plant species.

I hope that this report may prove a valuable tool for the development of a profitable forest husbandry program, and that it may stimulate action to preserve and employ the botanical resources of Copeland Forest for human benefit and aesthetic improvement.

Sincerely,



R.S.W. Bobbette

RSWB/lk
Encl.

LETTER OF TRANSMITTAL

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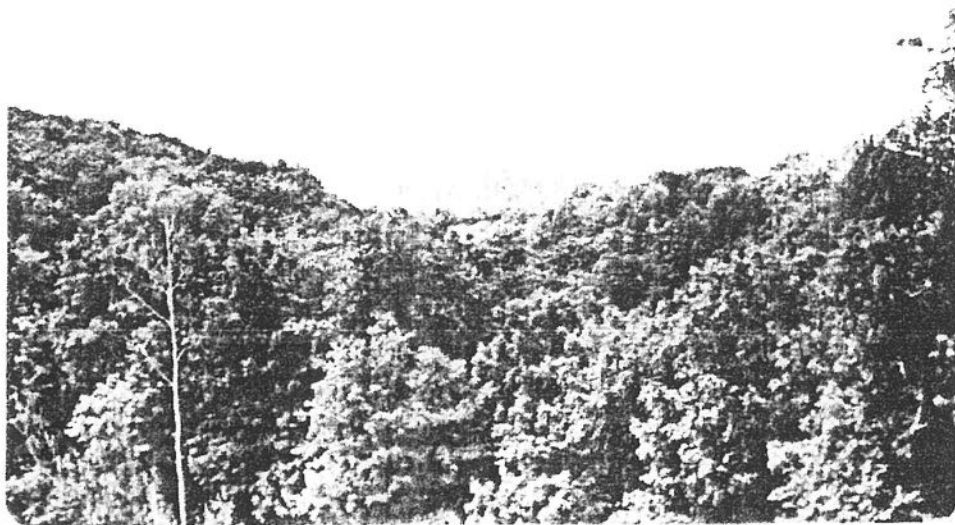
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INTRODUCTION

INTRODUCTION

Study Area

The Copeland Forest Resources Management Area is a predominately treed, valley and stream headwater wetland environment of about 1,760 ha (4,400 a) in north-central Simcoe County. It lies 115 km (70 mi) north of Metropolitan Toronto, and locally is almost exactly centered between the smaller communities of Midland and Barrie (north-south) and Orillia and Wasaga Beach (east-west) (Figure I).

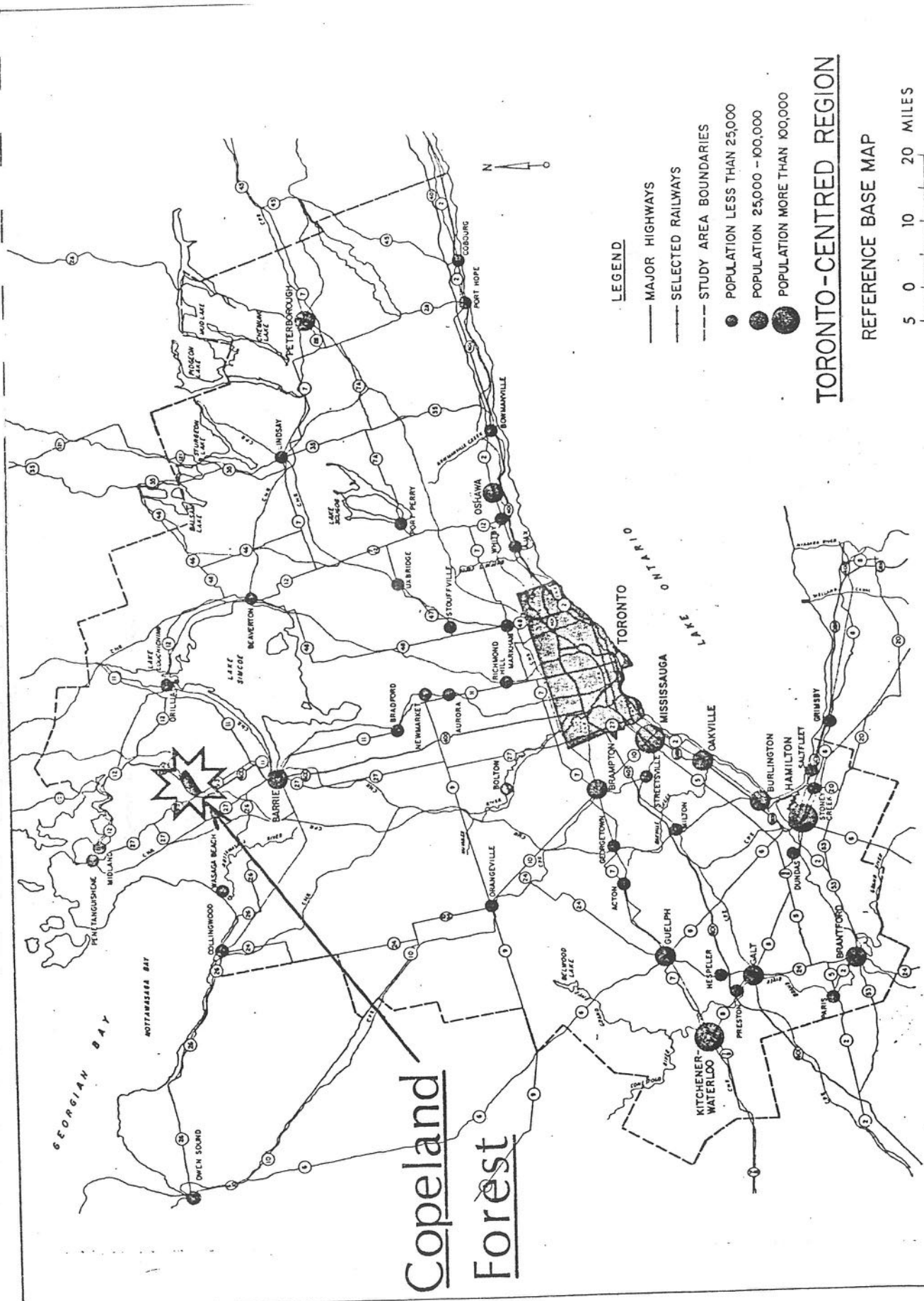
The Copeland Forest has had a relatively long history as a timber production area, and although no township roads are open through the property, several rights-of-way have been incorporated into the extensive network of forestry roads and trails that exist. More recently, the automotive expressway Highway #400 has been built west and north of the forest. This gives relatively easy access to and from the metropolitan cities to the south. Highway #93, Simcoe Road #22 and the unpaved Ingram Road continue to provide local access from the west, south and north respectively.

An active transcontinental line of the Canadian Pacific Railway runs through western, and along the northern, parts of the property.

Aside from the internal road system developed for lumbering, the major developments in the Copeland Forest Area were a lumber mill site and associated small community, situated on Conc. III of Medonte Twp., and with small dams on the headwaters of the Coldwater River. This site had been largely abandoned when the Ontario Ministry of Natural Resources purchased the property in 1978-79. Only a few of those buildings still standing are now occupied or maintained; several were recently burned and demolished.

The Copeland Forest Resources Management Area is currently intended to be an active forest harvesting and management area, with internal reserves and multiple-use zones designated in accordance with resource significance, compatibility of use, and requirements of economic forest husbandry.

This botanical Inventory documents as fully as possible the occurrence of plant species and vegetation on the property. This documentation also includes information on the earth, climate and aquatic environments in the study area. A discussion of planning considerations is given, including identification of rare plant species or other special features and reporting on the horticultural, medicinal and food values of plants.



REGIONAL DEVELOPMENT BRANCH, DEPARTMENT OF TREASURY AND ECONOMICS

FIG. I Location map for the Copeland Forest Resources Management Area, showing its position between Lake Simcoe and Georgian Bay. (source: Hewitt & Yundt, 1971)

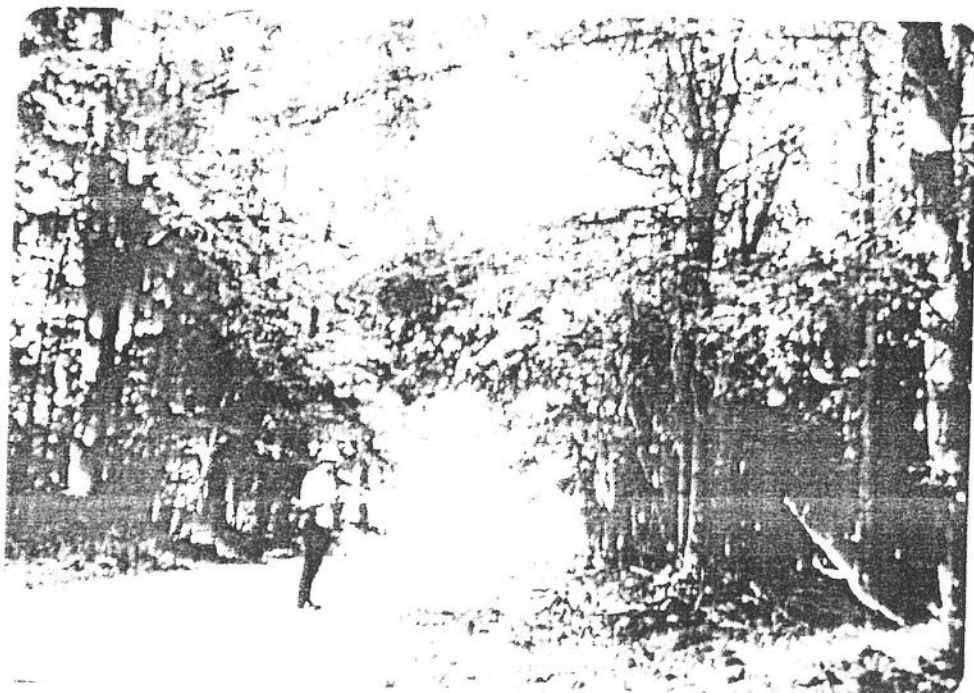


Photo 3-26 FW

Preservation of the sheltered approaches to Copeland Forest will provide a majestic introduction to visitors for decades to come.

Acknowledgements

The authors would like to thank several local naturalists and botanical specialists who added significantly to the content of this report. Mr. Bill Cattley accompanied both authors in the field on several occasions and contributed to the data base on which this report is based. Ms. Fran Westman took many of the better photographs from Copeland Forest used in this report, including the cover photo of Sundrops.

Ms. Christine Manville identified most of the moss and liverwort specimens, with a few named by Agneta Burton. Ms. Burton was also responsible for the lichen identifications. Mr. Clark Ovrebo and Mr. B.H. McGauley identified fungi.

Ms. Landa L. King provided research on edible and medicinal qualities of vascular plants. Susan Bobbette was an invaluable aid in typing and organizing the report.

We would finally like to thank staff of the Huronia District who have made this project uniquely productive.

Methods

This report is based on vascular and non-vascular specimens collected in the Copeland Forest from May to September 1979, primarily by the authors but with important contributions by interested specialists and local naturalists.

These specimens were supplemented by photographs and field identified species lists taken from as many different vegetation classes as possible. The lists were taken to be as fully representative of plant species present as possible considering the seasons of survey. All observations were made on foot, using a portable tape recorder, with information later transcribed directly from the tapes to data forms in Appendix A. The tapes themselves form Appendix D.

Additional notes taken in the field included:

- comments on dominance, abundance, and manner of growth of physiognomically important, rare, or occasionally all plant species observed;
- incidental comments on landscape, soil, water or other environmental features;
- incidental notes on wildlife;
- notes on evidence of disturbance, successional trends, significant features, etc.

Analysis included confirmation and identification of species named and collected, this being done by specialists where necessary. Vegetation Classes and Cover Types were determined and summarized from the field data, general field observations and study of pertinent literature. Field sample locations were located on 1:50,000 topographic base maps (see Map I), and the entire study area mapped to vegetation Cover Type using stereo air photography.

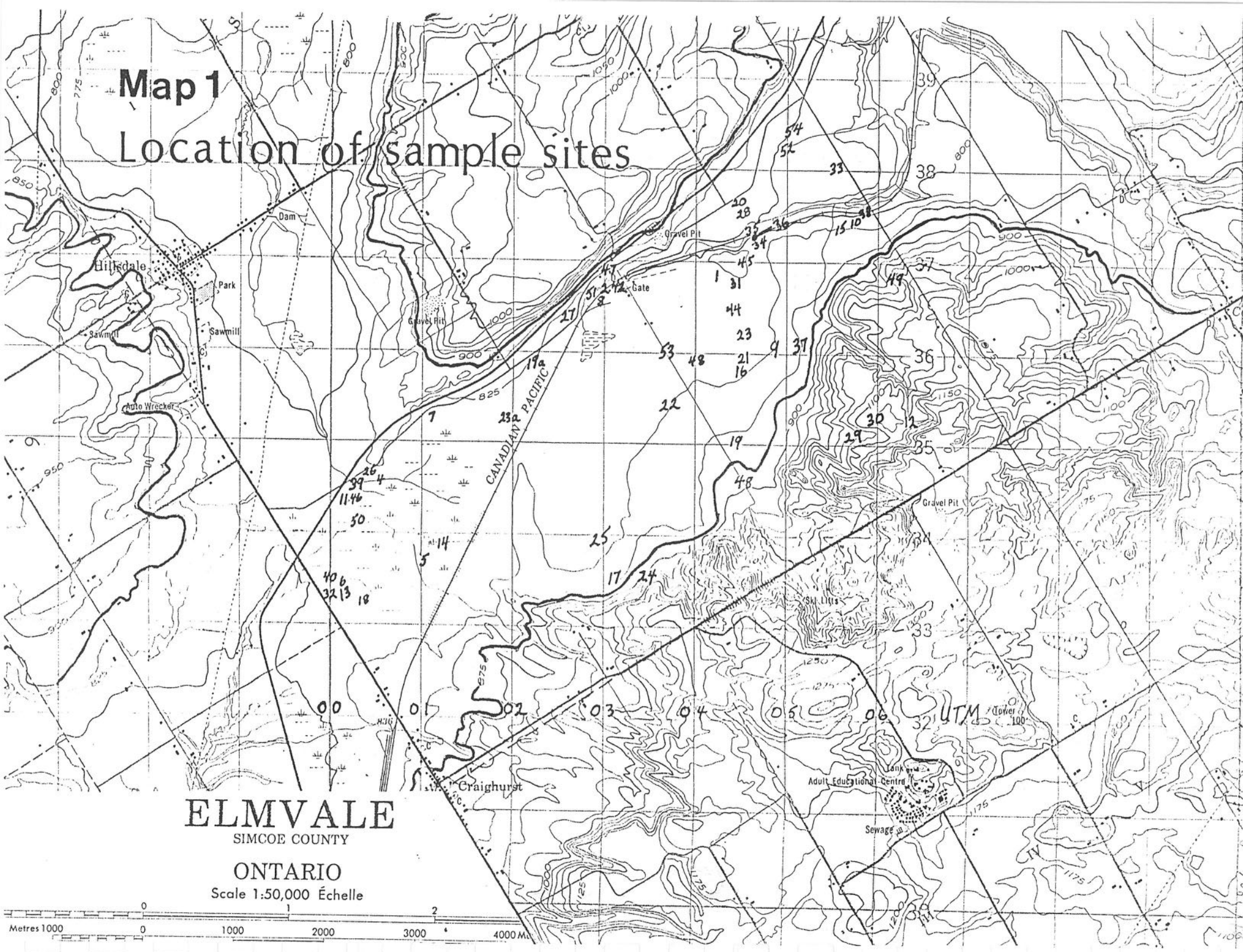
Mapped vegetation cover type units were assessed for landform, soil texture and drainage using field notes, county soil maps and reports, and stereo air photo interpretation. Ecosite mapping was then developed and coded (1:10,000 scale).

A hierarchical system of Ecological Land Classification was summarized for the Copeland Forest from cited literature.

Rare species and plant values of documented species were summarized, and other pertinent aspects of vegetation and environment reviewed to develop brief planning recommendations and identify sensitive or special plant resources.

Map 1

Location of sample sites



Too much field data was taken to be analyzed within the context of the current study. Therefore, as balanced a representation of sampled sites as possible has been worked up, with some additional information available in rough form or on tapes with the field data.

Recommendation Summary

This botanical inventory has resulted in several recommendations felt by the authors to be fundamental for the maintenance and expansion of the significant ecological roles that the Copeland Forest plays in the Simcoe County landscape. These include:

- a. Preservation of all Riparian and Seepage communities as protection environments, and their use as low level interpretive or as exclusive nature reserve areas.
- b. Preservation of designated communities containing provincially rare plant species as proposed nature reserves.
- c. Use of the Copeland Forest to train the public and Ministry personnel in the identification and use of native plants valuable to human beings.
- d. Restriction of intense developments to areas and vegetations heavily disturbed by, or resulting from, human activity.
- e. Purchase or long-term stabilization of sensitive seepage slopes outside of Copeland Forest boundaries in the area of Conc. II, Lot 43-44, Medonte Twp.



CHAPTER I

REGIONAL BACKGROUND

CHAPTER I: REGIONAL BACKGROUND

Introduction

The plants that today carpet the landscape of the study area grow here through the combined actions of several repetitive or cyclic environmental processes. These processes range from the immensity of the ancient erosion and sedimentation that formed the bedrock of the area, over hundreds of millions of years, through the most recent glacial and post-glacial period, from 20,000 years ago. The range of these processes also includes the daily and yearly cycles of climate and weather, the water cycle, and the myriad interactions of vegetation, wildlife and man.

In geographical terms, each environmental process has distinctive "regions" or "districts" which can be characterized at various scales. Although it is necessary to discuss each process or its result separately, the clearest method of discussing environmental geography is through the combinations of these processes. An ecological classification hierarchy for the Copeland Forest Resources Management Area is summarized in Table I, as adapted from pertinent literature.

This hierarchy progressively summarizes and outlines smaller and smaller units of the earth's surface which have ecological or biogeographic significance. Within the Copeland Forest itself occur relatively small Ecosites, the botanical components of which are the primary subject of this report.

Table I: COPELAND FOREST RESOURCES MANAGEMENT AREA

ECOLOGICAL CLASSIFICATION HIERARCHY

<u>Classification</u>	<u>Summary</u>
Nearctic Ecorealm (Udvardy, 1975)	North America from sub-tropical Mexico to Greenland and the Arctic.
Great Lakes Eco-province (Udvardy, 1975) (Rowe, 1972)	Forest and woodland communities of broad-leaved, cold-deciduous trees, needleleaved, evergreen trees and mixed stands. Extends across S. Ontario and the north-east U.S. in a relatively narrow band down the St. Lawrence River. Largely cleared or lumbered.
Huron-Ontario Eco-region (Rowe, 1972) (Hills, 1959)	Forest and woodland communities of maples, beech, birches, ash, fir, cedar, pines, oaks, elms, poplars, tamarack and hemlock. Currently identified from Manitoulin Is., across the Dundalk Upland and the Trent River Valley to the Kingston area, in southern Ontario.
Lake Simcoe Eco-district (Hills, 1959)	Abandoned lake plain of low lime silts and sands, with broad, high ridges and hills of limey till or acid sands. Extends from Georgian Bay to the eastern basin of Lake Simcoe, west to the Niagara Escarpment.
<u>The study area overlaps 2 local Ecosections</u>	
Orr Lake Ecosection (Grinnell, Williams, <u>et al</u> , 1956)	Connected valleys of abandoned lake plain among broad ridges and hills; elevations about 210-265 m (700-875 ft) Above Sea Level (ASL). Topography is flat to gently undulating, including the upper valleys of the Coldwater and Sturgeon Rivers.
Oro Hills Ecosection (Grinnell, Williams, <u>et al</u> , 1956)	Rolling and hilly sandy plateau between Barrie and Orillia, from about 340-410 m (1100-1375 ft) ASL. Steep north-facing slopes occur down to elevations of 265 m (875 ft), along the Orr Lake Ecosection boundary. These hills are dry to very dry.

Bedrock Features

The broad, wet and sandy valley of the Copeland Forest is underlain at depth by flat-bedded, blocky limestone of the Simcoe Group (Trenton-Black River) (Fig. II). This rock is deeply buried from 98-212 m (325-700 ft) (Deane, 1950) at the Copeland Area. It's surface is relatively different compared to the landscape.

The buried bedrock surface slopes upward toward the north and north-east. It rises from a narrow trough 106 m (350 ft) Above Sea Level (ASL) at Barrie and Kempenfelt Bay, through 152 m (500 ft) ASL at the Copeland Forest. Past this, the bedrock surfaces to form limestone plains at elevations about 227 m (750 ft) ASL, north of Orillia. Small bedrock scarps that often fringe these plains mark the north-east frontier of an immense, shallow "bowl" of related sedimentary rock that stretches far south to Ohio and west to Wisconsin.

Landform

The landforms of the study area are based on deep deposits of unconsolidated earth materials, predominantly sands and tills. They were deposited over hundreds of thousands of years of glacial activity, in a bedrock trough between the Orillia limestone plains and the Niagara Escarpment. Locally deeper deposits occur where individual ice lobes halted, or met one another such as at the kame moraine that is the Oro Hills Ecosection.

The Oro Hills rise abruptly along the south and southeast, with steep irregular slopes about 100 m (300 ft) high. A smaller, more regular but no less steep, slope shelters the northwest and north boundaries. This is the Mount St. Louis ridge, and it rises about 60 m (200 ft) above the Copeland Forest Valley. Smaller, lower hills also occur due west and to the northeast.

The broad, steep sided valley of the study area was flooded by post-glacial Lake Algonquin to a depth of about 15 m (50 ft) for at least 500 years (Burden and McAndrews, 1973). This inundation probably steepened several of the Copeland Valley slopes through wave action.

There are low beach/spit sand ridges at the 3rd. Conc. near the old mill site, and in the southwest corner of the study area; but the short period of flooding did not leave many significant lacustrine features. A small area of silt clay loam at the mill site may also be one.

Over the rest of the study area outwash sands were smoothed and lower slopes graded, but some landform features were scarcely affected by the lake. Small, oval depressions (similar to "kettles" or "pitted outwash") occur south of the railway in Conc. V. Lake sediments also

FIG. II Bedrock relationships of the Copeland Forest. Although limestones outcrop nearby to the north and west, no bedrock outcrops are known from the study area.

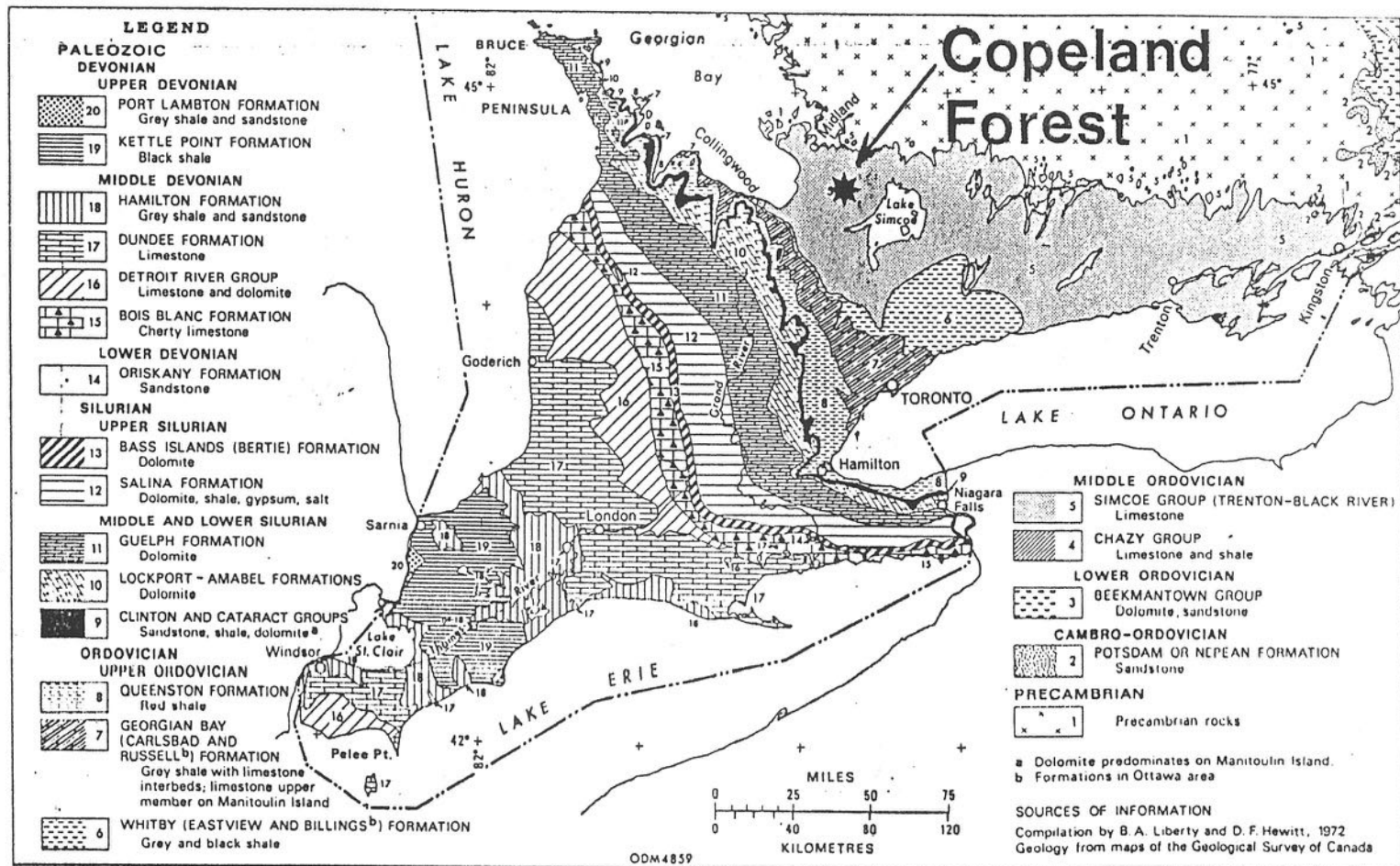


Table II: LANDFORM, SOIL TEXTURE AND DRAINAGE MAP CODES*

- F - Fluvial Landforms - Landforms controlled by or closely associated with continually flowing, or sometimes seeping water. Channel formation and over-steepened banks are characteristic.
- L - Freshwater Lake Landforms - These occur below 265 m (875 ft) at the Copeland Forest. They formed during a short period of flooding and so are relatively weakly developed. They dominate the Orr Lake Ecosection.
- G - Glacial Meltwater Landforms - These form the basic landforms of the Copeland Forest, but are largely modified by lake action (see above). At higher altitudes, they form the characteristic steep sandy slopes of the Oro Hills Ecosection.

LANDFORM MODIFIERS

- a - apron
- c - channelled
- h - hummocky
- p - plain
- r - ridge
- s - steep
- t - terrace
- z - human disturbance (fill, etc.)

SOIL TEXTURE MODIFIERS

- mc - moderately coarse (sandy loam)
- mf - moderately fine (clay loam)
- O - organic (poorly decomposed plant debris)

DRAINAGE MODIFIERS

- 2 - well drained
- 3 - moderately drained
- 4 - imperfectly drained
- 5 - poorly drained
- 6 - very poorly drained

* These refer to separate, 1:10,000 scale Ecosite maps produced in conjunction with this report.

The many streams of the Copeland Forest rise from steep valley slopes of the Oro Hills (above left). These seepages are extremely sensitive and should be carefully protected. When the streams reach the lowlands, they spread and become lost in large swamp scrub and wood-land communities (above right), to reform into major streams, the Coldwater and Sturgeon Rivers.

Photo 1-19A RB

Photo 1-20A FW



failed to bury the many small flutings and ridges that project as treed "islands" in the marsh wetlands of Conc. I.

Following the drainage of the lake, over 11,000 years of vegetation growth and stream erosion have slightly altered the landform. The major effect of this period has been the deepening of the upper Coldwater River ravine. This eroding stream valley begins near the 3rd Conc. line, where it is about 2-3 m (6-10 ft) deep. It has deepened to 15 m (50 ft) where it leaves the study area at Conc. V, and a number of short tributaries have steep, erosive ravine valleys through both Conc. IV and V.

The Sturgeon River and North Willow Creek watercourses have cut very low channels, 2-3 m deep, and the exact courses of most of their headwaters in the study area vary with beaver activity and wet/dry climatic cycles.

Wetland vegetations have built up a few significant deposits of saturated organics over 1 m deep. These have been identified in Conc. I and IV, but are certainly scattered at small ponds, wet forests, seepage basins, etc. throughout the valley Ecosystem.

The landform map codes and modifiers are listed in Table II, as they apply to the study area.

Hydrology

Seepage and Riparian

The Copeland Forest Resources Management Area is the headwater area for three significant local streams: The Coldwater and Sturgeon Rivers and North Willow Creek. The approximate watersheds of these streams are shown on the Ecosystem maps.

Small headwater streams of the North Willow rise south of the study area, but flow north and enter the Copeland Forest near the Canadian Pacific rail line in Conc. I. From this point, east to Horseshoe Valley, a significant number of springs and seepages along the lower and middle slopes of the Oro Hills occur outside the study area boundaries, but supply important water to it.

The most active zone of groundwater discharge appears to occur between 250-280 m (850-950 ft) ASL, near the base of the kame moraine slope along the south and southeast. This water flow provides a continuous supply of cool, rich groundwater that flows in short streams before spreading into marshes, swamps and wet forest. This zone was wider in that it extended further upslope before extensive deforestation of the uplands reduced water tables significantly.

Active seepage areas also occur along the slopes of the Coldwater River ravine and its tributaries, but most of its headwaters and those of the other streams merge with shallow aquatic and marshland situations. At least one short stream that rises in Conc. V disappears into the porous sandy soil, to emerge again closer to the Coldwater River, and many channels into the wetlands braid, or become lost under vegetation.

Aquatic

Most aquatic environments are small, and maintained by human or beaver dams. Small open water pools occur mixed with the marshes, swamps and beaver ponds of Conc. I. These shallow water bodies warm up considerably over the summer months, while the maintained flow of groundwater keeps them from freezing too deeply in winter.

Several of the tributary ravines of the Coldwater River have been dammed, and narrow, deep ponds have resulted. Small, usually marshy or temporary ponds occur in oval depressions which break the mixed forest canopy along the Ingram Road.

Although the aquatic situations of the study area are rather small, they are numerous and scattered below about 250 m (825 ft) ASL. Aquatic environments warm and cool more slowly than air or land, and maintain a locally more humid atmosphere.

Soils

The soils of any area develop through the action of climate and a biotic community on the surface of the earth. Like most natural phenomena, they can be organized for convenient description and generalization. The brief discussion of soil types which follows is derived from The Soil Survey of Simcoe County (Hoffman, *et al*, 1962) and the map of the study area from this work is reproduced in Fig. III.

The current study gives little reason to alter the soil type descriptions given in The Soil Survey, however, significant details of soil distribution at the Copeland Forest Resources Management Area are not indicated on the County map, understandably. The most efficient way of indicating actual or probable soil type is through the Ecosite mapping and coding. Therefore, following the discussion of soil types, a summary table is presented relating these soil types to their respective Ecosite codes (Table III).

Tioga Soil Series

These soils are developed on loamy sand, sandy loam and fine sandy loam deposits. They are often stonefree, but in the study area frequently have scattered, rounded granite boulders, occasionally of considerable size. Tioga Soils are Podzolic, that is they suffer leaching of nutrients, minerals and fine soil particles from near the surface. This results in an ashy-grey A2 horizon (4-8 cm deep) which becomes very acid. Leached material tends to be deposited in a darker, deeper, B horizon (10-90 cm deep).

Tioga soils occur on the sandy, steep Oro Hills and all steep ravines of the Coldwater River occur in the zone of Tioga soils to the north-east. It is clear that these soils are well and deeply drained. They are also very susceptible to wind and water erosion, and in fact most areas of ongoing erosion in the study area occur with steep slopes in these sands.

Alliston Soil Series

Alliston soils have developed on similar soil materials as Tioga soils, and are well enough drained to exhibit some of the leaching characteristic of the Podzolic Soils. These soils are imperfectly drained, so that some mottling (gleyed horizon) usually occurs from 10-90 cm below the surface.

The mottling is not the only difference between Tioga and Alliston soils. The moist Alliston series is less susceptible to drought, and its generally lowland position and undulating topography reduce erosion hazards. At the study area, this soil has scattered granite boulders in it. In local areas, concentrations of gravel occur, probably small gravel bars from the time of Lake Algonquin. It has a low natural fertility and is acid near the surface, like the other sandy soils in the study area.

Granby Soil Series

This is the wettest extreme of the series of soils developed on the sandy and fine sandy loams of the study area. Drainage is so poor that no leaching occurs, and the poorly aerated soil results in the buildup of organic matter on the surface. Below is a dark, surface soil horizon to about 18 cm (7 in) deep, with a mottled greyish brown gley horizon underneath.

The Granby soils grade into organic soils, especially in hummocky areas as occur through Conc. I and III, and occur intimately intermingled with them.



Photo 4-1A RB

Almost all soils of the Copeland Forest have formed on the pale brown, silty sand in this picture. The major differences in soil types are related to soil moisture and drainage.

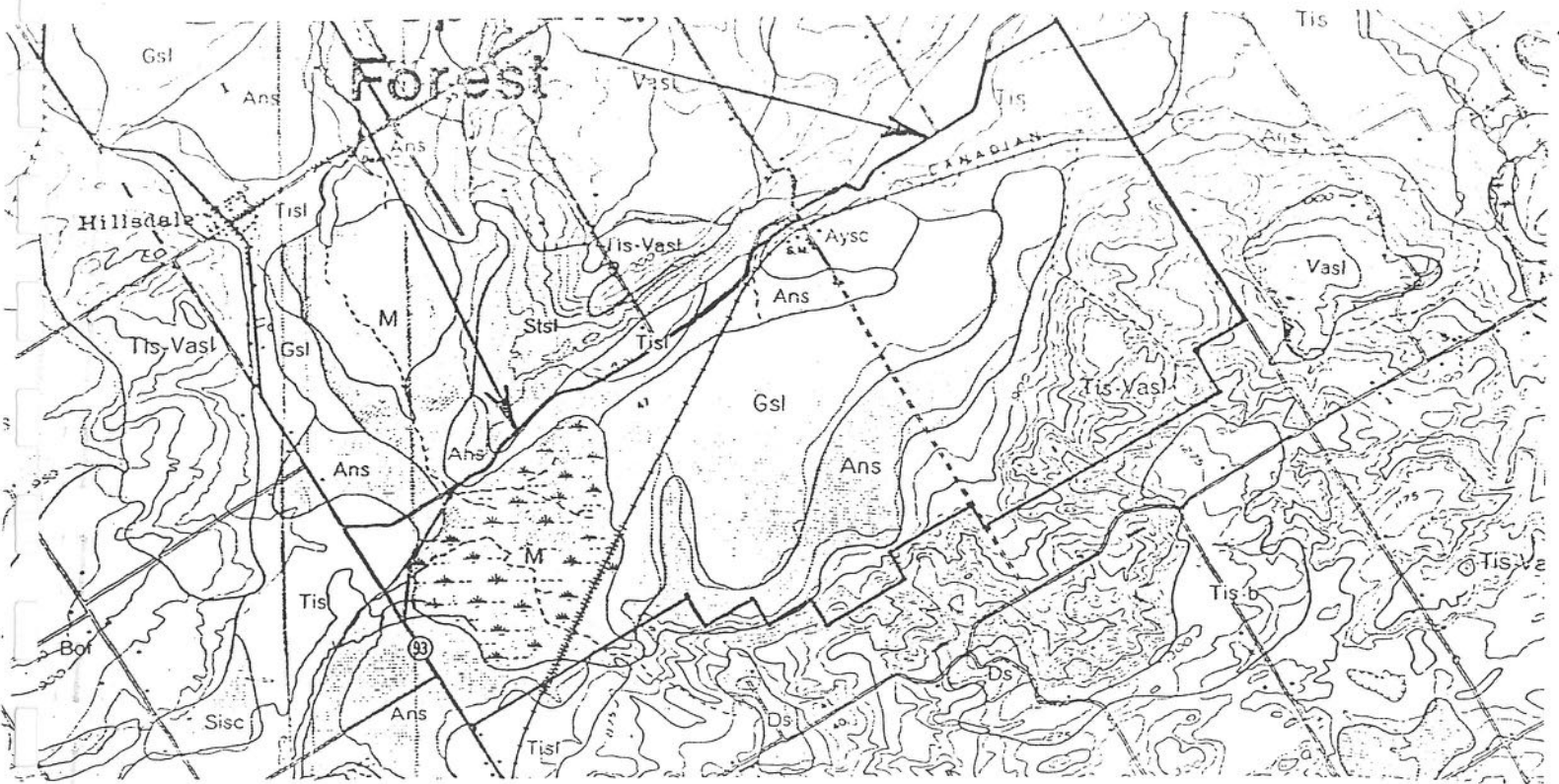


Figure III

Soils and topography of the Copeland Forest. This map is presented for introductory purposes, and more precise soil distribution must be noted from the Ecosite maps. Map codes are summarized in Table III; elevations on this map are in feet.

(Source: Hoffman et al, 1962)

Table III: SOIL - ECOSITE CORRELATION TABLE

<u>Soil and Map Code</u>	<u>Drainage</u>	<u>Texture</u>
Tioga (Tis; Tis-Vasl)	Well and Moder- ately Drained 2-3	Moderately Coarse mc
Alliston (Ans)	Imperfectly Drained 4	mc
Gransby (Gsl)	Poorly Drained 5	mc
Atherley (Aysc)	Imperfectly Drained 4	Moderately Fine mf
Organic (M)	Organic soils are indicated by the symbol "O", or by the marsh symbol "Oh" with a drainage class of 6	

Organic Series

Organic soils are defined as 40 cm (16 in) of poorly decomposed mixed organic matter over a mineral horizon, so we can see the logical progression from the Granby soil series to an organic soil as plant growth builds a deeper surface organic horizon.

Organic matter at Copeland is predominantly derived from herbs, scrub and tree debris. Although some of the deeper organic deposits probably have a significant Sphagnum component in them, there are no areas in the study area today where mosses prevail in the soil forming process. Generally, the deepest organic deposits have accumulated at sites of the most saturated or regularly flooded soils.

These soils are very susceptible to erosion by water when undermined, and eroded organics have been seen associated with beaver activity in Conc. I. Dried organic soils erode through chemical breakdown, and may burn.

Atherley Soil Series

This fine textured soil occurs at a small pocket just south and east of the old mill site on Conc. III. It is poorly drained and of the Gleysolic Soils, similar to the Granby series in terms of its organic surface horizon, dark upper soil and mottled gley horizon. Parent materials are distinctly different, however, being clay to silt clay loams.

The fine texture of the soil reduces internal drainage, and so can combine with topography to maintain a high soil water table. The natural fertility of this soil is high compared to the sandy loams which dominate the study area. This silty clay loam also resists wind and gully erosion, although it is subject to sheet erosion, and compaction by heavy machinery.

Climate

The climate of the study area is conditioned by its location in the north-eastern lowlands of North America, in the Great Lakes Basin. In general, the four seasons can be easily recognized.

Spring and fall are similar in that they both usually have blustery, stormy weather. Precipitation is frequent and may be in the form of rain or snow. The influence of the nearby Great Lakes is strongly felt at these seasons; in the fall, the warm and humid bodies interact with cold air masses to modify them and generate snow, while in the spring, the icy lakes make hot, humid air from the south and southwest unstable and stormy.

The influence of landform on site climate is perhaps most dramatically in evidence through spring or fall. In the spring, a northeast slope or similar sheltered spot may have a relict snow bank weeks after an adjacent south facing field has melted, dried and warmed. But in contrast, autumn frosts will wither corn on the open field many days before they penetrate sheltered slopes and woodland edges.

On average, the frost-free period in the Lake Simcoe Ecodistrict extends from 20 May to 20 September, with a mean-annual growing season of 190 days. This roughly defines the summer season, which is usually pleasant and changeable. Precipitation through this period averages about 35 cm (14 in) or about 38% of the average annual amount (Brown, et al, 1968). Summers are warm, the three hottest months giving an average temperature of 19 C (66 F).

The Great Lakes Ecoprovince is a lowland open to many weather systems. It is uncommon for the local climate to be dominated by any one type of weather for more than 5 or 10 consecutive days, throughout the year. Droughts occur, but they become serious only if prolonged more than three weeks. Hurricanes from the Caribbean have been part of the study areas climate, and are a rare possibility every fall. Warm, moist air from the Gulf of Mexico far more frequently invades the study area throughout the year, and is sometimes responsible for the local "January thaw".

These occasional thaws break a cold winter that has a mean temperature of about -10 C (19 F) from December to February (Hoffman, et al, 1962). Snowfall may occur over a longer period, but it is concentrated in January and February and averages about 2.5 m (8 ft) each year. The Lake Simcoe Ecodistrict, and particularly the study area, lies in a "snowbelt" zone where local snowstorms extend downwind from the Great Lakes. This can produce dramatic situations where Midland or Orillia are inaccessible due to blizzard conditions, while Barrie "basks" in sunshine, the dark storm clouds visible on the northern horizon.

The extreme high temperature reported has been 40 C (104 F), with an extreme low temperature of -40 C (-40 F). This, of course, reflects the local conditions at a meteorological instrument box. It has been clearly proven that the ecoclimate and microclimates associated with landform and vegetation can be extremely different from that represented at the standard instrument shelter (Wolfe, et al, 1949). There is no doubt that exposed, devegetated fields, open to both summer sun and winter wind, will have frequently experienced these temperatures. On the other hand, cool conifer swamps, seepages and steep ravines or northeast facing slopes will have rarely approached either of these extremes.

Vegetation History

The landscape of the study area has had a consecutive plant cover for about the last 12,000 years. Before this time, southern Ontario lay under an immense sheet of ice similar to modern Antarctic landscapes (Chapman and Putnam, 1973).

As this ice melted, it dumped sand, silt, clay and rocks it had carried or pushed.

Fossil evidence indicates that tundra and sporadic permafrost were confined to a narrow zone, adjacent to the edge of the melting ice-sheets (Moran, 1976). About 10,000 years ago this subarctic vegetation of Spruce (Picea spp.) and Sedges (Cyperaceae) suffered a 10 fold collapse from which it never recovered. Still, for the next 3,500 years, conifer trees dominated the Lake Simcoe Ecodistrict landscape. Spruce dominance was replaced by Jack Pine and Red Pine (Pinus banksiana and P. resinosa), and these declined to be followed by successive peaks of White Pine (Pinus strobus) and then Cedars (Thuja and Juniperus).

About 6,500 years ago, one of the most dramatic recent vegetation events in the region occurred. At this time, coincident with the last collapse of the conifer dominance, the eastern deciduous forest species Sugar Maple, Basswood, Hemlock and Beech became prevalent (Burden and McAndrews, 1973). These invasions and successions resulted in the complex regional vegetation that has maintained itself down to modern times, despite climatic fluctuations and other ecological phenomena that have caused changes in the abundance of individual prevalent species.

The great diversity of plant species in the Lake Simcoe Ecodistrict, is directly related to the pattern of vegetation change just outlined. Roughly speaking, plant species of the boreal, mid-western, appalachian and Atlantic coastal plain ecoregions have "had their day", through history, and many found local ecosites within which they could persist. Similarly, the growth of human societies has also contributed to the flora and affected the vegetation of the Copeland Forest Resources Management Area.

Over the vast stretch of time, and related vegetation change, the aborigines influenced plants in manners scarcely to be distinguished from natural causes, that is through fire, seed dispersal, harvesting of wild edibles and wildlife, etc. It was not until about 1,000 A.D. that the idea and technology of agriculture began to enter Southern Ontario, but by 1,600, aboriginal agriculture had dramatically changed the face of much of the Lake Simcoe Ecodistrict (Heidenreich, 1963).

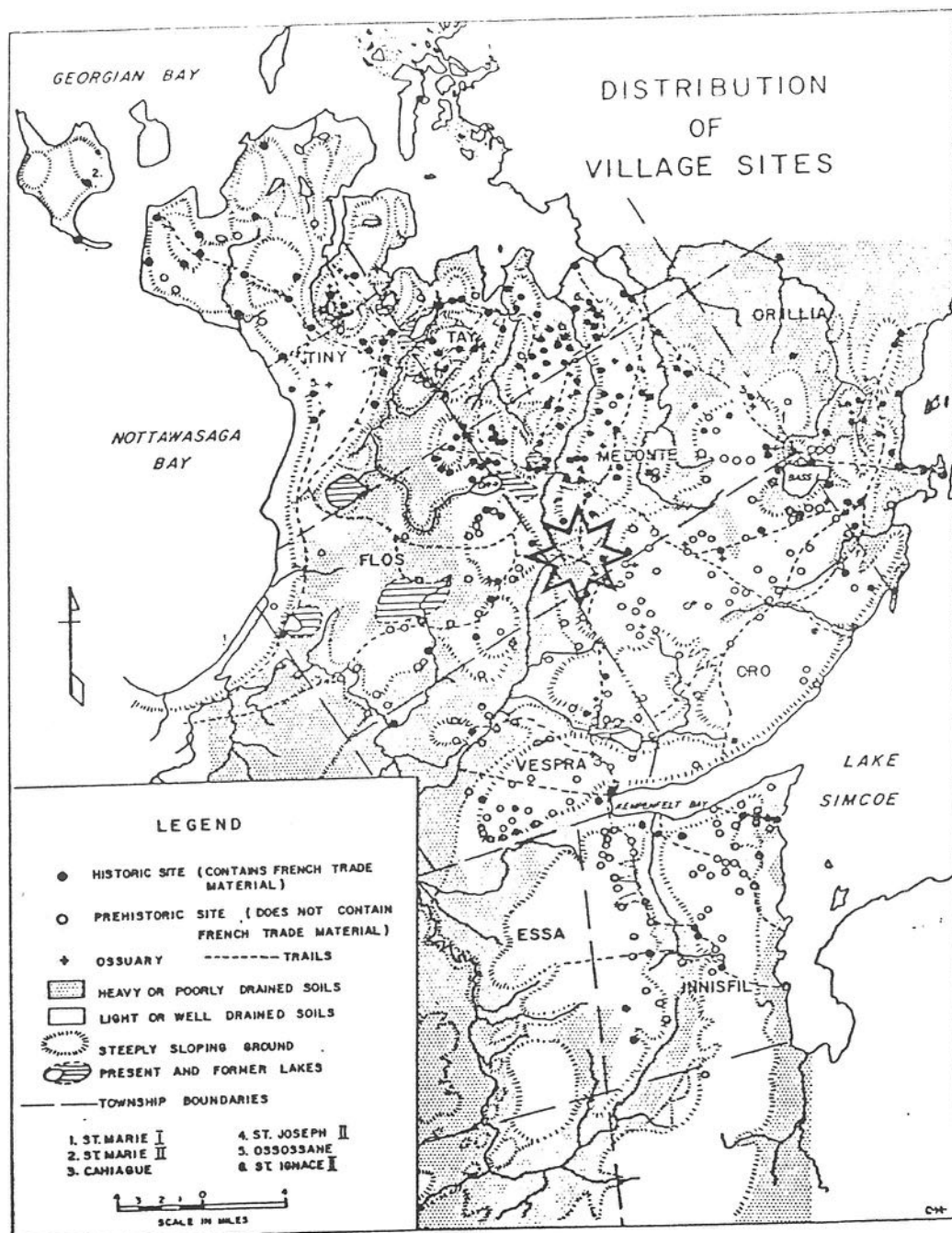


FIG. IV Agriculturally based Huron village sites surrounded the Copeland Forest (★) for hundreds of years. However, no cultivation or tree clearing occurred in the area from 1650 to 1830. (source: Heidenreich, 1963)

Reports of the first French adventurers gave the Lake Simcoe Ecodistrict a human population of about 30,000 persons, from at least 1615 to 1636. Further reports suggest that this population would have required 10,000-12,000 ha (25,000-30,000 a) of cleared, "cultivated" land for adequate food (Heidenreich, 1963). Added to this is the fact that soil exhaustion occurred at least after 4-6 years and at most after 10-20 years, requiring further clearing of the fertile forest humus. So within recorded history, as much as 35,000 ha (90,000 a) could have been cleared.

Fossil pollen studies elsewhere in the Huron-Ontario Ecoregion show that this Indian agriculture was widespread, and that it was coincident with the loss of Beech, Maple, Hemlock and Elm (Fagus, Acer, Tsuga and Ulmus), and a distinctive surge of Pine and Oak. Changes of species named, with values 2 to 5 times above or below previous levels, characterize the period from about 1400 to 1800 A.D. (McAndrews, 1976).

The Copeland Forest was in the centre of this prehistoric and historic Indian activity, and likely parts of its extreme northern, eastern and southern boundaries were farmed by the Hurons (Fig. IV).

These lands may have begun to regrow to Pine/Oak Forest, or Aspen Woodland, at any time between 1400 and 1650. By the latter date, all sites of Indian agriculture (perhaps 40,000 ha) were abandoned. Mourading Iroquois war parties had slaughtered the Huron communities and the Lake Simcoe Ecodistrict became a non-mans's-land and Iroquois or Algonquin hunting ground. The Indian fields reverted to forest over the better part of 200 years.

European settlers entered the Lake Simcoe Ecodistrict in an ever-increasing rush over the 19th Century. Medonte Twp. had a census of 145 settlers in 1837, which grew to 2,795 in 1878 (Grinnell, Williams, et al, 1956).

The loss of natural vegetation has followed this rush of development, comprising of 25%, 58%, and 65% of Medonte in 1878, 1921, and 1956 respectively. However, remaining vegetations are not "purely" natural, as they have been variously subject to impacts such as logging, grazing, etc.

Compared to the long, plodding vegetation history implied by fossil studies, the past 300 years have seen an almost instantaneous change of the magnitude and distributions of wild communities of the Lake Simcoe Ecodistrict. This has resulted both from, and in, the introduction of new plant species, changes in microclimate and plant succession, accelerated water and wind erosion.



CHAPTER II
COPELAND FOREST
RESOURCES MANAGEMENT AREA

CHAPTER II: COPELAND FOREST RESOURCES MANAGEMENT AREA

Introduction

The purpose of the vegetation classification of this Botanical Inventory is to provide a "collective" classification meaningful to a wide range of user needs. This classification attempts to:

- a. be hierarchical so that it may apply to ecological mapping at several scales;
- b. so far as possible utilize and integrate other pertinent vegetation classifications, original field work and stereo airphoto interpretation;
- c. integrate with landform and soil classifications to provide mapping detail using relatively simple map symbols.

Vegetation Hierarchy

The vegetation classification relates to both broad-scale and local vegetation phenomena. Broad-scale classification is drawn from national and international (planetary) schemes, as well as vegetation features with major physiognomic and ecological significance. This report calls these broad-scale vegetation types "VEGETATION CLASSES".

These Classes are named, with brief definitions and their capitalized map code, in Table IV. They have been for the most part derived and named from the following references:

Curtis 1959; IUCN, 1973; Bobbette and Maycock, 1975.

Vegetation Classes have definite vegetative and ecological meaning, but the precise nature of each Class can only be understood when it is qualified by a more detailed, local or regional adjective. This qualifier is called the "VEGETATION COVER TYPE" in this report. These Cover Types have been derived and named from the following references:

Curtis, 1959; Bobbette and Maycock, 1975.

The vegetation Cover Type is equal to the PLANT ASSOCIATION, when it is combined with a specific soil and landform to produce the ECOSITE ecological map unit, within each Ecoregion. Cover Types are summarized but not defined in Table V.

Table IV: VEGETATION CLASSES

<u>Map Code</u>		<u>Description</u>
F	<u>FOREST</u>	Communities of plants associated with trees (over 5 m (17 ft) high and stems greater than 10 cm (4 in) diameter breast height (DBH)) with 60% or more canopy. Forest canopies provide a shaded and sheltered niche on the forest floor, usually with the tall scrub strata (1 m - 5 m high) minor or absent.
W	<u>WOODLAND</u>	Communities of plants associated with trees producing 30% to 60% canopy. Woodland canopies are quite broken but significant tall scrub strata give total woody cover of at least 40% or more.
P	<u>PARKLAND</u>	Communities of plants associated with scattered trees producing 10% to 30% canopy cover. Tree groups are restricted to small groves. Tall scrub strata have 20% or less cover, although important dwarf scrub strata (less than 1 m (3 ft) high) may exist.
S	<u>SCRUB</u>	Communities of plants associated with shrubs or obviously repressed trees less than 5 m (17 ft) high, less than 10 cm (4 in) DBH and producing 30% or more canopy cover.
H	<u>UPLAND</u> <u>HERBACEOUS</u>	Non-woody plant communities (shrub and tree canopy less than 30%) associated with better drained sites, and generally dominated by graminoids and/or herbs.
O	<u>WETLAND</u> <u>HERBACEOUS</u>	Non-woody plant communities associated with poorly drained sites, and generally dominated by mosses, graminoids and/or herbs.
A	<u>AQUATIC</u>	Non-woody communities of plants associated with perennial standing water including those that grow in, on, under or through the water.
L	<u>LAKESHORE</u>	Communities of plants associated with the mineral or organic shorelines of standing, open water bodies. Frequently a narrow transition band from herbaceous pioneer to woody stabilizing vegetations.

Table IV: VEGETATION CLASSES continued

<u>Map Code</u>		<u>Description</u>
R	<u>RIPARIAN</u>	Communities of plants associated with flowing, periodically flooding or constantly seeping watercourses.
D	<u>ANTHRO- POGENIC</u>	Communities of plants following and associated with human disturbance and development.

VEGETATION CLASS PROPORTIONS OF STUDY AREA

FOREST:	37%	(Conifer: 7.6, Mixed: 13.4, Broadleaf: 16.0)
WOODLAND:	27%	(Conifer: 11.0, Mixed: 9.0, Broadleaf: 7.0)
PARKLAND:	1%	
SCRUB:	3%	
UPLAND HERBACEOUS:	1%	
WETLAND HERBACEOUS:	5%	
AQUATIC:	2%	
LAKESHORE:	1%	
RIPARIAN:	10%	
ANTHROPOGENIC:	13%	



Forest

Woodland

Parkland

R. Sobbette

Moisture Substrate regime Temp. °C		Arid	Very Dry	Dry	Dry Mesic	Mesic	Wet Mesic	Wet	Very Wet	Saturated	Open Water
Colder	Rock										
	Sand				Fd, Fh	Fh	Fc, We	Fc, We Rc			
	Loam										
	Clay										
	Organic										
Normal	Rock										
	Sand		Hp	Wa, Hp	Fm, Hb	Fd, Fm Fp	Fb, Fd Fp, Rd	Fb, Fr Wr, Sx	Fr, Wr Sx, Rs	Sx, Oh On, Rh	A
	Loam										
	Clay					Hh	Fm				
	Organic								Fc, We Sx, Oh	Fc, We Sx, Oh	
Warmer	Rock										
	Sand		Hp	Hp	Fm	Fm					
	Loam										
	Clay										
	Organic										

SITE - VEGETATION MATRIX

The occurrence of the same vegetation cover-type on different sites implies the occurrence of slightly different plant associations within that cover type.

Also, disturbance may produce successional woodland communities wherever forests occur.

Table V: VEGETATION COVER TYPE

<u>Map Code</u>	<u>Description</u>
<u>F</u>	<u>FOREST</u>
b	Birch
c	Cedar
d	Maple/Hemlock
h	Hemlock
m	Maple/Beech
p	Balsam Poplar
r	Maple/Cedar
<u>W</u>	<u>WOODLAND</u>
a	Trembling Aspen
c	Cedar
m	Sugar Maple
p	Balsam Poplar
r	Maple/Cedar
<u>P</u>	<u>PARKLAND</u>
<u>S</u>	<u>SCRUB</u>
x	Alder/Willow
<u>H</u>	<u>UPLAND HERBACEOUS</u>
b	Poverty Brackenland
h	Abandoned Hayfield
p	Poverty Grassland
<u>O</u>	<u>WETLAND HERBACEOUS</u>
h	Freshwater Marsh (including Cattail, Sedge and Sedge- Forge)
n	Sedge Flat
<u>A</u>	<u>AQUATIC</u>
<u>L</u>	<u>LAKESHORE</u>
<u>R</u>	<u>RIPARIAN</u>
c	Conifer
d	Mixed Woodland
h	Herbaceous
s	Scrub
<u>D</u>	<u>ANTHROPOGENIC</u>

FOREST

Forest in the study area has been mapped into seven cover types, plus two types that are unmapped. One type was unmapped due to small size (Pine/Maple Forest) and the Plantation Forest has been uncoded along with other disturbance vegetations (D - Anthropogenic), although map limits for these latter have been drawn where possible.

Copeland Forest was recently covered by more extensive forest cover than at present, but this has been reduced to Woodland, Scrub and Herbaceous classes by forces discussed under those headings. On the other hand, several areas formerly cleared of trees have been replanted to coniferous forest stands.

The forests at Copeland are dominated by Maple, Maple/Hemlock, Maple/Cedar and Cedar cover types. These are productive, well stocked stands that are typical of the Lake Simcoe Ecodistrict and the Huron Ecoregion. A few of the secondary forest cover types were not sampled in the field, but are identified from airphoto interpretation and described from experience with similar stands in Simcoe County.

More detailed descriptions from which the following summaries are drawn may be seen in Appendix A.

Fb - Birch Forest

Birch forests are a successional stage on sites that eventually support Maple/Cedar stands. They have a complex of tree species secondary to White Birch*, including Balsam Poplar, Balsam Fir, Red Maple, Cedar, Yellow Birch and others. Groves of almost pure White Birch may occur.

No field samples are documented, but some community features may be inferred from closely related, documented vegetation.

Sites are generally wet-mesic, on gently rolling or hummocky sands. Regeneration of tree species dominants is variable, but generally good. Shrub strata is of repressed Red-osier Dogwood, Speckled Alder, Woodland Raspberry, etc. The herb strata frequently includes Clubmosses, Ferns, Woodland Sedges, Wild Sarsaparilla, Foam Flower, Manna Grass, etc. Mosses occur on old stumps, tree bases and occasionally drier knolls. Such species as Climacium dendroides, Pleurozium schreberi, Dicranum spp. and sometimes Sphagnum spp. occur, but are generally discouraged by fairly heavy broadleaf litter.

* Latin names for all species mentioned in the vegetation section may be referred to in the Vascular Flora.



Photo 4-17A RB

Contrast between Cedar Forest (right) and Birch Forest (left), with a Maple tree in the centre of the photo. Truncated stumps indicate lumbering, and evidence of fire was also observed.

Fc - Cedar Forest

Cedar forests are one of the main wetland treed vegetations at Copeland, and contain some of the most spectacular and rare botanical resources in the area. Five sites were investigated in detail (Appendix A).

Forest cover is dominated by Cedar, occasionally with scattered Red Maple, Balsam Poplar, Tamarack, Black Spruce, Black Ash, White or Yellow Birch. An important area of Cedar forest has scattered overstory White Pine, just west of the 3rd line.

Understory cover varies from extremely rich to quite sparse. Shrubs are generally low, such as Woodland Raspberry, Alder Buckthorn, Wild Currants and American Yew. Herbs are generally the common, conifer swamp species like Twinflower, One-flowered Pyrola, many Ferns, Sedges, Painted Trillium, Blue-bead Lily, Cucumberroot, etc. Not infrequently, however, significant populations of native Orchids (Lady-slippers, Twayblades, Rein-orchids, Adders-mouth, Coral-root, etc.) occur, and several rare species including Mimulus moschatus, Valeriana uliginosa and Carex laevivaginata have been discovered.

The moss cover of Cedar Forests may be abundant with Sphagnum and other species, but also can be sparse with deep shade and heavy leaf litter.

Fd - Maple/Hemlock Forest

Maple/Hemlock Forests form an important component of the Copeland vegetation. They occur on mesic to wet mesic sites and appear transitional between the slightly drier Maple/Beech stands and the slightly wetter Maple/Cedar cover type.

Trees are predominantly Sugar Maple and Hemlock, with secondary species including White Birch, Balsam Fir, Beech, Balsam Poplar, Ironwood and Red Maple. Reproduction is variable, usually of the more shade-tolerant species.

Shrubs may be virtually absent, or discontinuous in response to small canopy openings. Species include Wild Raspberry, Red Elderberry, Chokecherry and Wild Honeysuckle. Poison Ivy may be frequent.

The herb layer is often rich with interesting and attractive woodland Ferns and Sedges, Trilliums, Trout Lily, Clubmosses, Partridgeberry, Pokeweed, Enchanter's Nightshade and Canada Mayflower.

Mosses are restricted by heavy shade and/or leaf litter. Polytrichum spp., Hypnum spp. and Brachythecium spp. grow on tip-up mounds, old logs and tree bases.

Fg - Maple/Pine

This forest cover type was perhaps formerly more widespread at Copeland, or may be a successional artifact from logging former White Pine forest. Only one site was observed, near the 4th line at Coldwater River, this being too small to map at the scale used. It grows on a dry-mesic site.

Tree cover has dominant White Pine, Sugar Maple, Yellow Birch and Hemlock. The White Pine are particularly dramatic, towering over 100 feet high in a loose grove. Regeneration is most abundantly of Sugar Maple.

Shrubs are relatively patchy, the species Red Elder, Thimbleberry and Wild Currant being most notable.

The herb strata here is rich with Ferns, Violets, Baneberry, Wild Ginger, Blue-bead Lily, Canada Mayflower, Pokeweed and Woodland Sedges, to name a few.

Mosses carpet several large fallen logs and scattered old stumps, but are unable to grow under the relatively heavy leaf litter.

Fh - Hemlock Forest

Forests dominated by Hemlock occur infrequently at Copeland, with two stands documented in the field. They occur on mesic to wet-mesic sites.

Secondary tree species include Sugar Maple, Yellow Birch, White Ash and occasionally Cedar. Regeneration is predominately of broad-leaves, although Hemlock maintains itself in the sapling layer.

Shrubs are generally insignificant, although the Raspberries, Chokecherry, and Red Elder may occur in repressed forms.

The herb layer is similar to Maple/Hemlock stands, although somewhat repressed by heavier shade. Canada Mayflower, Rice Dropseed Grass, several Fern species, Trilliums, Clubmosses, Gay-wings, Wild Ginger, Self-heal and Partridgeberry all had significant populations noted.

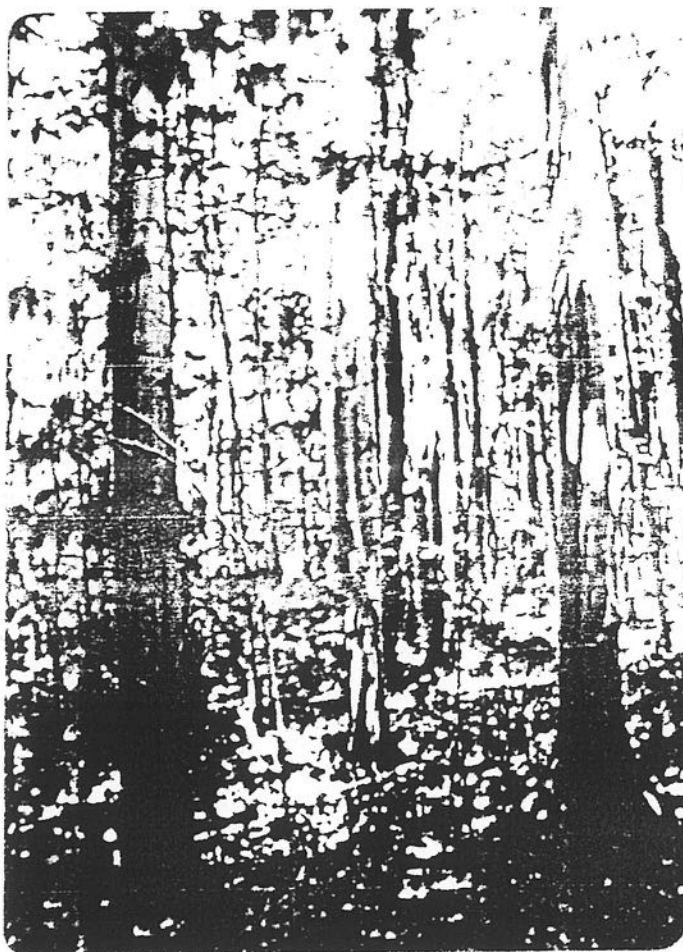


Photo 3-30 RB

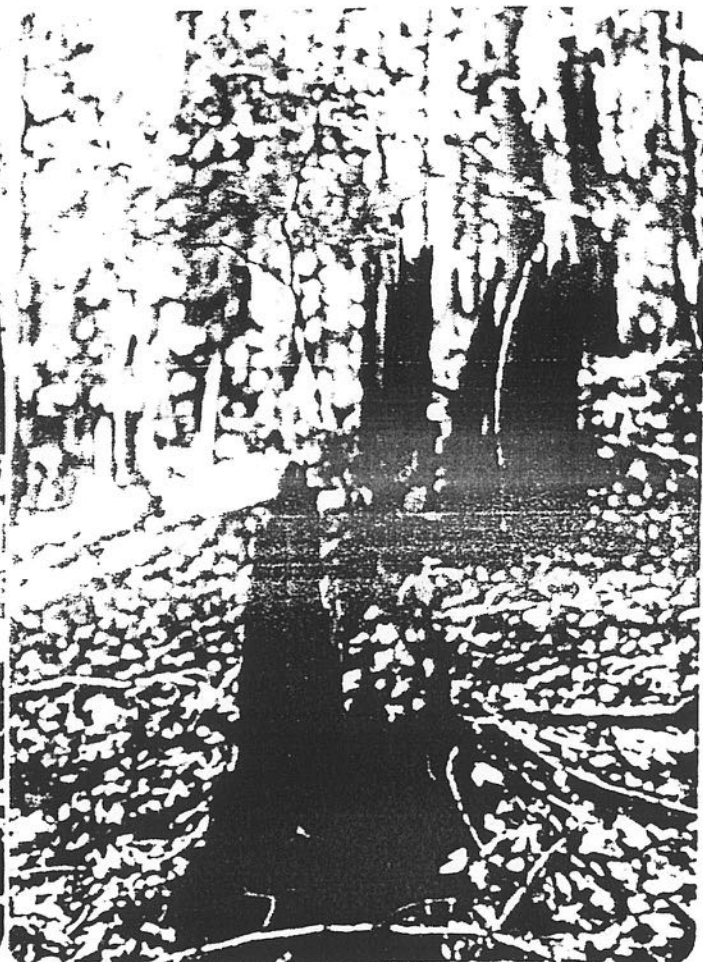


Photo 2-19 RB

A group of Beech trees grow high on the sand slopes of the Copeland Forest (left). These slopes and hills are predominantly covered by Sugar Maple, but common charred and cut stumps (right) indicate that this forest has resulted from severe disturbance.

The moss layer is significantly reduced due to heavy shade, but may occur in patches on the ground or old stumps.

Fm - Maple/Beech Forest

The upland Maple/Beech Forests are one of the major components of the Copeland forest vegetation. They occur extensively on the steep, sandy slopes of the Oro Hills Ecoregion, and on better drained sites in the lowlands. They have mesic to dry-mesic soil moisture conditions. Four stands were recorded.

Sugar Maple is the main tree species, with Beech often co-dominant or occasionally dominant. Other tree associates include White Ash, Large-toothed Aspen, Red Oak (sometimes important on driest slopes), Basswood, White Birch, Black Cherry, and Hemlock, White Elm or Yellow Birch. Regeneration is often fairly good with most species represented, although Sugar Maple usually prevails.

Shrubs are usually scattered, or dense at canopy breaks. Wild Currant, Chokecherry, Beaked Hazel, Bush Honeysuckle and Wild Raspberries are common in occurrence.

The herb strata of these forests are rich, with a few rare species, such as Panax quinquefolia and Arabis drummondii. More common herbs include Violets, several Woodland Ferns, Sedges, Solomon's seal, Baneberry, Trilliums, Canada Mayflower, Wild Hepatica and Partridgeberry.

Moss, as in most forest, is sparse due to heavy shade and leaf litter.

Fp - Poplar Forest

Poplar Forests were not observed on the ground, but are inferred by airphotos to occur mingled with Maple/Cedar, Birch and Cedar stands west of the 3rd line. Balsam Poplar predominates.

They occur on wet-mesic sites and will probably have understory vegetation similar to nearby forest cover types.

Fr - Maple/Cedar Forest

Maple/Cedar forest communities were not observed in the field, but forest densities of this vegetation have been noted from airphotos. They generally occur on wet-mesic sites, as part of a complex mixed vegetation.

Composition can be compared with the more extensively observed Maple/Cedar Woodlands, however, scrub strata will be significantly reduced and many of the light-demanding herbs and grasses will be repressed or absent.

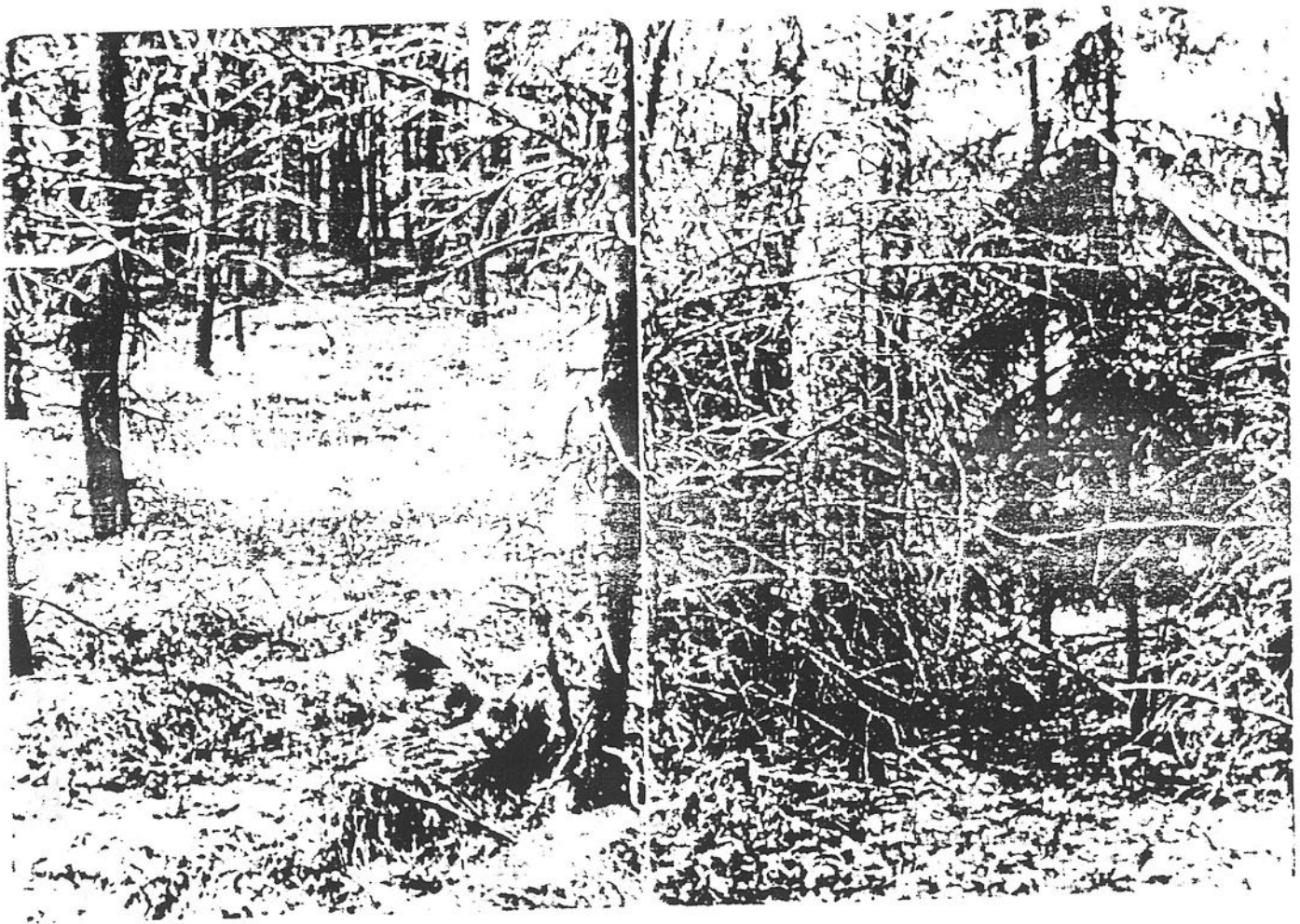


Photo 3-36 FW

Photo 1-17A RB

Plantation Forests include Pines (Scotch Pine, left), Larch and Spruce (right). Understory cover is almost always sparse, regardless of species, but the stands perform an important function in erosion prevention - and, of course, can produce valuable timber.

DF - Plantation Forests

Several significant blocks of reforestation forest occur at the Copeland Forest. These are almost exclusively conifer forests on dry-mesic to mesic sites.

Red Pine is the prevalent plantation species, although blocks of Scotch and Jack Pine occur, with impressive stands of White Pine and European Larch also notable. White Spruce has also been planted, and mixed stands occur. These have not been identified to cover type on the vegetation mapping.

A sample site of Red Pine, and one of European Larch, were observed in the field. Although understory vegetation is generally very sparse, these stands had a diverse representation of species. Shrubs included Raspberries and Chokecherry. Woodland herbs such as Ferns, Ghose-pipes, Violets, Enchanter's Nightshade, Woodland-Sedges and Bedstraws mingle with old field species like Daisy, Asters, Bracken, Hawkweeds, etc.

WOODLAND

Many areas in the Copeland Forest, formerly of forest tree densities, have developed the more fragmented canopy characteristic of Woodlands, through the action of various forces. These have included human activity (primarily lumbering), disease and flooding. Thus Woodlands in the study area are in fact a successional phenomena, and on almost all sites (except certain wet ones) will experience a tendency to develop fuller tree growth to form a full forest canopy.

Woodlands in general seldom have unique species, but rather have a significant increase in the shrub and sapling strata, with the herb strata composed of both persisting forest species, combined with adventive, "weedy" open ground plants. For this reason, Woodlands have only been casually documented in this study, as their botanical components may be generally found in nearby, more stable communities.

The major exception to the successional nature of Woodlands at Copeland is the Maple/Cedar Woodland, which may be considered an edaphic climax due to wet site conditions.

Wa - Aspen Woodland

One stand of mature Aspen Woodland was observed, associated with Conifer Plantation forest. These Woodlands are for the most part too small to map at the scales used. However, they offer unique potential for successional studies. They generally occur on mesic to dry-mesic sites.

The predominate species is Trembling Aspen, with Sugar Maple, Balsam Poplar, Basswood, White Pine and Red Oak occurring as saplings or seedlings.

The shrub strata are important, with not only tree saplings named, but also Chokecherry, Juneberry and Hawthorn.

Herbs are not diverse, and most abundant species are characteristic "old-field" species such as Wild Strawberry, Poverty Grass, Yellow Avens, Bluegrass and Milkweed.

Mosses also reflect the transitional nature of these stands, with rugged pioneering species such as Pleurozium schreberi and Polytrichum spp.

Wc - Cedar Woodland

Cedar Woodlands are the result of lumbering and/or fire. Their occurrence on wet sites, and the mosaic of shady pockets and moist openings provide for relatively high species diversity in the understory plants.

Cedars are the prevalent tree species, being almost exclusive with the exception of a few Fir, Larch, Black Ash, and Spruce. Regeneration is usually heavily dominated by the conifers, but almost always has a significant component of Birches, and Red Maple.

Shrubs are encouraged. Shining Willow, Pussy Willow, Red-osier Dogwood, Mountain Maple and Wild Currants thrive with the increased light levels; Raspberry thickets may also occur.

A complex of many herb species likewise grows in the many niches of this community. The native Orchids, Coralroots, Lady-slippers, etc. may persist from the former forest, along with associates such as Enchanter's Nightshade, Swamp Sedges, Woodland Manna-grass, Twin-flower, Wild Sarsaparilla and Bog False-Solomon's Seal. Higher light levels encourage the growth of such plants as Wetland Goldenrods, Sensitive Fern, Blue-joint Grass, and Joe-pye Weed, to name only a few common ones.

Sphagnum mosses may occur, but frequently many of the moss species that grew in the cool forest shade die out as the sun penetrates the fragmented canopy.



Photo 3-32 RB



Photo 4-0A RB

Aspen Woodlands (left) are part of the natural succession following loss of woody cover, while Maple Woodland (right) is a "set back" from Forest cover, due to lumbering or disease die-off.

Wd - Maple/Hemlock Woodland

No stands of this cover type were sampled in the field, but Maple/Hemlock stands opened by lumbering have been mapped from airphoto interpretation.

They will have a botanical composition consisting of species typical of Maple/Hemlock Forest, but with a considerable addition of "weedy", light demanding species.

Wm - Sugar Maple Woodland

Sugar Maple Woodland has resulted largely from lumbering at Copeland, however, a significant area of disease die-off of trees occurs in the 4th and 5th concessions, near the Coldwater River. These sites are mesic or dry-mesic.

Sugar Maple remains the dominant tree, with Hemlock, Basswood, Ironwood, Black Cherry and Beech often occurring. Regeneration seems usually to reflect the pattern of tree dominance.

Significant increase in shrub growth includes Raspberries, Red Elderberry and Chokecherry.

Important forest herb species are Woodland Sedges, Trout Lily, Trilliums, Violets, etc., while invading and ruderal plants such as Clovers, St. John's-wort, Catnip, Goldenrod, etc. add diversity, but also contribute a "weedy" look.

Mosses prevail only at old logs and stumps, occasionally invade disturbed soil, or persist at old tip-up mounds.

Wp - Balsam Poplar Woodland

A small Balsam Poplar Woodland was documented on a dry-gulch site near the 5th line and the Coldwater River; too small to map.

Balsam Poplar was the predominant tree, although Trembling Aspen and Sugar Maple regeneration was evident.

Shrub cover was dwarfed Pussy Willow, with a herb strata of Bluegrass, Wild Strawberry, Cinquefoil, Daisy, Pussy-toes, Dandelion, etc. indicating a strong "old-field" affinity.

Polytrichum moss is an important, pioneering soil binder in these situations.

Wr - Maple/Cedar Woodland

The Maple/Cedar Woodlands are a significant vegetation, especially around the marshes of Concession 1.

Tree cover is patchy, but diverse. Besides Cedar and Red Maple, Balsam Fir, Black and Red Ash, Trembling Aspen, Birches, White Elm and Spruces occur. Regeneration often favours Cedar and Maple (even with superficial abundance of Fir) and these trees are taken to provide the longer-term character of the vegetation.

Shrubs are encouraged by higher light levels. Red-osier Dogwood, Elderberry, Speckled Alder and Willows form scattered thickets and shrub strata amongst or under the trees.

It is very difficult to convey the diversity of herb species associated with this cover type, yet few rare or "sensitive" species have been noted. Touch-me-not is characteristic, as are wetland Asters, Sedges and Goldenrods, Woodland Manna-grass, Sensitive Fern and Horsetail. Many more species occur, as can be appreciated by reviewing Appendix A.

Mosses are often important or at least common in these diverse communities - Climacium dendroides, Sphagnum squarrosum, S. girghensonii, and Pleurozium schreberi were a few noted.

PARKLAND

Parklands are a minor and successional component of the Copeland Forest vegetation. Small areas have been mapped through airphoto interpretation, but plant species present are derived from related forest and open ground communities, and no field samples were taken. They occur on dry-mesic sites.

Mixed conifer and broadleaf trees (Pd), growing scattered with Poverty Grassland, are characteristic. These vegetations are the result of tree invasion into formerly cleared areas, and they offer a significant opportunity for placing buildings or other developments in a spacious, interesting, but usually not particularly sensitive vegetation.

SCRUB

Scrub vegetation plays a very significant role in local vegetation. It occurs as a strata in tree-dominated communities, but is an important dominater itself in certain contexts, particularly wetland transitions.

Although scrub vegetation is almost always relatively unpleasant for people to move through, native shrubs provide vital food, cover and breeding habitat for native wildlife. While on the one hand, they may slow forest succession, they also shelter forest edges and force trees that do grow in their shade to develop taller, straighter and less branchy stems.

Sb - Raspberry Scrub

Many small areas associated with broadleaf and mixed forest or woodland on drier sites have Raspberry (including Thimbleberry) scrub. None of these sites are large enough to map, but they are an important community for wildlife and one stand was described in the field.

The major species was Thimbleberry, with Red Raspberry, Nannyberry, Bush Honeysuckle and Staghorn Sumac also present. Tree seedlings noted included White Ash, Beech and Trembling Aspen.

As would be expected, the herb strata consisted of a mixture of "weedy" species and forest plants. Several types of Woodland Sedges, Ferns, Enchanter's Nightshade and Woodland Manna-grass were noted with predominant open-ground species such as Wild Strawberry, Figwort, Ground Cherry, Burdock, Self-heal, Motherwort and many others.

This vegetation frequently fringes reforestation and old fields or occurs in small openings or along logging trails.

Sx - Alder/Willow Scrub

Although Alder and Willow dominated scrub may occur discretely, they intergrade to such a degree that for mapping and discussion purposes they are "lumped" into this community discussion. They are a significant component of the Copeland vegetation, especially at or near the wettest sites.

Speckled Alder, Bebb's Willow and other Willows predominate, with Red-osier Dogwood a frequent associated. Tree seedlings or saplings include Balsam Poplar, Balsam Fir, White Elm, White Birch, and Trembling Aspen.

The herb strata may be quite variable, including Wetland Tussock Sedges, Touch-me-not, Rugose Goldenrod and Woodland Manna-grass, or even Cattails at wettest sites. Slightly drier (though by no means dry) sites have Canada Goldenrod, Joe Pye-weed, Meadow-Rue, Agrimony, Boneset and Buttercup as a few of the herbaceous plant associates.

Mosses, including Sphagnum, frequently thrive in the sheltered, many-stemmed bases of the shrubs.

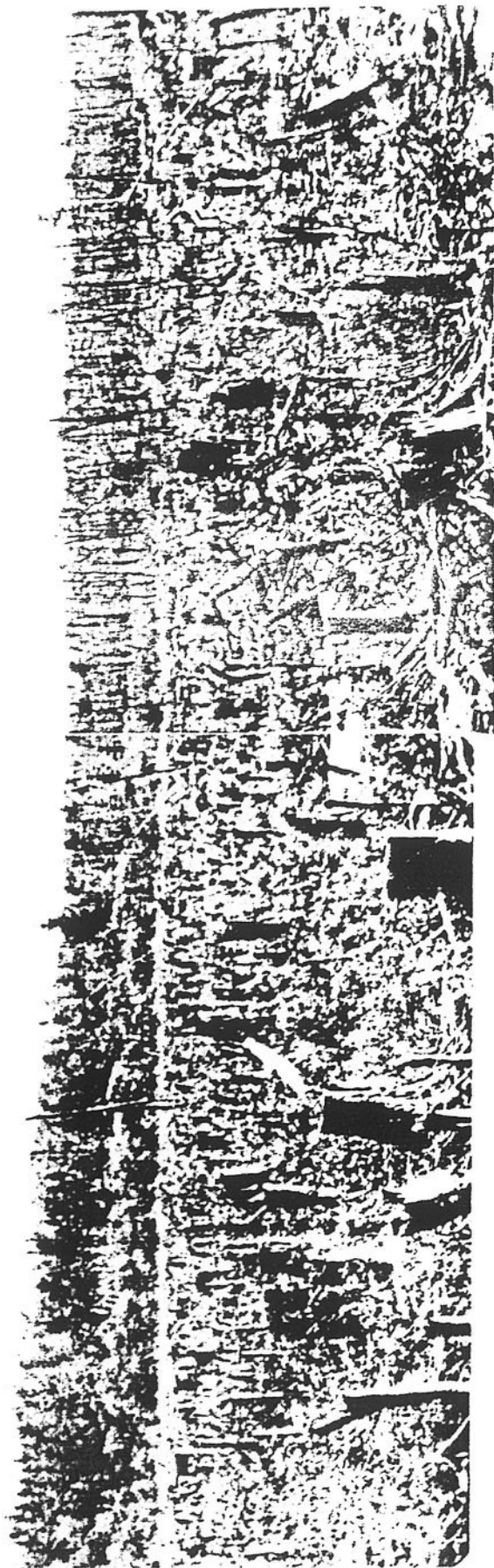


Photo 3-34 RB

Photo 3-35 RB

Extensive Alker-Gillow coniferous forest regrowing on former forest sites, which have been flooded, up to 1000 ft. of human and beaver activity.

UPLAND HERBACEOUS

The upland herbaceous plant communities are a successional artifact at Copeland, but support an important element of the area flora. This not only includes many interesting and often useful plants introduced from other countries, but also many comparable native species that thrive on the open ground. Only a few of the areas of the various Upland Herbaceous cover types have been mapped as they are frequently of small size or are interspersed amongst reforestation of other dominantly man-generated situations.

Hb - Poverty Brackenland

Two sites on dry soil, and dominated by Bracken Fern, were observed. These had relatively variable species composition, but some features were consistent. Poverty Grass, Asters, Bluegrass, Goldenrods and Thimbleberry were frequent associates, although the latter shrub was never particularly abundant.

These Bracken sites are closely related to Poverty Grassland, but usually provide a richer environment due to the shelter of the relatively high fern strata. Also, seedling and sapling trees such as Birches, Basswood, Sugar Maple, Balsam Fir, etc. may be associated.

These sheltering influences provide niches for many of the common woodland and forest species that are noted for those vegetations, to combine with open-ground species in a diverse community. This had added interest due to the occurrence of such uncommon plants as the Grape Ferns and certain dryland Sedges.

Hp - Poverty Grassland

Poverty Grassland is frequently encountered on reforestation fringes or drier old fields at Copeland Forest. It is dominated by Poverty Grass, Bluegrasses, Dryland Sedges, Wild Strawberry, and English Plantain, often with other species such as Hawkweeds, Daisy, Self-heal, Prairie-grasses, Bracken and Horsetails more or less important as well. It is a "multicultural" community, with important elements both native and introduced.

The community is clearly successional, and suffers scrub pressure from Choke- and Pin-cherries, Raspberries, and Bush Honeysuckle, with the tree species White Elm, Trembling Aspen and Scotch Pine (among others) also seeding in. However, the usually droughty and exhausted soils on which this vegetation occurs can make the woody succession a slow process.

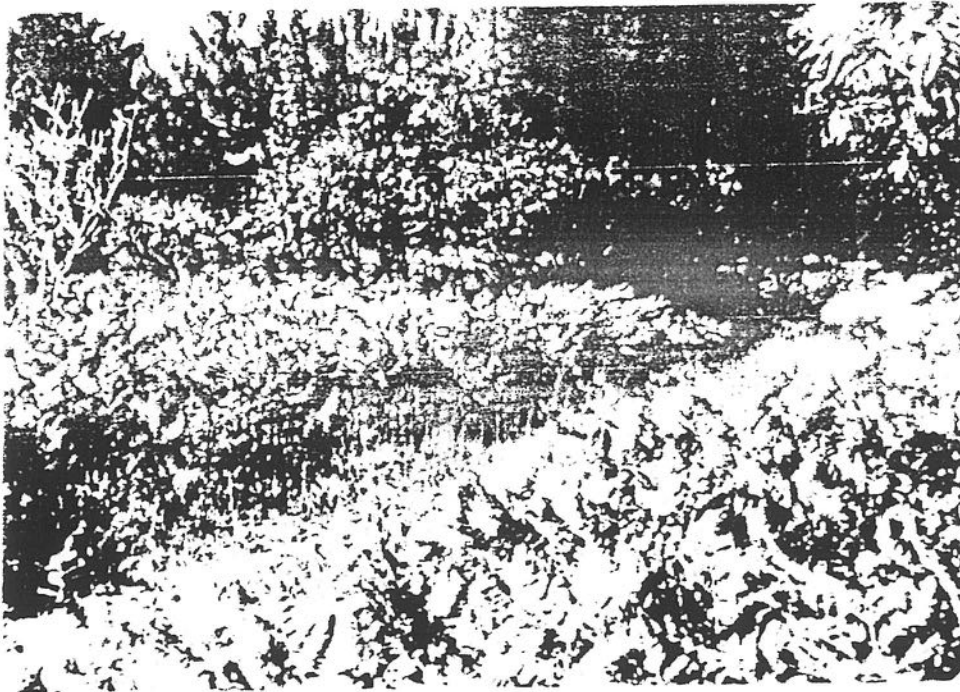


Photo 3-28 FW

Bracken communities form local vegetations among reforestation, with occasional larger stands covering former cleared sites.

Hr - Ruderale Vegetation

The Ruderale Herbaceous vegetations are a form of man-centred (Synanthropic) plant communities that are associated with continual human traffic and associated disturbance. They occur all around the roads and related features at the Copeland Forest, and may be expected to persist there and expand to any new developments that may occur.

These communities have a strong identity, composed of both introduced and native plant species. They may be quite simple in composition, but also may be rich in plant species when disturbance penetrates a diverse natural vegetation. They occur at railways, roadsides, around houses and work places and along bush trails.

Introduced plant species present include the Brome, Timothy and Orchard Grasses, Mullein, Pineapple Weed, Horsetail, Lamb's Quarters, Prostrate Knotweed, and Cinquefoil. These may often be accompanied by the familiar native species, Ragweed, Evening Primrose, Black Nightshade, Bluegrasses, Wild Marjoram, Goldenrods, Panic Grasses and Horsetails. Shrubs and dwarf shrubs such as Raspberry and Poison Ivy may occur, but do not form extensive thickets with this vegetation.

WETLAND HERBACEOUS

These vegetations are rich and dominantly natural plant communities at the Copeland Forest. They always result in an accumulation of organic matter on the soil surface, although recent disturbance of human, geologic and wildlife activity produces Wetland Herbaceous plant communities on wet mineral soil.

Major components of this plant community may penetrate Wetland Scrub, and Woodland. The sites generally are subject to shrub and tree invasion over the decades and centuries, but there are frequent cases where former treed communities have lost the conditioning Scrub, Woodland or Forest cover and are now dominated by various Wetland Herbaceous Vegetations.

The frequency of standing water, treacherous muck holes and frequent fallen logs make the vegetations unattractive to people. Many wildlife species thrive in these communities, however, and people with light feet and careful dispositions may appreciate glimpses of plants and environments found nowhere else.

Oh - Sedge/Cattail Marsh

Marshes have been grouped into a rather broad cover type incorporating vegetation with Cattails, Sedges and/or wetland Forbes. This is predominantly due to constraints of airphoto interpretation, but to a

certain extent the associations dominated by these different plants do grade into one another. There is also the likelihood that some succession from one association to the other may occur.

In general, the Cattail and Sedges grow on wettest sites, often with small pools and standing water, while Sedge/Forbe vegetation is more frequent on saturated or more shallowly flooded sites.

The mosaic of niches created by wet pools and drier hummocks amongst the wet terrain allows many plant species to occur in these communities. Prevalent vascular species include no less than 10 Wetland Sedge species, Spike-rushes, Bulrushes, Cattails, Marsh St. John's-wort, Sensitive Fern, Rushes, Boneset, Water Hemlock, and Wool-grass.

The marsh communities of the Copeland Forest often reflect a see-saw battle between drier seasons, which encourage shrub or tree invasion, and wetter seasons or beaver activity, which encourage the marsh growth. They are most abundant in Concession I, with significant areas southwest and southeast of the mill site, in concessions II and III respectively.

On - Sedge Flat

One area of wetland sedge growth was documented at a disturbed site near Highway #400 in Concession I. It is significant due to the occurrence of several rare or uncommon species only known from here, in the Copeland Forest.

This community shows a distinct affinity with nearby Georgian Bay shoreline, as well as Canadian Shield shoreline, vegetations. Common marsh species like Wild Iris, Wool-grass, Rushes, and Spike-rushes are co-dominant with far less common plants. These include several rare or locally uncommon sedge species (e.g. Carex garberi, C. viridula, C. cryptolepis, Cladium mariscoides and Rhynchospora capitellata), Shrubby St. John's-wort, and several Orchids (Loessel's Twayblade, Nodding Lady's-tresses and Ragged Fringed Orchid).

The community has a developing scrub component of Willows, Alder and seedling Birch and Aspen, but succession can be expected to require many years before the prevalent character of the plant cover is radically changed.

RIPARIAN

Plant communities associated with flowing water seepage are perhaps the most diverse in the Copeland Forest. This is generally due to the abundance of micro-habitats and productive niches provided by the

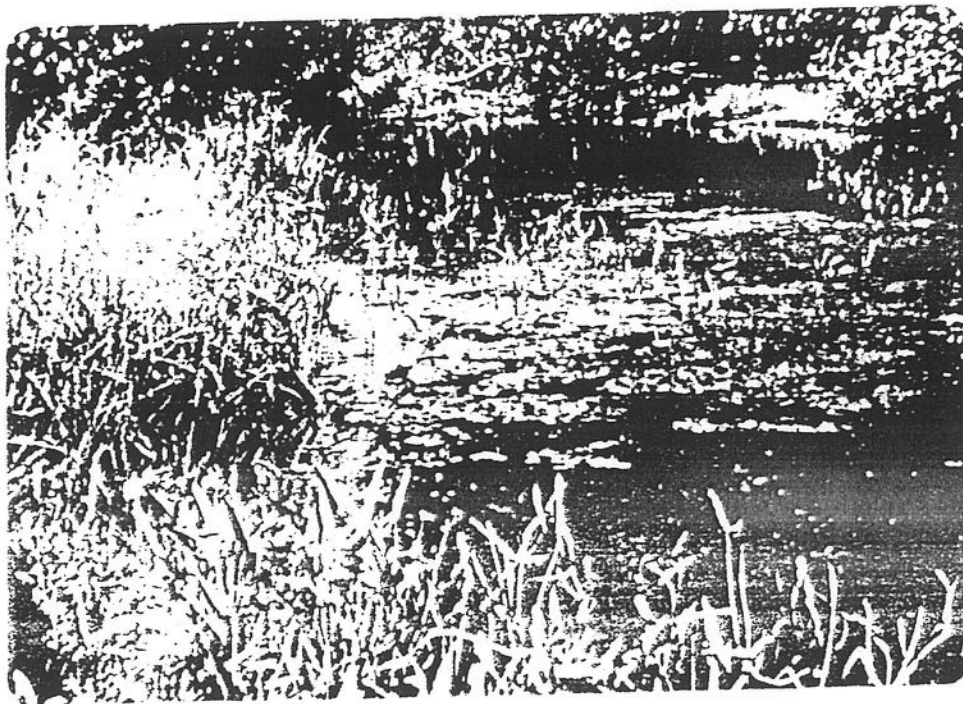


Photo 3-27 FW

Large Sedge Marshes cover flooded, former Woodland sites in the western area of the Copeland Forest (below). More permanent, but smaller Marsh communities occur along the larger Riparian environments of the area (above).



Photo 3-33 RB

water and associated landscape features. Besides having important associated vegetation, the Riparian sites themselves are centres of erosion activity and are overall extremely sensitive.

Streams almost always fragment Forest canopies, to produce Woodlands, and even in swamp situations they are relatively distinct from surrounding plant communities. Mixtures of conifer and broadleaf trees are encouraged, as is wetland scrub and marsh herbaceous growth.

In contrast with the reduction of tree cover through Forest communities, when a stream flow occurs in Marshes, a Scrub and even Woodland cover tends to thrive along the banks, or mark the limit of the flowing water channel where well defined stream banks do not occur.

Rc - Riparian Cedar Woodland

Streams flow through several areas of Cedar Forest (especially west of the 3rd Concession) fragmenting cover to produce Woodland. These have not been documented separately because species composition is almost identical with non-riparian Cedar stands.

They have been identified as distinctive map units because of the significance of streamflow and ease of airphoto interpretation. Cedar Woodland predominates along the floor of the Coldwater River ravine.

Rd - Riparian Mixed Woodland

The main vegetations associated with stream flows at Copeland Forest are mixed Woodlands. The main conifer species is White Cedar, although Hemlock, White Pine and White Spruce also occur. Broadleaf trees present include White Birch, Red Maple, Black Ash, Yellow Birch and Balsam Poplar.

Important Woodland Riparian cover occurs along the headwaters of the Sturgeon, and especially the Coldwater River. In the latter case the tree vegetation helps stabilize the deep, erosive slopes of the stream valley, and in all cases Woodland cover shades the streams and seepage to help maintain water quality.

A significant shrub strata occurs associated with these Woodlands; this includes regeneration of the dominant tree species and also Balsam-Fir. As well, shrub species such as Alder, Elderberry, several types of Willows, Red-osier Dogwood, Wild Currants, Honey-suckles and Raspberries create thickets and tangles that discourage human traffic, but greatly enhance wildlife value and plant diversity.

Herbaceous plants respond to the many micro-habitats of this community with an almost unequalled diversity. A few of the most common species are Woodland Manna-grass, Water Pennywort, Soft Rush, several Woodland and Marsh Ferns, Starflower, Bluebead Lily, Water-pipes, Golden Saxifrage, Water Horehound, Touch-me-not, Enchanter's Night- shade, Marsh Marigold, Toothwort, Joe Pye-weed, Blue Violets, Bitter- sweet Nightshade, several Asters and Goldenrods, Purple Avenas, and at least ten species of Woodland and Wetland Sedges. Within this rich assemblage of plants also occur several rare or uncommon species (e.g. Carex laevivaginata, C. schwientizii, Mimulus moschatus and Corallorhiza striata).

Mosses and related non-vascular plants are also diverse and abundant. Moss species such as Climacium dendroides, Mnium sp., Spaghnum (including S. squarrosum) and Fissidens sp. occur along with many others.

Rh - Riparian Marsh

Marsh occurs along the streams at Copeland primarily in response to disturbance; either clearing through lumbering or flooding by beaver may produce a herbaceous community for a time. Larger expanses of this cover type are always subject to rather heavy successional pressure, but even Riparian Woodland has a strong component of marsh species, and blow-downs, erosion and the generally broken canopy common along the stream channels always ensures a scattering of this vegetation.

The important herbaceous cover frequently has Rice-cut Grass, Horsetails, Loosestrife, Beggar's-ticks, several wetland Sedge species, Asters and Goldenrods, Sensitive Fern, Marsh Marigold and Buttercups while such aquatics as Canada Waterweed, Najas, and Bladderworts occur in the stream itself or along quiet water margins. The Water Purslane may be particularly frequent on muddy flats.

Riparian Marshes are more diverse and have a different environmental relationship from their relatives, the Wetland Marshes. They often have colonies of different species intermingled, relating to drier knolls or sediment deposits on the one hand, and the frequent backwaters and stream valley-side seepages on the other.

Rx - Riparian Broadleaf Scrub

Riparian Scrub at the Copeland Forest is restricted to small pockets, successional following loss of tree cover, invading former beaver ponds or at recently exposed erosional sites.

Speckled Alder forms the primary cover, with Red-osier Dogwood and Willows as secondary cover. Tree succession does not appear to be particularly vigorous, and especially under a dense Alder canopy may be quite retarded.

Denser canopies also restrict the growth of vascular species, but generally the familiar Wetland Sedges, Woodland Manna-grass, Meadow Rue, Touch-me-not, Wetland Goldenrods, and several other species penetrate from higher populations in nearby Marshes or wet Woodlands.

LAKESHORE/AQUATIC

Lakeshore and Aquatic vegetations form a minor component at the Cope-land Forest, and do not appear to produce very distinctive communities. Rather, species common in Wetland Herbaceous and Riparian Herbaceous communities occur in the different environmental context provided by small, shallow ponded water bodies and their shorelines.

VASCULAR FLORA OF THE COPELAND FOREST

Simcoe County, Ontario

All species included in this list have been found in the Copeland Forest Resources Management Area during the summer of 1979. Species of botanical significance as well as species known to be taxonomically difficult are supported by specimens.

In the list itself, non-native species are indicated by an Asterisk. In cases of doubt, the asterisk is in parentheses.

A check mark (/) signifies rarity in Ontario according to Argus and White (National Museum) and/or Kershaw et al. (University of Waterloo).

(Parentheses) signify rarity in Simcoe County according to Reznicek and Bobbette, 1979.

[Brackets] signify species known in Simcoe County only from the Copeland Forest (Reznicek and Bobbette, 1979).

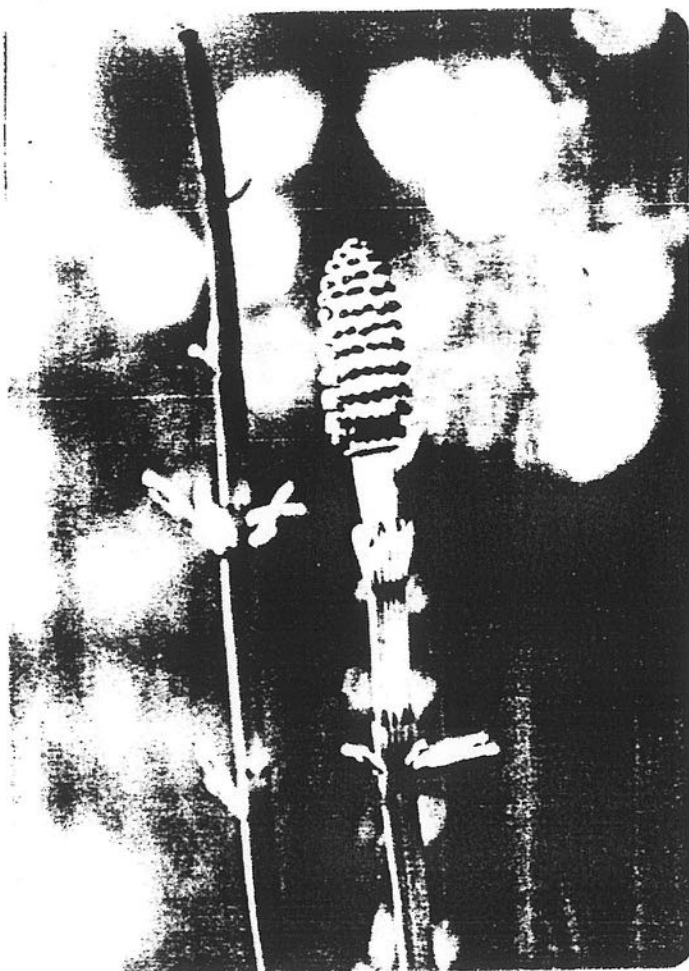


Photo 2-6 RB

Equisetum fluviatile L.

Water-Horsetail

SCIENTIFIC NAME

COMMON NAMES

EQUISETACEAE

HORSETAIL FAMILY

Equisetum L.

- E. arvense L. 6202*
- E. sylvaticum L.
- E. palustre L.
- E. fluviatile L. 1985
- E. scirpoides Michx. 6060, 2051
- E. variegatum Schleich. 1930
- E. hyemale L.

COMMON HORSETAIL
WOOD-HORSETAIL
MARSH-HORSETAIL
WATER-HORSETAIL
DWARF SCOURING-RUSH
VARIEGATED HORSETAIL
SCOURING-RUSH

LYCOPODIACEAE

CLUB-MOSS FAMILY

Lycopodium L.

- L. lucidulum Michx. 160
- L. annotinum L.
- L. obscurum L. 6156
- L. clavatum L. 1759, 159
- L. tristachyum Pursh 161
- L. complanatum L. 6157, 1839

SHINING CLUB-MOSS
BRISTLY CLUB-MOSS
GROUND-PINE
RUNNING CLUB-MOSS
GROUND-CEDAR
TRAILING EVERGREEN

OPHIOGLOSSACEAE

ADDER'S-TONGUE FAMILY

Botryshium Sw.

- B. simplex E. Hitchc. 1774, 164
- B. matricariaefolium A. Br. 6091,
1775, 1684
- B. multifidum (Gmel.) Angstrom
1776, 185
- B. dissectum Sprengel
- B. virginianum (L.) Sw. 6040

LEATHERY GRAPE-FERN

RATTLESNAKE-FERN

Ophioglossum L.

- O. vulgatum L. 2102, 202

ADDER'S TONGUE

OSMUNDACEAE

FLOWERING FERN FAMILY

- O. regalis L.
- O. cinnamomea L.
- O. claytoniana L. 6267

ROYAL FERN
CINNAMON-FERN
INTERRUPTED FERN

* Collections made during this survey, or parallel with it, are cited by collection number. Collection/number relationships are: R.S.W. Bobbette (6040-6360), J.M. Webber (1660-2160), W.E. Cattley (152-201).

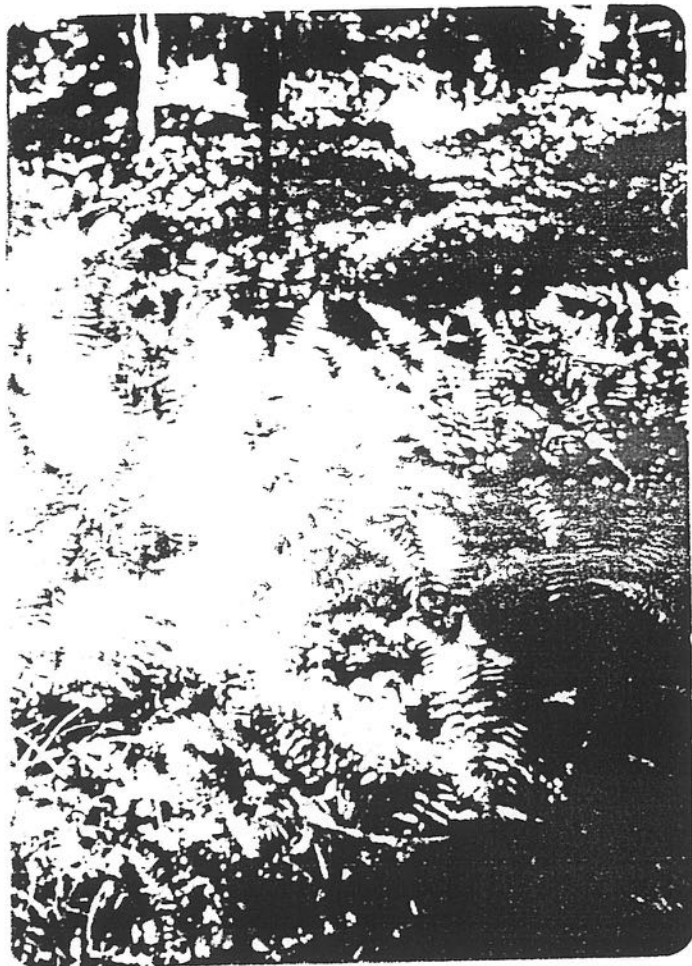


Photo 2-7 RB

New York Fern (Thelypteris noveboracensis) is a frequent and attractive species of the Copeland Forest.

SCIENTIFIC NAMECOMMON NAMESPOLYPODIACEAEFERN FAMILYDennstaedtia Bernh.

(D. punctilobula (Michx.) Moore)
6052, 186

HAY-SCENTED FERN

Pteridium Gled.

P. aquilinum (L.) Kuhn

BRACKEN

Adiantum L.

A. pedatum L. 6051

MAIDENHAIR

Polypodium L.

P. virginianum L.

ROCK POLYPODY

Pteretis Raf.

P. pensylvanica (Willd.)
Fern. 6056, 162

OSTRICH-FERN

Onoclea L.

O. sensibilis L. 6061

SENSITIVE FERN

Athyrium Roth

A. thelypteroides (Michx.)
Desv. 6247
A. filix-femina (L.) Roth 6121

SILVERY SPLEENWORT

LADY-FERN

Cystopteris Bernh.

C. bulbifera (L.) Bernh. 1737

BULBLET-FERN

Phegopteris (Presl.) Fee

P. connectilis (Michx.) Watt
1744, 168

LONG BEECH-FERN

Thelypteris Schmidel

T. noveboracensis (L.) Nieuuland
6158, 1760, 163
T. thelypteroides Michx.

NEW YORK FERN

MARSH-FERN

Gymnocarpium Newman

G. dryopteris (L.) Newman 1735, 166

OAK-FERN



Photo 2-8 RB

A great White Pine (Pinus strobus), towers above robust plants of the Shield Fern (Dryopteris marginalis).

SCIENTIFIC NAME

COMMON NAMES

Dryopteris Adans.

- D. spinulosa (O.F. Mueller) Watt
- D. intermedia (Willd.) Gray 1695
- D. marginalis (L.) Gray 1778, 167
- D. goldiana (Hooker) Gray 6270
- D. clintoniana (D.C.Eat.) Dow.
6124, 169
- D. cristata (L.) Gray 6187, 165

- SPINULOSE WOOD-FERN
- INTERMEDIATE SPINULOSE WOOD-FERN
- MARGINAL SHIELD-FERN
- GOLDIE'S FERN
- CLINTON'S WOOD-FERN
- CRESTED WOOD-FERN

Polystichum Roth

- P. acrostichoides (Michx.) Schott
1766

CHRISTMAS FERN

TAXACEAE

YEW FAMILY

Taxus L.

- T. canadensis Marshall

AMERICAN YEW

PINACEAE

PINE FAMILY

Abies Mill.

- A. balsamea (L.) Mill.

BALSAM FIR

Picea A. Dietr.

- P. galuca (Moench) Voss
- P. mariana (Mill.) BSP.

WHITE SPRUCE
BLACK SPRUCE

Tsuga (Antoine) Carr.

- T. canadensis (L.) Carr.

HEMLOCK

Larix Mill.

- *L. decidua Mill.
- L. laricina (DuRoi) C. Koch

EUROPEAN LARCH
TAMARACK

Pinus L.

- P. strobus L.
- P. resinosa Aiton
- *P. sylvestris L.
- P. banksiana Lamb.

WHITE PINE
RED PINE
SCOTS PINE
JACK PINE

SCIENTIFIC NAME

COMMON NAMES

CUPRESSACEAE

CYPRESS FAMILY

Thuja L.

T. occidentalis L.

WHITE CEDAR

Juniperus L.

J. communis L.

COMMON JUNIPER

TYPHACEAE

CAT-TAIL FAMILY

Typha L.

T. latifolia L.

T. angustifolia L.

COMMON CAT-TAIL
NARROW-LEAVED CAT-TAIL

SPARGANIACEAE

BUR-REED FAMILY

Sparganium L.

S. chlorocarpum Rydberg 1858,
2089, 2105

NAJADACEAE

PONDWEED FAMILY

Potamogeton L.

P. natans L. 2027, 2050, 2107

P. foliosus Raf. 2109, 2153

[P. obtusifolius Mert. & Koch] 2108

ALISMATACEAE

WATER-PLANTAIN FAMILY

Alisma L.

A. plantago-aquatica L. 2016

WATER-PLANTAIN

Sagittaria L.

S. latifolia Willd. 1864

DUCK POTATO, ARROWHEAD

HYDROCHARITACEAE

FROG'S-BIT FAMILY

Elodea Michx.

E. canadensis Michx. 2028

SCIENTIFIC NAME

COMMON NAMES

GRAMINEAE

GRASS FAMILY

Bromus L.

- *B. tectorum L.
- B. inermis Leyss. 1923
- B. ciliatus L. 2113, 1937

JAPANESE BROME-GRASS
AWNLESS BROME-GRASS

Festuca L.

- *F. pratensis Hudson
- F. obtusa Biehler
- (*)F. rubra L. 1703

TALLER FESCUE
NODDING FESCUE
RED FESCUE

Glyceria R. Br.

- G. borealis (Nash) Batch 2101
- G. striata (Lam.) Hitchc. 6185,
6271, 6204
- G. grandis S. Wats

SMALL FLOATING MANNA-GRASS
WOODLAND MANNA-GRASS

REED-MEADOW GRASS

Poa L.

- *P. annua L. 2010
- *P. compressa L.
- (*)P. pratensis L. 1856
- P. alsodes Gray 6070, 6122, 6234
1762
- P. saltuensis Fern. & Wieg. 1761
- (*)P. nemoralis L.
- P. palustris L.

KENTUCKY BLUEGRASS

Dactylis L.

- *D. glomerata L. 2041

ORCHARD GRASS

Schizachne Hack.

- S. purpurascens (Torr.) Swallen
1813

Agropyron Gaertn.

- *A. repens (L.) Beauv.

COUCH GRASS

Triticum L.

- *T. aestivum L.

CULTIVATED WHEAT

Elymus L.

- /(E. riparius Wiegand) 2144



Photo 2-5 RB

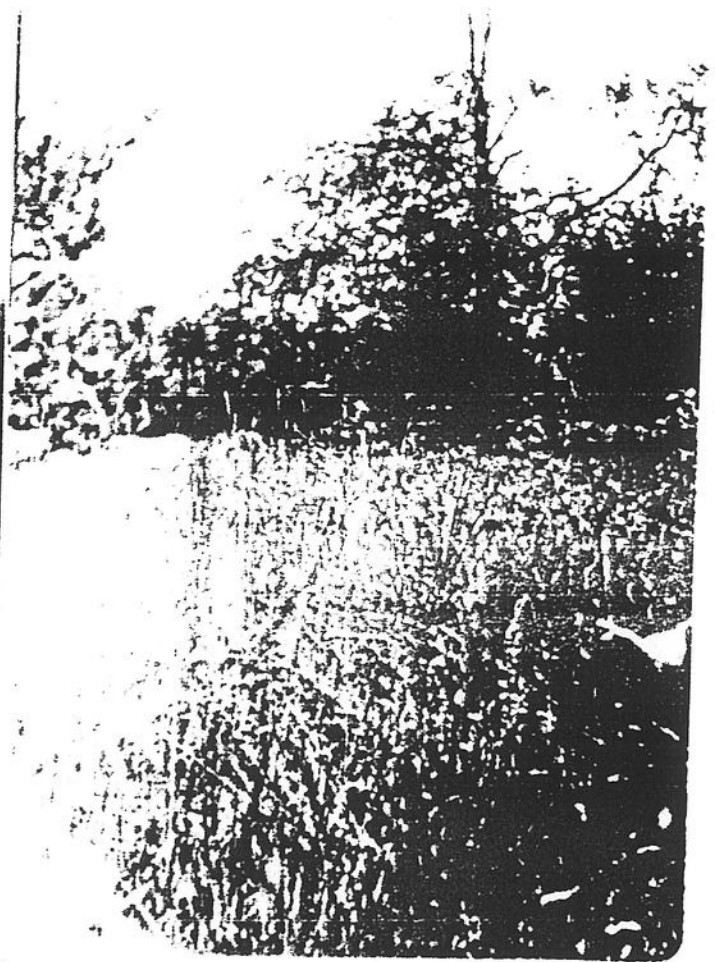


Photo 2-9 RB

The Blue-Joint (Calamagrostis canadensis) is a common grass at wet sites in the Copeland Forest and throughout Simcoe County (left). On the other hand, the Copeland location of Spear Grass (Stipa comata) is the only one known in the Georgian Bay area.

<u>SCIENTIFIC NAME</u>	<u>COMMON NAMES</u>
<u>Hystrix</u> Moench	
<u>H. patula</u> Moench	BOTTLE BRUSH GRASS
<u>Hordeum</u> L.	
* <u>H. jubatum</u> L.	SQUIRREL-TAIL GRASS
<u>Sphenopholis</u> Scribner	
<u>S. intermedia</u> (Rydb.) Rydb. 1861	SLENDER WEDGE GRASS
<u>Danthonia</u> Lam. & DC.	
<u>D. spicata</u> (L.) R. & S. 1714, 1812	POVERTY GRASS
<u>Calamagrostis</u> Adans.	
<u>C. canadensis</u> (Michx.) Beauv.	BLUE-JOINT
<u>Agrostis</u> L.	
* <u>A. gigantea</u> Roth 2093, 2072	
<u>A. perennans</u> (Walt.) Tuckerman	
2036, 2152	
<u>A. hyemalis</u> (Walter.) BSP. 1866	
<u>A. scabra</u> 1941	
<u>Cinna</u> L.	
<u>C. latifolia</u> (Goepp.) Griseb. 2037, 2038	WOOD REED GRASS
<u>Phleum</u> L.	
* <u>P. pratense</u> L.	TIMOTHY
<u>Muhlenbergia</u> Schreber	
(<u>M. frondosa</u> (Poir.) Fern.) 2140, 194	
<u>M. mexicana</u> (L.) Trin. 1968, 1921	MUHLY GRASS
<u>Sporobolus</u> R. Br.	
<u>S. vaginiflorus</u> (Torr.) Wood	
<u>S. cryptandrus</u> (Torr.) Gray 2073	

SCIENTIFIC NAMECOMMON NAMESBrachyelytrum Beauv.B. erectum (Roth) Beauv.Oryzopsis Michx.O. asperifolia Michx. 6053, 1697 MOUNTAIN RICEStipa L.[S. comata Trin. & Rupr.] 6312 SPEAR GRASSPhalaris L.P. arundinacea L. REED CANARY GRASSLeersia Sw.L. oryzoides (L.) Sw. 1980 CUTGRASSDigitaria Heister*D. sanguinalis (L.) Scop. 1974 CRAB GRASSPanicum L.P. capillare L. 1975 OLD WITCH GRASSP. linearifolium Britton 1712,
1837, 6306P. lindheimeri Nash 6308P. implicatum Britton 1842, 1843a,
6211, 6307, 1713(P. boreale Nash) 1843bEchinochloa Beauv.*E. crus-gallii (L.) Beauv. BARNYARD GRASSSetaria Beauv.*S. viridis (L.) Beauv. 1973, 2008a GREEN FOXTAIL

CYPERACEAE

SEDGE FAMILYDulichium Pers.D. arundinaceum (L.) Britton 2104 THREE-WAY SEDGE



Photo 2-11 FW

Rhynchospora capitellata, rare in both Ontario and Simcoe County, occurs in numbers at a site in northwest Copeland Forest.

SCIENTIFIC NAME

COMMON NAMES

Eleocharis R. Br.

E. obtusa (Willd.) Schultes 6207,
1859

E. erythropoda Steudel
/(E. intermedia Schultes) 6205, 1860,
199

SPIKE RUSH

Scirpus L.

S. hudsonianus (Michx.) Fern. 6161

S. validus Vahl

S. cyperinus (L.) Kunth

S. atrovirens Willd. 171

S. rubrotinctus Fern. 6212

SOFT-STEM BULRUSH

Eriophorum L.

E. viridi-carinatum (engelm.) Fern.
1749

Rhynchospora Vahl

/(R. capitellata (Michx.) Vahl) 1931

Cladium P. Br.

C. mariscoides (Muhl.) Torr. 1932

Carex L.

(C. cephalophora Willd.) 1681

C. rosea Willd.

C. convoluta Mackenzie 1764

C. muhlenbergii Willd. 1841, 1926

C. sparaganioides Willd. 6230, 6232

C. vulpinoidea Michx. 1867

C. diandra Schrank 6180

C. prairea Dewey 6179

/(C. laevivaginata (Kukenth.) Mack.
2020, 1801, 6020, 6227

C. stipata Willd. 6123

C. disperma Dewey 6095

C. trisperma Dewey 1779

C. brunnescens (Pers.) Poir. 6082,
1765

C. canescens L.

C. interior Bailey 6182, 6120



Photo 2-13 RB



Photo 2-12 RB

Sedges have adapted to a wide variety of environments. At left, Carex stricta grows abundantly in marshy sites, while Carex plantaginifolia (right) is a species of rich, shady forests.

SCIENTIFIC NAME

COMMON NAMES

- C. sterilis Willd. 1924
C. deweyana Schw. 1682
C. scoparia Willd. 1944
(C. crawfordii Fern.) 1722, 1857,
6235
C. projecta Mack. 6159, 6209, 6208,
1746
C. cristatella Britton 2033
(C. cumulata (Bailey) Fern.) 6309
C. bebbii (Bailey) Fern. 1797, 1863
C. tenera Dewey 6210
(C. merritt-fernaldii Mack.) 1840,
1772
C. leptalea Wahl. 6125, 1745
C. peckii Howe 6078
C. pensylvanica Lam. 1732
C. communis Bailey 1768, 1684, 6066
(C. deflexa Hornem.) 6079
(C. umbellata Willd.) 1685
C. rugosperma Mack.
C. pedunculata Willd. 6043
C. garberi Fern. 1938
C. aurea Nuttall 1991
C. vaginata Tausch. 1801, 6355
C. plantaginea Lam. 6049, 1767
C. leptonervia Fern.
C. albursina Sheldon 2159
C. ormostachya Wieg. 6225, 1814,
1773
C. blanda Dewey 6041, 6160, 6206,
1753
C. laxiflora Lam. 1700
C. granularis Willd.
C. gracillima Schw. 1747
C. castanea Wahl. 6080
C. arctata Boott 6065, 1683
(C. debilis Michx.) 1757, 1771
C. flava L. 6093
(C. cryptolepis Mack.) 1939
C. viridula Michx. 1943
C. lanuginosa Michx. 6188
C. houghtoniana Dewey 1927
C. scabrata Sch. 1800
C. paupercula Michx. 1786
C. buxbaumii Wahl. 1727
C. stricta Lam. 1730, 6100, 6184
C. aquatilis Wahl. 6183

SCIENTIFIC NAME

COMMON NAMES

C. crinita Lam. 1748
C. gynandra Schw. 1920
C. hystericina Willd. 1728
C. comosa Boott 2039, 2025
C. pseudo-cyperus L. 1815, 6181
C. tuckermanii Dewey 1754
C. retrorsa Schw.
/C. schweinitzii Schw. 6118
C. intumescens Rudge 1758

ARACEAE

ARUM FAMILY

Arisaema Mart.

A. triphyllum (L.) Schott. 6059

JACK-IN-THE-PULPIT

LEMNACEAE

DUCKWEED FAMILY

Lemna L.

L. minor L.

DUCKWEED

JUNCACEAE

RUSH FAMILY

Juncus L.

J. effusus L. 1731
J. bufonius L. 1997
J. tenuis Willd. 6224
J. dudleyi Wieg.
J. brevicaudatus (Engelm.) Fern.
2111, 2015, 2014
J. brachycephalus (Engelm.) Buch.
1990, 2063, 2070
J. nodosus L. 2069, 1989
J. alpinus Vill. 1935
J. articulatus L. 1939

SOFT-RUSH
TOAD-RUSH
PATH-RUSH

LILACEAE

LILY FAMILY

Zigadenus Michx.

(Z. glaucus (nutt.) Nutt.) 178

Allium L.

A. tricoccum Ait 1817

WILD LEEK



Photo 2-15 RB



Photo 2-16 RB

A locally rare member of the Lily Family, Wild Camass (Zigadenus glaucus) grows with provincially rare plants in rich Cedar forests (left). Although not rare, the lovely Queen Lady's-slipper Orchid (Cypripedium reginae) suffers from picking and transplanting due to its great beauty.

SCIENTIFIC NAME

COMMON NAMES

Lilium L.

L. philadelphicum L.

WOOD-LILY

Erythronium L.

E. americanum Ker 6069

TROUT-LILY

Clintonia Raf.

C. borealis (Ait.) Raf.

BLUEBEAD-LILY

Smilacina Desf.

S. racemosa (L.) Desf.

FALSE SPIKENARD

S. stellata (L.) Desf.

S. trifolia (L.) Desf.

Maianthemum Weber

M. canadense Desf. 1733

WILD LILY-OF-THE-VALLEY

Uvularia L.

U. grandiflora Sm. 1738

BELLWORT

Streptopus Michx.

S. roseus Michx. 1734

ROSE MANDARIN

Polygonatum Mill.

P. pubescens (Willd.) Pursh 6068

SOLOMON'S SEAL

Trillium L.

T. grandiflorum (Michx.)

Salisb. 6057

WHITE TRILLIUM

T. erectum L. 6058

RED TRILLIUM

T. undulatum Willd.

PAINTED TRILLIUM

Medeola L.

M. virginiana L.

INDIAN CUCUMBER ROOT

SCIENTIFIC NAME

COMMON NAMES

Smilax L.

S. herbacea L.
S. hispida Torr.

CARRION FLOWER
GREENBRIER

IRIDACEAE

IRIS FAMILY

Iris L.

I. versicolor L.

BLUE FLAG

Sisyrinchium L.

S. montanum Greene 6163, 1715

BLUE-EYED GRASS

ORCHIDACEAE

ORCHIS FAMILY

Cypripedium L.

C. acaule Ait.
C. calceolus L.
C. reginae Walt. 1785

STEMLESS LADY'S SLIPPER
YELLOW LADY'S SLIPPER
SHOWY LADY'S SLIPPER

Habenaria Willd.

H. hyperborea (L.) R. Br. 1787
H. obtusata (Pursch) Richards
1795
(H. orbiculata (Pursh) Richards)
H. psycodes (L.) Spreng 1849

NORTHERN ORCHIS
BLUNT-LEAF ORCHIS
ROUND-LEAVED ORCHIS
SMALL PURPLE FRINGED ORCHIS

Epipactis Sw.

*E. helleborine (L.) Crantz

HELLEBORINE

Listera R.Br.

L. convallarioides (Sw.) Torr.
6320

BROAD-LIPPED TWAY-BLADE

Spiranthes Rich.

S. cernua (L.) Rich. 2100, 201

NODDING LADIES'-TRESSES

Goodyera R.Br.

G. repens (L.) R.Br. 6321, 183
G. tessellata Lodd. 2049, 181

DWARF RATTLESNAKE-PLANTAIN

SCIENTIFIC NAMECOMMON NAMESMalaxis Sw.

M. monophylla (L.) Sw. 184
M. unifolia Michx. 6350, 180

GREEN ADDER'S MOUTH

Liparis Rich.L. loeselli (L.) Rich. 6351, 2048

BOG-TWAYBLADE

Corallorhiza Chat.

C. trifida Chat.
C. maculata Raf.
C. striata Lindl.

EAPLY CORAL-ROOT
SPOTTED CORAL-ROOT
STRIPED CORAL-ROOT

SALICACEAE

WILLOW FAMILYPopulus L.

*P. canescens (Ait.) Smith
P. grandidentata Michx. 1848
P. tremuloides Michx.
P. balsamifera L.

GRAY POPLAR
LARGE-TOOTHED ASPEN
TREMBLING ASPEN
BALSAM POPLAR

Salix L.

S. lucida Muhl. 2066
S. serissima (Bailey) Fern. 1942,
1721
S. rigida Muhl.
S. bebbiana Sarg. 1719
S. discolor Muhl.
S. humilis Marsh. 1691
S. petiolaris J.E.Sm. 2024,
2064, 1723

SHINING WILLOW
AUTUMN WILLOW

LONG-BEAKED WILLOW
LARGE PUSSY-WILLOW
GRAY WILLOW

JUGLANDACEAE

WALNUT FAMILYJuglans L.J. cinerea L.

BUTTERNUT

BETULACEAE

BIRCH FAMILYCorylus L.C. cornuta Marsh.

BEAKED HAZELNUT

SCIENTIFIC NAME

COMMON NAMES

Ostrya Scop.

O. virginiana (Mill.) C. Koch

HOP-HORNBEAM

Betula L.

B. allegheniensis Britt.

YELLOW BIRCH

B. papyrifera Marsh.

WHITE BIRCH

Alnus Mill.

A. rugosa (DuRoi) Spreng.

SPECKLED ALDER

FAGACEAE

BEECH FAMILY

Fagus L.

F. grandifolia L.

BEECH

Quercus L.

Q. alba L. 6273

WHITE OAK

Q. rubra L.

RED OAK

ULMACEAE

ELM FAMILY

Ulmus L.

U. americana L.

U. rubra Muhl.

URTICACEAE

NETTLE FAMILY

Laportea Gaud.

L. canadensis (L.) Wedd.

WOOD NETTLE

Pilea Lindl.

P. pumila (L.) Gray 1852

CLEARWEED

ARISTOLOCHIACEAE

BIRTHWORT FAMILY

Asarum L.

A. canadense L. 6044

WILD GINGER

<u>SCIENTIFIC NAME</u>	<u>COMMON NAMES</u>
POLYGONACEAE	<u>BUCKWHEAT FAMILY</u>
<u>Rumex</u> L.	
*R. acetosella L.	SHEEP SORREL
R. orbiculatus Gray	
*R. crispus L. 1724	YELLOCK DOCK
*R. obtusifolius L.	RED-VEINED DOCK
<u>Polygonum</u> L.	
*P. aviculare L.	KNOTWEED
(P. punctatum Ell.) 2019, 2040	
*P. hydropiper L. 999, 196	
P. persicaria L. 195	LADY'S THUMB
P. sagittatum L.	
*P. convolvulus L.	BLACK BINDWEED
CHENOPODIACEAE	<u>SPINACH FAMILY</u>
<u>Chenopodium</u> L.	
*C. album L.	LAMB'S-QUARTERS
*C. glaucum L.	ONE-LEAVED GOOSEFOOT
C. hybridum L. 2003	MAPLE-LEAVED GOOSEFOOT
C. capitatum L. Aschers. 2004	STRAWBERRY-BLITE
AMARANTHACEAE	<u>AMARANTH FAMILY</u>
<u>Amaranthus</u> L.	
*A. albus L. 2006	TUMBLEWEED
PHYTOLACCACEAE	<u>POKEWEED FAMILY</u>
<u>Phytolacca</u> L.	
/(P. americana L.) 2001	POKEWEED
PORTULACAEAE	<u>PURSLANE FAMILY</u>
<u>Portulaca</u> L.	
(*)P. oleracea L.	COMMON PURSLANE
<u>Claytonia</u> L.	
C. caroliniana Michx. 6038	SPRING-BEAUTY

<u>SCIENTIFIC NAME</u>	<u>COMMON NAMES</u>
CARYOPHYLLACEAE	<u>PINK FAMILY</u>
<u>Stellaria</u> L.	
* <u>S. media</u> (L.) Vill.	COMMON CHICKWEED
* <u>S. graminea</u> L.	COMMON STITCHWORT
(<u>S. calycantha</u> (Ledeb.) Bong.)	
<u>Cerastium</u> L.	
* <u>C. vulgatum</u> L. 6094, 6203	FIELD CHICKWEED
<u>Arenaria</u> L.	
* <u>A. serphyllifolia</u> L.	
<u>Silene</u> L.	
* <u>S. noctiflora</u> L.	NIGHT-FLOWERING CATCHFLY
* <u>S. alba</u> (Mill.) E.H.L. Krause	WHITE COCKLE
* <u>S. cucubalis</u> Wibel 1769	BLADDER CAMPION
<u>Saponaria</u> L.	
* <u>S. officinalis</u> L.	BOUNCING BET
<u>Dianthus</u> L.	
* <u>D. armeria</u> L.	
CERATOPHYLLACEAE	<u>HORNWORT FAMILY</u>
<u>Ceratophyllum</u> L.	
<u>C. demersum</u> L. 2029	
NYMPHAEACEAE	<u>WATER-LILY FAMILY</u>
<u>Nuphar</u> Sm.	
<u>N. variegatum</u> Engelm. 2026	BULLHEAD-LILY
RANUNCULACEAE	<u>CROWFOOT FAMILY</u>
<u>Actaea</u> L.	
<u>A. alba</u> (L.) Miller	DOLL'S EYES
<u>A. rubra</u> (Ait.) Willd.	RED BANEERRY

<u>Coptis</u> Salisb.	
<u>C. groenlandica</u> (Oeder) Fern.	GOLDTHREAD
<u>Aquilegia</u> L.	
<u>A. canadensis</u> . 6228	CANADIAN COLUMBINE
<u>Caltha</u> L.	
<u>C. palustris</u> L.	MARSH-MARIGOLD
<u>Ranunculus</u> L.	
<u>R. abortivus</u> L. 6063	KIDNEYLEAF BUTTERCUP
<u>R. sceleratus</u> L. 1854	
<u>R. recurvatus</u> Poirer 6064	HOOKEE BUTTERCUP
<u>R. pensylvanicus</u> L.f. 1868	BRISTLY CROWFOOT
*R. <u>acris</u> L.	COMMON BUTTERCUP
<u>R. septentrionalis</u> Poirer 1922	SWAMP BUTTERCUP
<u>Thalictrum</u> L.	
<u>T. dioicum</u> L. 1810	EARLY MEADOW RUE
<u>T. polygamum</u> H. Muhl.	TALL MEADOW RUE
<u>Anemone</u> L.	
<u>A. cylindrica</u> Gray	THIMBLEWEED
<u>A. virginiana</u> L. 173	
<u>A. canadensis</u> L. 6092, 1718	CANADIAN ANEMONE
<u>Hepatica</u> Miller	
<u>H. acutiloba</u> DC.	LIVERLEAF
<u>Clematis</u> L.	
<u>C. virginiana</u> L.	
BERBERIDACEAE	<u>BARBERRY FAMILY</u>
<u>Caulophyllum</u> Michx.	
<u>C. thalictroides</u> (L.) Michx. 6042	BLUE COHOSH
<u>Berberis</u> L.	
*B. <u>vulgaris</u> L.	BARBERRY



Photo 1-14A RB

Liverleaf (Hepatica acutiloba) and Pitcherplant (Sarracenia purpurea) (above and below) are two of the more attractive wildflowers that grow in contrasting habitats at the Copeland Forest.



Photo 1-13A RB

SCIENTIFIC NAME

FUMITORY FAMILY

FUMARIACEAE

Dicentra Bernh.

D. canadensis (Goldie) Walp. 6039

SQUIRREL CORN

CRUCIFERAE

MUSTARD FAMILY

Brassica L.

*[B. kaber (DC.) L.C. Wheeler] 2076

CHARLOCK

Diplotaxis DC.

*D. tenuifolia (L.) DC.

Lepidium L.

(*)L. densiflorum Schrader 2008b

PEPPERGRASS

Thlaspi L.

*T. arvense L.

FIELD PENNY-CRESS

Capsella Medic.

*C. bursa-pastoris (L.) Medic.

SHEPHERD'S PURSE

Berteroa D.C.

*B. incana (L.) DC. 2000

HOARY ALYSSUM

Dentaria L.

D. diphylla Michx. 6067, 1739

TOOTHWORT

Arabis L.

/(A. drummondii Gray) 1694
(A. laevigata (Muhl.) Poir.) 6236

Nasturtium R.Br.

*N. officinale R.Br. 1998

<u>SCIENTIFIC NAME</u>	<u>COMMON NAMES</u>
<u>Rorippa</u> Scop.	
<u>R. islandica</u> (Oeder) Borbas 2099	YELLOW CRESS
<u>Barbarea</u> R. Br.	
<u>*B. vulgaris</u> R.Br. 1726, 6062	YELLOW ROCKET
<u>Erysimum</u> L.	
<u>*E. cheiranthoides</u> L.	WORMSEED MUSTARD
<u>Camelina</u> Crantz	
<u>*C. microcarpa</u> Andrz. ex DC.	FALSE FLAX
SARRACENIACEAE	<u>PITCHER PLANT FAMILY</u>
<u>Sarracenia</u> L.	
<u>S. purpurea</u> L. 6352	PITCHER PLANT
DROSERACEAE	<u>SUNDEW FAMILY</u>
<u>Drosera</u> L.	
<u>D. rotundifolia</u> L. 1933	ROUND-LEAVED SUNDEW
SAXIFRAGACEAE	<u>SAXIFRAGE FAMILY</u>
<u>Tiarella</u> L.	
<u>T. cordifolia</u> L. 6055, 1763	FOAMFLOWER
<u>Mitella</u> L.	
<u>M. nuda</u> L.	MITERWORT
<u>M. diphylla</u> L. 6054	COOLWORT
<u>Parnassia</u> L.	
<u>P. glauca</u> Raf.	GRASS-OF-PARNASSUS
<u>Chrysosplenium</u> L.	
<u>C. americanum</u> Schw.	GOLDEN SAXIFRAGE

SCIENTIFIC NAME

COMMON NAMES

Ribes L.

- R. cynosbati L.
- R. lacustre (Pers.) Poirét 1710a
- *R. sativum Syme
- R. triste Pallas 1791

PRICKLY GOOSEBERRY

GARDEN CURRENT

ROSACEAE

ROSE FAMILY

Spiraea L.

- S. latifolia DuRoi

Fragaria L.

- F. vesca L.
- F. virginiana Duchesne

WOODLAND STRAWBERRY

WILD STRAWBERRY

Potentilla L.

- P. norvegica L. 1725
- *P. recta L.
- *P. argentea L. 170
- P. palustris (L.) Scop.

CINQUEFOIL

SILVERY CINQUEFOIL

MARSH FIVE-FINGER

Geum L.

- G. canadense Jacq. 6231
- G. aleppicum Jacq.
- G. rivale L. 1789

WHITE AVENS

YELLOW AVENS

PURPLE AVENS

Rubus L.

- R. allegheniensis Porter 1690
- R. occidentalis L.
- R. strigosus Michx.
- R. pubescens Raf.

THIMBLEBERRY

BLACK RASPBERRY

RASPBERRY

DWARF RASPBERRY

Dalibarda L.

- D. repens L. 2035

Agrimonia L.

- A. gryposepala Wallr.

TALL AGRIMONY

Rosa L.

- R. acicularis Lindley 1977

WILD ROSE

Prunus L.

P. serotina Ehrh.
P. virginiana L.
P. pensylvanica L.f.

BLACK CHERRY
CHOKECHERRY
PIN CHERRY

Pyrus L.

*P. malus L.

APPLE

Crataegus L.

Crataegus sp. 1692

HAWTHORN

Amelanchier Medic.

A. laevis Wieg.

FABACEAE

PEA FAMILYTrifolium L.

*T. pratense L.
*T. repens L.
*T. hybridum L.
*T. agrarium L. 6272, 1925

RED CLOVER
ALSIKE CLOVER
YELLOW CLOVER

Melilotus Mill.

*M. alba Medic.

WHITE SWEET CLOVER

Medicago L.

*M. lupulina L.
*M. sativa L.

BLACK MEDICK
ALFALFA

Desmodium Desv.

D. candense (L.) DC.

BUSH TICK TREFOIL

Vicia L.

*V. angustifolia Reichard 1972
*V. cracca

COMMON VETCH
TUFTED VETCH

OXLIDACEAE

WOOD-SORREL FAMILY

*O. stricta L.
O. montana Raf. 1755

YELLOW WOOD-SORREL
WOOD-SHAMROCK

SCIENTIFIC NAME

COMMON NAMES

GERANIACEAE

GERANIUM FAMILY

Geranium L.

G. robertianum L.

HERB ROBERT

LINACEAE

FLAX FAMILY

Linum L.

*L. perenne L. 2068

FLAX

POLYGALACEAE

MILKWORT FAMILY

Polygala L.

P. paucifolia Willd.

FLOWERING WINTERGREEN

EUPHORBIACEAE

SPURGE FAMILY

Euphorbia L.

E. glyptosperma Englm. 1978

E. vermiculata Raf. 2009

*E. cyparissias L. 1971

HAIRY SPURGE

CYPRESS SPURGE

CALLITRICHACEAE

WATER-STARWORT FAMILY

Callitriche L.

C. palustris L. 2054

WATER-STARWORT

ANACARDIACEAE

CASHEW FAMILY

Rhus L.

R. radicans L.

R. typhina L.

POISON IVY

SUMACH

AQUIFOLIACEAE

HOLLY FAMILY

Ilex L.

I. verticillata (L.) Gray 1994

BLACK ALDER

CELASTRACEAE

STAFF-TREE FAMILY

Celastrus L.

C. scandens L.

BITTERSWEET



Photo 1-12A RB

Photo 1-9A RB

Local trees often have distinctive bark. At left, Black Cherry (Prunus serotina) has characteristic, dark scaly bark. To the right, tight-barked Ash (Fraxinus americana) and shaggy barked Sugar Maple (Acer saccharum) frame a sapling, papery Yellow Birch (Betula allegheniensis).

SCIENTIFIC NAME

COMMON NAMES

ACERACEAE

MAPLE FAMILY

Acer L.

A. saccharum Marsh.
A. spicatum Lam.
A. pensylvanica L. 200
A. rubrum L.
A. saccharinum L.

SUGAR MAPLE
MOUNTAIN MAPLE
STRIPED MAPLE
RED MAPLE
SILVER MAPLE

BALSAMINACEAE

TOUCH-ME-NOT FAMILY

Impatiens L.

I. capensis Meerb.

SPOTTED TOUCH-ME-NOT

RHAMNACEAE

BUCKTHORN FAMILY

Rhamnus L.

R. alnifolia L'Her

ALDER-LEAVED BUCKTHORN

VITACEAE

GRAPE FAMILY

Vitis L.

V. riparia Michx.

WILD GRAPE

Parthenocissus Planch.

P. inserta (A. Kerner) K. Fritsch

VIRGINIA CREEPER

TILIACEAE

LINDEN FAMILY

Tilia L.

T. americana L.

MALVACEAE

MALLOW FAMILY

*M. neglecta Wallr.

COMMON MALLOW

HYPERICACEAE

ST. JOHN'S WORT FAMILY

Hypericum L.

H. kalmianum L.
(H. ellipticum Hooker) 192
*H. perforatum L.
(H. mutilum L.) 2012
H. majus (Gray) Britton 2017,
1946

ST. JOHN'S WORT

SCIENTIFIC NAME

COMMON NAMES

Triadenum Raf.

T. fraseri (Splach.) Gl. 1934

Marsh St. John's Wort

VIOLACEAE

VIOLET FAMILY

Viola L.

V. cucullata Ait. 6046, 6119
V. selkirkii Pursh 2103, 1756
V. renifolia Gray
V. incognita Brainerd
V. pubescens Ait. 6047
V. canadensis L. 6045

YELLOW VIOLET
CANADA VIOLET

THYMELAEACEAE

MEZEREUM FAMILY

Dirca L.

D. palustris L.

LEATHERWOOD

LYTHRACEAE

LOOSESTRIFE FAMILY

Lythrum L.

*L. salicaria L.

SPIKED LOOSESTRIFE

ONAGRACEAE

EVENING-PRIMROSE FAMILY

Ludwigia L.

L. palustris (L.) Ell. 1853

WATER PURSLANE

Epilobium L.

E. angustifolium L. 1847
*E. hirsutum L.
E. strictum Muhl. 193
E. leptophyllum Raf. 2112
E. glandulosum Lehm.
E. coloratum Biehler
E. ciliatum Raf. 2067, 2092, 1981

FIREWEED

Oenothera L.

O. parviflora L.
O. perennis L. 1940
*O. pilosella Raf.

EVENING-PRIMROSE

<u>Circaea</u> L.	
<u>C. quadrisulcata</u> (Maxim.) Franch & Sav.	ENCHANTER'S NIGHTSHADE
<u>C. alpina</u> L. 177	ENCHANTER'S NIGHTSHADE
HALORAGACEAE	
<u>Proserpinaca</u> L.	<u>WATER-MILFOIL FAMILY</u>
<u>P. palustris</u> L. 1945	
ARALIACEAE	
<u>Aralia</u> L.	<u>GINSENG FAMILY</u>
<u>A. nudicaulis</u> L.	
<u>A. racemosa</u> L. 182	WILD SARSAPARILLA
<u>Panax</u> L.	
/ <u>P. quinquefolius</u> L. 2158	GINSENG
UMBELLIFERAE	
<u>Hydrocotyle</u> L.	<u>PARSLEY FAMILY</u>
<u>H. americana</u> L. 6089	
<u>Sanicula</u> L.	WATER-PENNYWORT
<u>S. marilandica</u> L.	
<u>Cryptotaenia</u> DC.	BLACK SNAKE-ROOT
<u>C. canadensis</u> (L.) DC. 6229	
<u>Osmorhiza</u> Raf.	HONEWORT
<u>O. claytonii</u> (Michx.) C.B. Clarke	
<u>O. longistylis</u> (Torr.) DC.	SWEET JARVIL
<u>Daucus</u> L.	
<u>*D. carota</u> L.	QUEEN ANNE'S LACE
<u>Sium</u> L.	
<u>S. suave</u> Walt.	WATER-PARSNIP

Cicuta L.

- C. bulbifera L.
- C. mukulata L.

WATER-HEMLOCK
WATER-HEMLOCK

Angelica L.

- A. atropurpurea L.

CORNACEAE

DOGWOOD FAMILY

Cornus L.

- C. canadensis L.
- C. alternifolia L.f. 6248
- C. stolonifera Michx.

BUNCHBERRY
ALTERNATE-LEAVED DOGWOOD
RED OSIER DOGWOOD

ERICACEAE

HEATH FAMILY

Monotropa L.

- M. uniflora L. 2047

INDIAN PIPE

Moneses Salisb.

- M. uniflora (L.) Gray 1794

ONE-FLOWERED PYROLA

Pyrola L.

- P. elliptica Nutt. 1838
- P. asarifolia Michx.
- P. secunda L. 1796

SHINLEAF

Ledum L.

- L. groenlandicum Oeder 1798

LABRADOR TEA

Epigaea L.

- E. repens L. 1979

TRAILING ARBUTUS

Gaultheria L.

- G. procumbens L.
- G. hispidula (L.) Muhl. 176

WINTERGREEN



Photo 1-7A FW

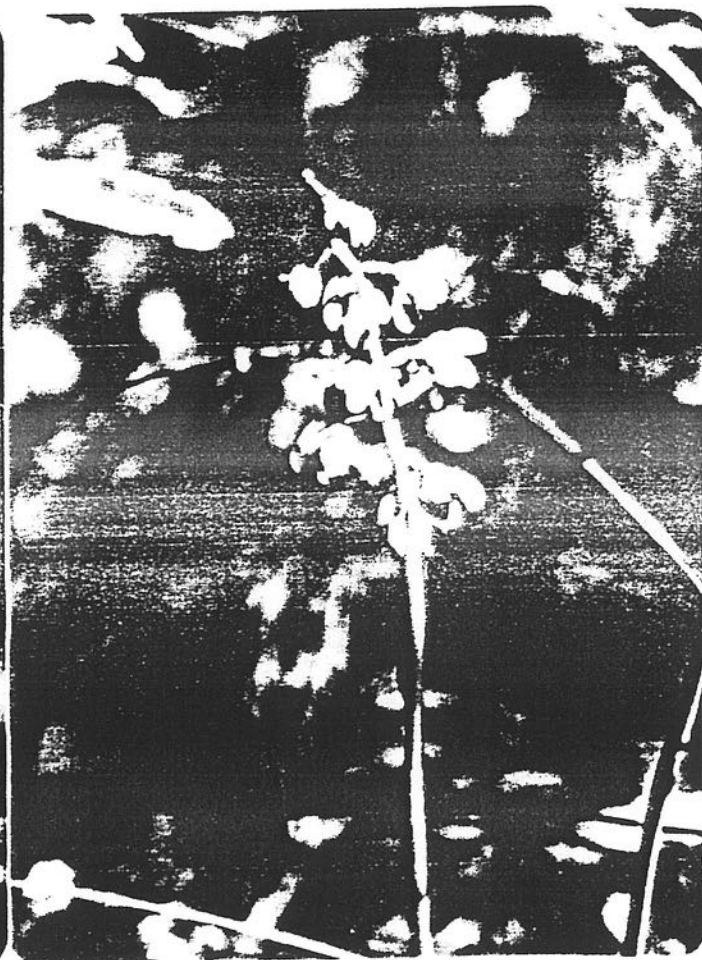


Photo 1-6A RB

Like a delicate ceramic sculpture, the Indian Pipe (Monotropa uniflora) rises from rich pine litter. In nearby wet mixed and Cedar Woods, an equally colourful relative - the Pink Shinleaf (Pyrola asarifolia) grows in small colonies.

SCIENTIFIC NAME

COMMON NAMES

Vaccinium L.

V. myrtilloides Michx. 1984,
2133, 1802

V. oxycoccus L. 6356

BLUEBERRY

SMALL-CRANBERRY

PRIMULACEAE

PRIMROSE FAMILY

Lysimachia L.

L. ciliata L.

L. thyrsoflora L. 6186

*L. nummulari L.

FRINGED-LOOSESTRIFE

MONEYWORT

Trientalis L.

T. borealis Raf.

STAR-OF-BETHLEHEM

OLEACEAE

OLIVE FAMILY

Fraxinus L.

F. americana L.

F. pennsylvanica Marsh.

F. nigra L. 6117

WHITE ASH

GREEN ASH

BLACK ASH

Syringa L.

*S. vulgaris L.

LILAC

GENTIANACEAE

GENTIAN FAMILY

Gentiana L.

G. andrewsii Griseb. 2060, 198

Menyanthes L.

M. trifoliata L.

BUCKBEAN

APOCYNACEAE

DOGBANE FAMILY

Apocynum L.

A. androsaemifolium L.

A. cannabinum L.

SPREADING DOGBANE

INDIAN HEMP

SCIENTIFIC NAME

COMMON NAMES

ASCLEPIADACEAE

MILKWEED FAMILY

Asclepias L.

SWAMP MILKWEED
COMMON MILKWEED

A. incarnata L. 1850

A. syriaca L.

CONVOLVULACEAE

CONVOLVULUS FAMILY

Convolvulus L.

FIELD-BINDWEED

*C. arvensis L.

HYDROPHYLLACEAE

WATERLEAF FAMILY

Hydrophyllum L.

VIRGINIA WATERLEAF

H. virginianum L. 6048, 1736

BORAGINACEAE

BORAGE FAMILY

Echium L.

VIPER'S BUGLOSS

*E. vulgare L.

Cynoglossum L.

WILD COMFREY

*C. officinale L. 1688

Hackelia Opiz.

H. virginiana (L.) Johnst. 2002

H. americana (Gray) Fern. 6233

VERBENACEAE

VERVAIN FAMILY

Verbena L.

WHITE VERVAIN
BLUE VERVAIN
HOARY VERVAIN

V. urticifolia L. 2034

V. hastata L.

V. stricta Vent. 2011

LABIATAE

MINT FAMILY

Scutellaria L.

MAD-DOG SKULLCAP
COMMON SKULLCAP

S. lateriflora L.

S. galericulata L. 187

<u>SCIENTIFIC NAME</u>	<u>COMMON NAMES</u>
<u>Nepeta</u> L.	
* <u>N. cataria</u> L.	CATNIP
<u>Glechoma</u> L.	
* <u>G. hederacea</u> L.	GILL-OVER-THE-GROUND
<u>Prunella</u> L.	
<u>P. vulgaris</u> L.	SELFHEAL
<u>Galeopsis</u> L.	
* <u>G. tetrahit</u> L. 2091	HEMP-NETTLE
<u>Leonurus</u> L.	
* <u>L. cardiaca</u> L.	COMMON MOTHERWORT
<u>Monarda</u> L.	
<u>M. fistulosa</u> L. 2061	WILD BERGAMOT
<u>Satureja</u> L.	
<u>S. vulgaris</u> (L.) Fritsch 1836, 179	WILD BASIL
<u>Lycopus</u> L.	
<u>L. uniflorus</u> Michx.	WATER-HOREHOUND
<u>L. americanus</u> Muhl.	BUGLE-WEED
<u>Mentha</u> L.	
<u>M. arvensis</u> L.	WILD MINT
SOLANACEAE	<u>NIGHTSHADE FAMILY</u>
<u>Physalis</u> L.	
<u>P. heterophylla</u> Nees 1835	CLAMMY GROUND CHERRY
<u>Solanum</u> L.	
* <u>S. dulcamara</u> L.	NIGHTSHADE
<u>S. nigrum</u> L. 2005	



Photo 1-4A FW

Two colourful plants associated with streams at Copeland Forest. The Bottled Gentian (Gentiana andrewsii) is frequent and grows in relatively open situations. On the other hand, the Yellow Monkey Flower (Mimulus moschatus) is provincially rare, and grows secretively along streams in sheltered Cedar swamps.



Photo 1-5A RB

<u>SCIENTIFIC NAME</u>	<u>COMMON NAMES</u>
SCROPHULARIACEAE	<u>FIGWORT FAMILY</u>
<u>Mimulus</u> L.	
<u>M. ringens</u> L. /(<u>M. moschatus</u> Douglas)	MONKEY-FLOWER
<u>Verbascum</u> L.	
* <u>V. thapsus</u> L.	MULLEIN
<u>Chelone</u> L.	
<u>C. glabra</u> L. 1988	TURTLEHEAD
<u>Penstemon</u> Mitchell	
<u>P. hirsutus</u> (L.) Willd. 6162	HAIRY BEARD-TONGUE
<u>Scrophularia</u> L.	
(<u>S. lanceolata</u> Pursh) 1684	FIGWORT
<u>Linaria</u> Mill.	
* <u>L. vulgaris</u> Hill	BUTTER AND EGGS
<u>Chaenorrhinum</u> Reichenb.	
* <u>C. minus</u> (L.) Lange 2075	DWARF SNAPDRAGON
<u>Veronica</u> L.	
* <u>V. officinalis</u> L. 1696, 1693 <u>V. americana</u> (Raf.) Schw. <u>V. scutellata</u> L.	COMMON SPEEDWELL AMERICAN BROOKLIME
OROBANCHACEAE	<u>BROOM-RAPE FAMILY</u>
<u>Conopholis</u> Wallr.	
/ <u>C. americana</u> (L.) Wallr. 6226	SQUAWROOT
<u>Epifagus</u> Nutt.	
<u>E. virginiana</u> (L.) Bart.	BEECH DROPS

SCIENTIFIC NAME

COMMON NAMES

LENTIBULARIACEAE

BLADDERWORT FAMILY

Utricularia L.

U. minor L. 2110

U. vulgaris L. 6189, 2079, 2030

PLANTAGINACEAE

PLANTAIN FAMILY

Plantago L.

P. rugelii Decne.

*P. major L.

*P. lanceolata L.

RUGEL'S PLANTAIN

COMMON PLANTAIN

RIBGRASS

RUBIACEAE

MADDER FAMILY

Houstonia L.

H. longifolia Gaertn. 1770

BLUETS

Mitchella L.

M. repens L.

PARTRIDGE-BERRY

Galium L.

G. aparine L. 6096

G. circaezans Michx. 1808

G. lanceolatum Torr. 1699

G. triflorum Michx. 1751, 1698

G. palustre L. 1729, 1862, 1720

G. trifidum L. 2088

G. tinctorium L. 2021

[G. brandegei Gray] 2020

GOOSE GRASS

CAPRIFOLIACEAE

HONEYSUCKLE FAMILY

Viburnum L.

V. trilobum Marsh. 1995

V. alnifolium Marsh. 6268

V. cassinoides L.

V. lentago L.

HIGHBUSH CRANBERRY

HOBBLEBUSH

NANNYBERRY

Sambucus L.

S. canadensis L. 1851

S. pubens Michx.

COMMON ELDERBERRY

<u>SCIENTIFIC NAME</u>	<u>COMMON NAMES</u>
<u>Diervilla</u> Mill.	
<u>D. lonicera</u> Mill. 1809	BUSH HONEYSUCKLE
<u>Lonicera</u> L.	
<u>L. oblongifolia</u> (Goldie) Hooker 1790	
<u>L. canadensis</u> Marsh.	FLY HONEYSUCKLE
<u>L. dioica</u> L.	VINE HONEYSUCKLE
<u>L. hirsuta</u> Eat.	
<u>Triosteum</u> L.	
<u>T. aurantiacum</u> Bickn. 1928	WILD COFFEE
<u>Linnaea</u> L.	
<u>L. borealis</u> L. 1788, 177	TWINFLOWER
VALERIANACEAE	<u>VALERIAN FAMILY</u>
<u>Valeriana</u> L.	
/(<u>V. uliginosa</u> (T.&G.) Rydb.) 6354	WILD VALERIAN
CAMPULACEAE	<u>BLUEBELL FAMILY</u>
<u>Campanula</u> L.	
<u>C. aparinoides</u> Pursh 2065, 191	MARSH BLUEBELL
LOBELIACEAE	<u>LOBELIA FAMILY</u>
<u>Lobelia</u> L.	
<u>L. siphilitica</u> L. 2077, 189	GREAT LOBELIA
<u>L. inflata</u> L.	INDIAN TOBACCO
(<u>L. spicata</u> Lam.) 6322	PALE-SPIKE LOBELIA
COMPOSITAE	<u>ASTER FAMILY</u>
<u>Rudbeckia</u> L.	
<u>R. hirta</u> L.	BLACK-EYED-SUSAN
<u>R. laciniata</u> L. 197	
<u>Galinsoga</u> R.&P.	
* <u>G. ciliata</u> (Raf.) Blake	

<u>SCIENTIFIC NAME</u>	<u>COMMON NAMES</u>
<u>Bidens</u> L.	
<u>B. cernua</u> L. 2052, 2023	STICK-TIGHT
<u>B. tripartita</u> L. 2090, 2022	
<u>Ambrosia</u> L.	
<u>A. artemisiifolia</u> L.	RAGWEED
<u>Anthemis</u> L.	
<u>*A. arvensis</u> L.	CHAMOMILE
<u>*A. cotula</u> L. 175	STINKING CHAMOMILE
<u>Achillea</u> L.	
<u>*A. millefolium</u> L.	YARROW
<u>Chrysanthemum</u> L.	
<u>*C. leucanthemum</u> L.	DAISY
<u>Matricaria</u> L.	
<u>*M. matricarioides</u> (Less.) Porter 174	PINEAPPLE-WEED
<u>Artemisia</u> L.	
<u>*A. vulgaris</u> L. 2053	MUGWORT
<u>Senecio</u> L.	
<u>*S. vulgaris</u> L.	GROUNDSEL
<u>S. aureus</u> L. 6091	
<u>Erechtites</u> Raf.	
<u>(E. hieracifolia</u> (L.) Raf.) 2046	FIREWEED
<u>Tussilago</u> L.	
<u>*T. farfara</u> L.	COLT'S-FOOT
<u>Solidago</u> L.	
<u>S. flexicaulis</u> L.	ZIG-ZAG GOLDENROD
<u>S. caesia</u> L.	WOODLAND GOLDENROD
<u>S. nemoralis</u> Ait.	DRYLAND GOLDENROD
<u>S. juncea</u> Ait. 1969	SWAMP GOLDENROD
<u>S. rugosa</u> Mill. 2151	RUGOSE GOLDENROD

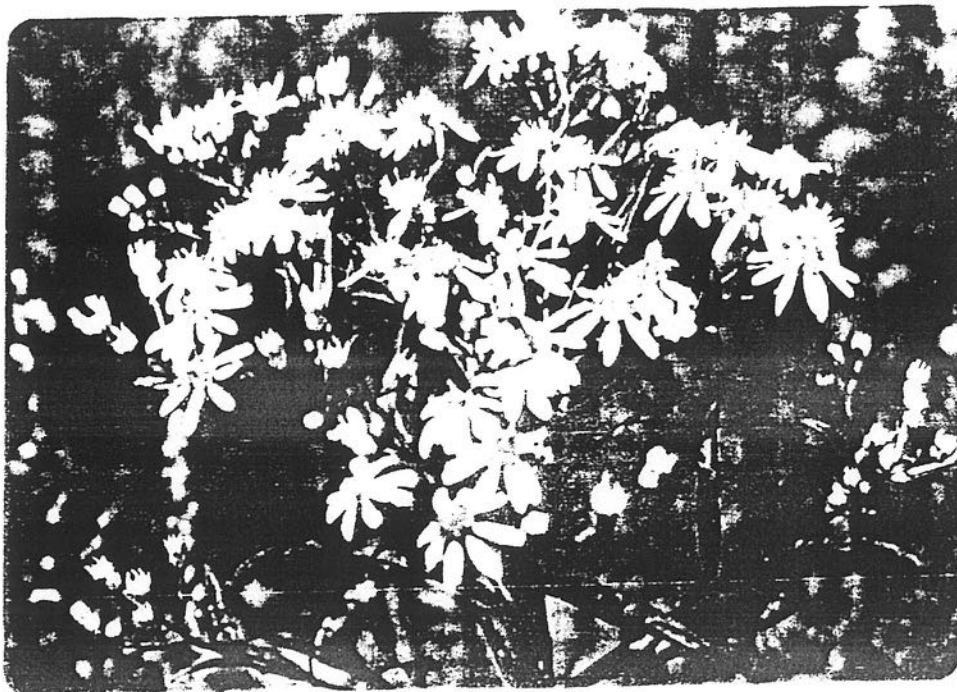


Photo 1-1A FW

Copeland Forest is fortunate to have a colourful array of fall flowers. Above, the Great White Aster (Aster umbellatus) contrasts its ivory hues with the sun-yellow of Stick-tight (Bidens cernua).

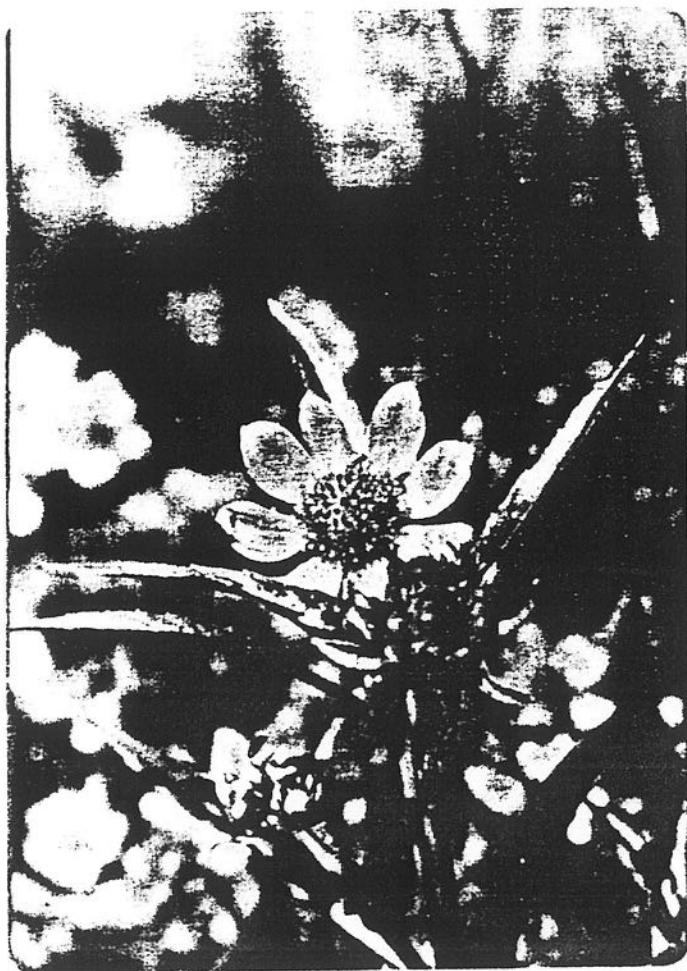


Photo 1-0A RB

<u>SCIENTIFIC NAME</u>	<u>COMMON NAMES</u>
<u>S. canadensis</u> L. 2018, 2084, 2086, 1970	CANADA GOLDENROD
(<u>S. altissima</u> L.) 2081	
<u>S. graminifolia</u> (L.) Salisb.	LANCE-LEAVED GOLDENROD
<u>Aster</u> L.	
<u>A. macrophyllus</u> L.	WOODLAND ASTER
<u>A. cordifolius</u> L.	HEART-LEAF ASTER
<u>A. sagittifolius</u> Willd. 2083, 172	ARROW-LEAF ASTER
<u>A. novae-angliae</u> L. 2082	NEW ENGLAND ASTER
<u>A. puniceus</u> L. 188, 1986	BLUE ASTER
<u>A. lateriflorus</u> (L.) Britt. 1982	WHITE ASTER
<u>A. simplex</u> Willd.	
<u>A. umbellatus</u> Mill 1983	GREAT WHITE ASTER
<u>Erigeron</u> L.	
<u>E. philadelphicus</u> L.	FLEABANE
<u>E. strigosus</u> Muhl.	
<u>E. annuus</u> (L.) Pers.	
<u>Conyza</u> L.	
<u>C. canadensis</u> (L.) Cronq. 2077	HORSE WEED
<u>Gnaphalium</u> L.	
<u>G. obtusifolium</u> L.	
(<u>G. viscosum</u> HBK.) 1976	
<u>Anaphalis</u> D.C.	
<u>A. margaritaceae</u> (L.) C.B. Clarke 2052	PEARLY EVERLASTING
<u>Antennaria</u> Gaertn.	
<u>A. neglecta</u> Greene	PUSSY-TOES
<u>A. plantaginifolia</u> (L.) Richards 1716	
<u>Inula</u> L.	
* <u>I. helenium</u> L. 2087	ELECAMPANE
<u>Eupatorium</u> L.	
<u>E. maculatum</u> L.	JOE-PYE-WEED
<u>E. perfoliatum</u> L.	BONESET
<u>E. rugosum</u> Houtt.	WHITE SNAKEROOT

SCIENTIFIC NAME

COMMON NAMES

Arctium L.

- *A. minus (Hill) Bernh.
- *A. lappa L.

BURDOCK

Carduus L.

- *C. nutans L.

Cirsium Mill.

- *C. vulgare (Savi) Tenore
- C. muticum Michx. 1987
- *C. arvense (L.) Scop. 190

COMMON THISTLE
SWAMP THISTLE
FIELD THISTLE

Prenanthes L.

- P. alba L.
- P. altissima L.

Hieracium L.

- *H. pilosella L. 1844
- *H. pratense Tausch 1717
- *H. aurantiacum L.
- *H. florentinum All.

MOUSE-EAR CHICKWEED
HAWKWEED
DEVIL'S PAINT-BRUSH
YELLOW HAWKWEED

Crepis L.

- *C. tectorum L.

Taraxacum Weber

- *T. officinale Weber

DANDELION

Lactuca L.

- L. biennis (Moench.) Fern. 1992

Cichorium L.

- *C. intybus L.

CHICKORY

Tragopogon L.

- *T. dubius Scop.

GOAT'S BEARD

NON-VASCULAR FLORA OF THE COPELAND FOREST

RESOURCES MANAGEMENT AREA

All species included on the followings lists have been found in the Copeland Forest Resources Management Area during the summer of 1979. These lists should not be considered complete, but rather document the more common and readily identified species. The Copeland Forest is rich in non-vascular plants, and the potential for many as yet unreported species exists.

SCIENTIFIC NAME

COMMON NAMES

CLASS MUSCI

MOSSES

SPHAGNACEAE

PEAT MOSS FAMILY

Sphagnum L.

S. centrale C.Jens. ex. H.Arnell
& C.Jens 1804, 6324, 6329,
6330

S. fimbriatum Wils. ex Hook.f.
6323

S. girgensohnii Russow 1807

S. nemoreum Scop. 6190, 6200

S. rubellum Wils. 1782, 6192,
6328

S. rusowii Warnst. 6217

S. squarrosum Crone 1806

S. warnstorffii Russow 6281, 6283,
6304

S. wulfianum Girg. 1805

FISSIDENTACEAE

BOAT-LEAF MOSSES

Fissidens Hedw.

F. cristatus Wils. ex Mitt. 6282

DITRICHACEAE

TUFT MOSSES

Ceratodon Brid.

C. purpureus (Hedw.) Brid. 6178

DICRANACEAE

Dicranella Schmip.

D. heteromalla (Hedw.) Schmip.
1742, 1740, 6171

Dicranum Hedw.

D. montanum Hedw. 6197, 6215, 6216,
6219, 6326

D. polysetum Sw. 6301

D. scoparium Hedw. 6166, 6167

D. virida (Sull. & Lesq. ex Sull.)
Lindb. 6327

LEUCOBRYACEAE

Leucobryum Brid.

L. glaucum (Hedw.) Angstr. ex Fr.
6325

BRYACEAE

Pohlia Hedw.

P. nutans (Hedw.) Lindb. 6170

Bryum Hedw.

B. capillare Hedw. 6195

B. criberimum Tayl. 6193, 6305

MNIACEAE

Rhizomnium Kop.

R. pseudopunctatum (Buch. & Schimp.)
Kop. 6175

R. punctatum (Hedw.) Kop. 6165,
6302, 6072, 1780

Plagiomnium Kop.

P. ciliare (C. Mull.) Kop. 6077,
6164, 6195, 6218, 6220, 6252,
6305

P. cuspidatum (Hedw.) Kop. 6072,
6073, 6074, 6173, 1706, 1750,
6302, 6303

SCIENTIFIC NAME

COMMON NAMES

AULACOMNIACEAE

Aulacomnium Schwaegr.

A. androgynum (Hedw.) Schwaegr. 1803

A. palustre (Hedw.) Schwaegr. 6200

BARTRAMIACEAE

Philonotis Brid.

P. fontana (Hedw.) Brid. 6300

CLIMACIACEAE

Climacium Web. & Mohr.

C. dendroides (Hedw.) Web. & Mohr.
6201, 6219, 6323

LEUCODONTACEAE

Leucodon Schwaegr.

* cf. L. juleaceus (Hedw.) Sull. 6243

THUIDIACEAE

Thuidium BSG

T. recognitum (Hedw.) Lindb. 6165,
6219, 6249, 6283, 6291, 6302

Helodium (Sull.) Warnst.

H. blandowii (Web. & Mohr.) Warnst.
6305

AMBLYSTEGIACEAE

Campylium (Sull.) Mitt.

C. hispidulum (Brid.) Mitt. 6073,
6076

cf. C. polygamum (BSG) C. Jens 6174

* cf. designates a tentative identification

SCIENTIFIC NAME

COMMON NAMES

Amblystegium BSG

A. serpens (Hedw.) BSG 1816

Platydictya Berk.

cf. P. jungermannioides (Brid.) Crum
6251

Drepanocladus (C.M.) Roth

D. aduncus (Hedw.) Warnst. 6196

BRACHYTHECIACEAE

Brachythecium BSG (6073, 6076, 6077,
6198, 6275)

cf. B. oxycladon (Brid.) Jaeg. &
Sauerb. 6050

cf. B. plumulosum (Hedw.) BSG 6284

cf. B. populeum (Hedw.) BSG 6241

cf. B. salebrosum (Web. & Mohr.) BSG
1704

B. velutinum (Hedw.) BSG 1707

Eurhynchium BSG

E. pulchellum (Hedw.) Jenn. 6075

Stokesiella

cf. S. praelonga (Hedw.) Robinson 6198

ENTODONTACEAE

Pleurozium Mitt.

P. schreberi (Brid.) Mitt. 6166,
6301, 6325, 6329, 1806

HYPNACEAE

Hypnum Hedw.

H. cupressiforme Hedw. 1783, 1815,
1780

cf. H. curvifolium Hedw. 6288

SCIENTIFIC NAME

COMMON NAMES

Hypnum Hedw. (continued)

- cf. H. imponens Hews. 6277
 H. lindbergii Mitt. 6071
cf. H. pallescens (Hedw.) P. Beauv.
 6239

Callicladium

- cf. C. haldeanum (Grev.) Crum 6072

Ptilium De Not

- P. crista-castrensis (Hedw.)
 De Not

HYLOCOMIACEAE

Hylocomium BSG

- H. splendens (Hedw.) BSW 6328

TETRAPHIDACEAE

Tetraphis Hedw.

- T. pellucida Hedw. 6168, 6194,
 6276, 6285, 6331

POLYTRICHACEAE

Atrichum P.-Beauv.

- cf. A. angustatum (Brid.) BSG
 6077, 6072
 A. undulatum (Hedw.) P.-Beauv.
 1705

Polytrichum Hedw.

- P. commune Hedw.
 P. juniperinum Hedw. 1687, 6249
 P. longisetum Brid. 6169

New to Simcoe County

CLASS HEPATICAE

MARCHANTIACEAE

Marchantia L.

M. polymorpha L. 1741

Conocephalum

C. conicum (L.) Dumort. 6250,
6287, 6302, 6303

Preissia

P. quadrata (Scop.) Nees 6302

PTILIDIACEAE

Ptilidium

P. pulcherrimum (Web.) Hampe 6239

Trichecolea

T. tomentella (Ehrh.) Dumort.
6386, 6323, 6328, 6330

LEPIDOZIACEAE

Lepidozia

L. reptans (L.) Dumort. 6285, 6331

Bazzania

B. trilobata (L.) S.F. Gray 1781,
6329

CEPHALOZIACEAE

Cephalozia

C. bicuspidata (L.) Dumort. 6201

HARPANTHACEAE

Lophocolea

L. heterophylla (Schrad.) Dumort.
6197, 6220, 6275

PHAGIOCHILACEAEPlagiochila

P. asplenioides (L.) Dumort.
6328, 6330

LICHENES *

LICHENS

Cetraria

C. ciliaris Ach. 6291

Cladonia

- cf. C. cariosa (Ach.) Spreng. 6297c
C. cenotea (Ach.) Schaer. 6141,
 6172
C. chlorophaea (Flk.) Spreng.
 1740, 6107, 6111, 6147, 6153,
 6199
C. coniocraea (Flk.) Spreng. 6171
C. cristatella Tuck. 1740, 6298
C. fimbriata (L.) Fr. 6297b
C. incrassata Flk. 1784, 1740,
 6299
 cf. C. multiformis Merr. 6291
C. rangiferina (L.) Wigg. 6315
C. squamosa (Scop.) Hoffm. 6103,
 6147, 6153, 6238, 6290
C. uncialis (L.) Wigg. 6313

REINDEER MOSS

Evernia

E. mesomorpha Nyl. 6316

Hypogymnia

H. physodes (L.) Nyl. 6145, 6191,
 6314

Parmelia

- P. bolliana Mull. Arg. 6109
P. caperata (L.) Ach. 6332
 cf. P. rudecta Ach. 6112
P. sulcata Tayl. 6112, 6145, 6314,
 6317
P. ulophyllodes Vain). Sav. 6110

* The lichens are listed alphabetically, by genus and species,
 with no reference to families.

SCIENTIFIC NAME

COMMON NAMES

Peltigera

P. canina (L.) Willd. 1792, 1793,
6151, 6237

Physcia

cf. P. aipolia (Ehrh.) Hampe 6113

MUSHROOMS, ETC.

BASIDIOMYCETES

AMANITACEAE

Amanita

A. muscaria

FLY AGARIC

TRICHOLOMATACEAE

Tricholoma

T. vaccinum (Fr.) Staude CO 1701*

Clitocybe

C. nuda (Fr.) Bigelow & Smith
C. cyathiforme (Fr.) Kummel
C. clavipes (Fr.) Kummer

WOOD BLEWITTS

Mycena

M. pura (Fr.) Kummer

Cantharellula

C. umbonata (Fr.) Singer

Collybia

C. tuberosa (Fr.) Kummer

Armillariella

A. mellea (Fr.) Karsten

HONEY MUSHROOM

Xeromphalina

X. caudicinalis (Fr.) Kuhner &
Maire

* Clark Ovrebo collection numbers

Cystoderma

C. amianthinum (Fr.) Fayod

Collybia

C. butyracea (Fr.) Quel
C. dryophila (Fr.) Kummer

Tricholoma

T. myomyces (Fr.) Lange CO 1070

Xerulina

X. chrysopepla Berkeley & Curtis
2138

Oudemansiella

O. radicata (Fr.) Singer 2143

Marasmius

M. rotula (Fr.) Fr. 2146

Lentinellus

L. ursinus (Fr.) Kuhner 2157

Melanoleuca (1966)

HYGROPHORACEAE

Hygrophorus (2137, 2149)

H. conicus (Fr.) Fr. 2148
H. agathosmos (Fr.) Fr.

RUSSULACEAE

Lactarius

L. deliciosus S.F. Gray
L. vinaceorufescens A.H. Smith

Russula (2145, 2155)

VOLVARIACEAE

Pluteus

P. cervinus (Fr.) Kummer

CORTINARIACEAE

Galerina

G. autumnalis (Peck) Smith &
Singer

BOLETACEAE

Boletiniellus

B. merulioides Schw. & Murrill
2097

B. piperatus Fr. CO 1068

LEPIOTACEAE

Lepiota (CO 1072)

AURISCALPIACEAE

Auriscalpium

A. vulgare S.F. Gray CO 1067

HERICIACEAE

Hericium

H. corraloides Persoon 2156

CLAVARIACEAE

Clavaria 6264

POLYPORACEAE

Ganoderma

G. tsugae Murrill 2139

SCIENTIFIC NAME

COMMON NAMES

Fomes

F. applanatum 6155

F. fomentarius 6114

Polyporus

P. arcularius 6240

P. picipes Fries 2154

P. resinosus 6244

P. versicolor 6242

STROPHARIACEAE

Naematoloma

N. capnoides (Fr.) Karsten

RHODOPHYLLACEAE

Entoloma (2147)

LYCOPERDACEAE

Lycoperdon (2144) (6105)

ASCOMYCETES

CUP FUNGI, ETC.

GEOGLOSSACEAE

Spathularia

S. flavida Fries CO 1069

NEOLECTACEAE

Neolecta

N. irregularis (PK) Korf & Rogers

HELOTIACEAE

Bisporiella

B. citrina

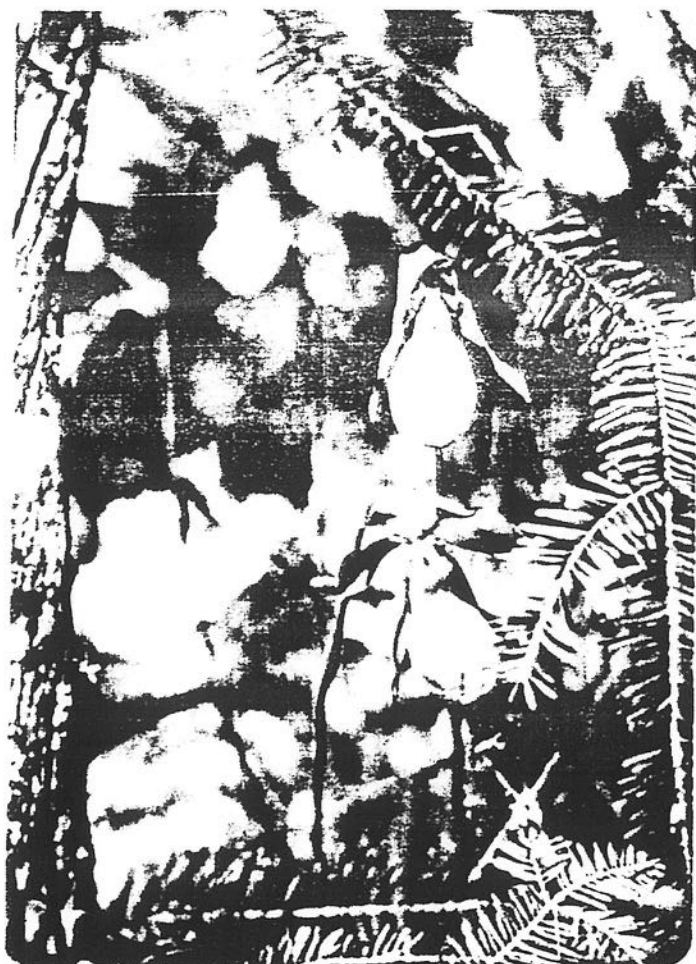
Wildlife Notes

Incidental wildlife notes were taken in conjunction with this Botanical Inventory. Amphibians observed included Spring Peepers, Wood Frogs, as well as Leopard, Green and Bull Frogs. Reptiles seen were Garter Snakes and Green Snakes.

Mammals are common in the Copeland Forest. Chipmunks, Red Squirrels, Rabbits and Groundhogs all occur. Larger fur-bearers seen were Muskrat, Beaver and Raccoon. Beaver are an important ecological influence through their flooding impact. White-tailed Deer are also common.

Greatest diversity was observed in the bird life of the area. These are summarized in a simple species list, which follows.

Great Blue Heron	Cedar Waxwing
Green Heron	Starling
Black Duck	Black-and-white Warbler
Broad-winged Hawk	Ovenbird
Marsh Hawk	Yellowthroat
Ruffed Grouse	Red-winged Blackbird
Killdeer	Common Grackle
American Woodcock	Indigo Bunting
Spotted Sandpiper	White-throated Sparrow
Mourning Dove	Song Sparrow
Belted Kingfisher	
Pileated Woodpecker	
Yellow-bellied Sapsucker	
Great Crested Flycatcher	
Tree Swallow	
Bank Swallow	
Rough-winged Swallow	
Blue Jay	
Common Crow	
Black-capped Chickadee	
Red-breasted Nuthatch	
Winter Wren	
Robin	
Wood Thrush	



CHAPTER III

PLANNING CONSIDERATIONS

CHAPTER III

PLANNING CONSIDERATIONS

Introduction

The planning considerations that arise from this Botanical Inventory have primarily to do with the identification of ecologically sensitive environments, rare plant species, and human values of the more frequent plant species.

Ecological Sensitivity

In this report, ecological sensitivity is employed to mean sites which will respond with dramatically reduced carrying capacity and biological productivity if heavily lumbered, disturbed or developed using modern "economical" approaches. Loss of critical wildlife and plant species habitat, deterioration of water quality, production of more severe microclimates and increased soil erosion will occur if the stabilizing plant covers of these sites are removed.

Riparian and seepage areas, from upslope headwaters to the deep Coldwater River ravine are included in this category. The larger marshlands are excluded, although where marshes are closely associated with the streams they are included. All steep slopes, even if unrelated to Riparian situations, are also considered to be ecologically sensitive.

Seepages and steepest slopes should be avoided year-round. Except for small groups (less than 10) of interpretive naturalists, hikers, snowshoers, cross-country skiers, etc., other sensitive sites should also be avoided. Snowmobiles, trail bikes or other motorized vehicles, as well as larger or daily recreational or interpretive groups, should also be excluded from these sites. There is ample opportunity to accommodate these activities along the lumber trails and throughout less sensitive woodland and forest areas.

Picnicking, or game playing day-use type activity areas can readily be accommodated in herbaceous communities associated with reforestation, and on no account should currently naturally wooded land be cleared for this purpose.

In all cases, fire, garbage, disturbance of soil, vegetation and wildlife, etc. would have to be carefully controlled and minimized. In the cases of intensive development or lumbering, this can be achieved by appropriate seasonal timing and the use of selective cutting techniques.

The provincially rare species listed on the next page are also considered to indicate ecologically sensitive sites. Those locations for rare species not encompassed by the above areas are identified as spot locations. All sites that require protection or very specialized development are identified on the Ecosite Maps.

A significant area of seepage slope occurs outside of the Copeland Forest, along the southern property boundary at Concession II. These seepages supply critical water for the Coldwater River, and support environments for several provincially rare plant species on the Copeland Forest property. It is recommended that the Ministry seriously consider acquiring this zone, or otherwise, assure its long-term protection.

Rare Plant Species

Native vascular plants considered rare in Ontario and/or Simcoe County that occur at the Copeland Forest are listed below. Specific locations for these can be determined through study of the field notes in Appendix A. All sites where provincially rare species occur have been included in areas designated as potential Reserves and Protection Forests.

BOTANICAL NAMES

COMMON NAMES

Ontario Rare Species

Dryopteris goldiana
Elymus riparius
Eleocharis intermedia
Rhynchospora capitellata
Carex laevivaginata
 C. schwienitzii
Phytolacca americana
Arabis drummondii
Panax quinquefolius
Mimulus moschatus
Conophalis americana
Valeriana uliginosa

Goldie's Fern

Spike-rush

Pokeweed

Ginseng

Squaw-root

Simcoe County Rare Species

Dennstaedtia punctilobula
Potamogeton obtusifolius
Elymus riparius
Muhlenbergia frondosa
Stipa comata
Panicum boreale
Eleocharis intermedia
Carex cephalophora
 C. crawfordii
 C. cumulata
 C. deflexa
 C. merritt-fernaldii
 C. umbellata
 C. debilis
 C. cryptolepis
Zigadenus glaucus
Habenaria orbiculata
Polygonum punctatum
Phytolacca americana
Stellaria calycantha
Arabis drummondii
 A. laevigata
Hypericum ellipticum
 H. mutilum
Mimulus moschatus
Scrophularia lanceolata
Galium brandegei
Valeriana uliginosa
Lobelia spicata
Erechtites hieracifolia
Solidago altissima
Gnaphalium viscosum

Hayscented Fern

Spear Grass

Spike-rush

Wild Camass
Round-leaved Orchis

Pokeweed

Figwort

Pale-spike Lobelia
Fireweed
Goldenrod
Cudweed

Plant Values

Many native plants which occur at the Copeland Forest have more or less well documented uses. Some of these are detailed in the following annotated list.

It has not been within the scope of this work to discuss forestry values, and the primary values discussed are of food and medicine, with notes on reported horticultural prices of ferns. Most other herbaceous species listed can be transplanted, or grown from seed if habitats and soils are carefully matched. They provide a unique opportunity for future developments at the Copeland Forst; gardens of wildflowers, ferns and native herbs could bring home the aesthetic potential of the native plants that are too often bulldozed as "weeds", and provide a unique interpretive opportunity for those who cannot venture further into the forest.

Great care must be exercised in the identification of plants used for either food or medicine. Most trees and shrubs, and many herbs, may be fairly easily identified or are, in fact, well known to most people. Still, one should always carefully check identification features in reputable field guides or botany manuals before eating or using any wild plant. It is always adviseable to seek the opinion of experts, and by mailing pressed and dried specimens to the Botany Departments of the National Museum, or the University of Toronto or other Universities, you may receive confirmation of the identification of almost any plant.

Once certain of the identity of wild edibles, two other cautions should be respected. The first is to avoid areas of possibly poisoned soils, including most roadsides, railsides and sites where chemicals may have been sprayed or spilled. The second caution is that all wild plants useful to man should be employed in small doses or amounts at first, to find out if you have a personal adverse reaction.

Once these guides are followed, it is possible to realize that wildlands are not a hostile wilderness of waste land, but actually an environment full of many sustaining and in some cases healing plants.

PLANT NAME/VALUES

COMMON NAME

EQUISETACEAE

Horsetail Family

EQUISETUM

Horsetails

E. arvense: Eat sparingly of succulent fertile shoots. Never eat green, vegetative shoots. These provide a medicinal juice or tea. Used externally, it slows bleeding and helps heal wounds and skin sores. Two tsp. of dried Green Shoots steeped in 1/2 cup water increases urine flow and stops internal bleeding (e.g. ulcers).
CAUTION: More than 1 cup a day of tea can lead to symptoms of poisoning.

Common Horsetail

LYCOPODIACEAE

Clubmoss Family

LYCOPODIUM

Clubmoss

L. clavatum: Spores used as a powder to stop nosebleed and bleeding from wounds. Powdered spores are also used to absorb fluids from damaged tissue in various injuries.
CAUTION: The plant itself is poisonous, but the spores are not.

OSMUNDACEAE

Flowering Fern Family

OSMUNDA

Flowering Fern

O. cinnamomea: Horticulture: (1979) US \$2.00 each, \$4.0 each. Nibble, potherb; 6-8 inch high stalk cooked as a vegetable. See O. regalis.

Cinnamon Fern

O. claytoniana: Horticulture: (1979) US \$2.00 each, \$4.0 each

Interrupted Fern

O. regalis: Horticulture: (1979) US \$2.00 each. One tsp. of the dried rootstock in 1 cup of water, and steeped for 30 minutes, produce a mucilaginous drink useful as a tonic, or for soothing coughs and diarrhea.

Royal Fern

<u>PLANT NAME/VALUES</u>	<u>COMMON NAME</u>
POLYPODIACEAE	Fern Family
DENNSTAEDTIA	
<u>D. punctilobula</u> : Horticulture: (1979) US \$1.75 each.	Hay-scented Fern
PTERIDIUM	
<u>P. aquilinum</u> : Horticulture: (1979) US \$.30 each. Fiddleheads steamed; rootstock starchy and fibrous, may be eaten steamed or roasted. <u>CAUTION</u> : Never eat green leaves.	Bracken
ADIANTUM	Maidenhair
<u>A. pedatum</u> : Horticulture: (1979) US \$1.75 each. Tonic tea helps clear up coughs and congestion due to colds, as well as hoarseness. Sometimes a constituent in hair rinses. Use 2 tsp. of dried leaves with 1 cup of water, 1 to 2 times a day.	Maidenhair
MATTEUCCIA	Ostrich Fern
<u>M. pensylvanica</u> : Horticulture: (1979) US \$1.75 each.	Ostrich Fern
ONOCLEA	Sensitive Fern
<u>O. sensibilis</u> : Horticulture: (1979) US \$.40 each.	Sensitive Fern
ATHYRIUM	Lady-fern
<u>A. filix-femina</u> : Horticulture: (1979) US \$1.75 each. Fiddleheads steamed and rhizome steamed and peeled can be eaten.	Lady-fern
<u>A. thelypteroides</u> : Horticulture: (197) US \$1.75 each.	Silvery Spleenwort
CYSTOPTERIS	Bladder-fern
<u>C. bulbifera</u> : Horticulture: (1979) US \$1.75 each.	Bulblet Bladder-fern



Photo 2-3 RB

Bracken (Pteridium aquilinum). If you find these juicy, tender stalks (fiddleheads) too bitter, immerse in water and wood ash for 24 to 36 hours to leach out the tannin before eating.

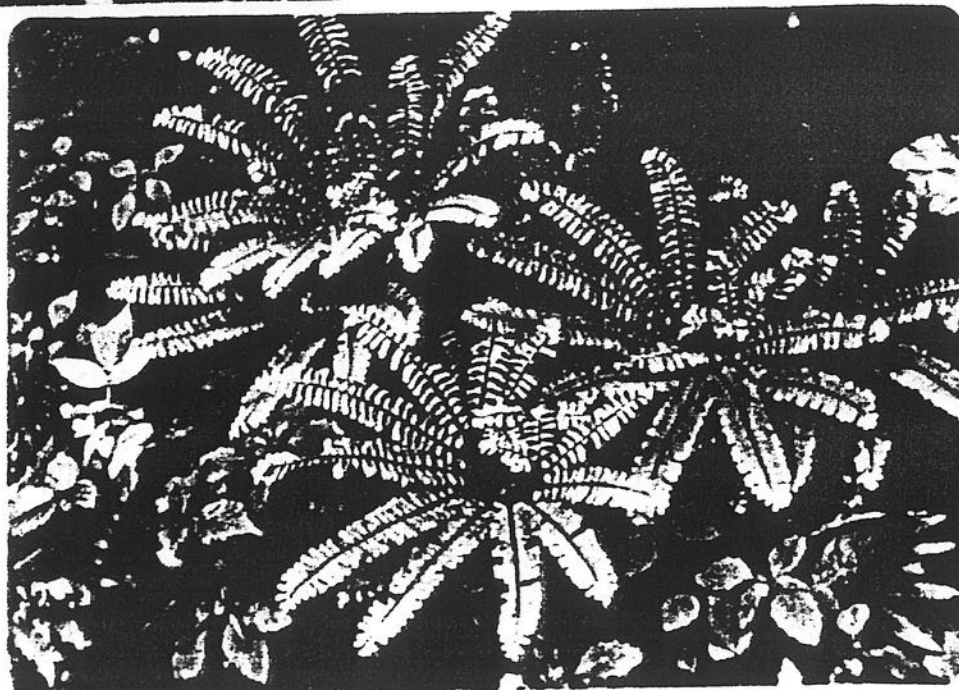


Photo 2-2 RB

Maidenhair Fern (Adiantum pedatum). A leaf infusion from this graceful perennial is known to alleviate coughs, colds, congestion and hoarseness.

<u>PLANT NAME/VALUES</u>	<u>COMMON NAME</u>
PHEGopteris	Northern Beech-fern
<u>P. connectilis</u> : Horticulture: (1979) US \$1.75 each.	
THElypteris	
<u>T. noveboracensis</u> : Horticulture: (1979) US \$1.75 each.	New York Fern
<u>T. thelypteroides</u> : Horticulture: (1979) US \$.25 each.	Marsh Fern
GYMNOCARPIUM	Oak Fern
<u>G. dryopteris</u> : Horticulture: (1979) US \$1.75 each.	Oak Fern
DRYopteris	Shield-Fern
<u>D. cristata</u> : Horticulture: (1979) US \$1.75 each.	Crested Shieldfern
<u>D. goldiana</u> : Horticulture: (1979) US \$2.50 each.	Goldie's Fern
<u>D. intermedia</u> : Horticulture: (1979) US \$1.75 each.	Intermediate Shieldfern
<u>D. marginalis</u> : Horticulture: (1979) US \$1.75 each.	Marginal Shieldfern
<u>D. spinulosa</u> : Horticulture: (1979) US \$1.75 each. Rhizome boiled or steamed.	Spinulose Wood-Fern
POLYSTICHUM	
<u>P. acrostichoides</u> : Horticulture: (1979) US \$1.75 each.	Christmas Fern
TAXACEAE	Yew Family
TAXUS	Yew
<u>T. canadensis</u> : Seed and wilted foliage poisonous to grazing animals, but surrounded by edible red, juicy fruit. Stiff, fresh foliage is a harmless nibble.	Ground Hemlock

<u>SCIENTIFIC NAME/ VALUES</u>	<u>COMMON NAME</u>
PINACEAE	Pine Family
ABIES	Fir
<u>A. balsamea</u> : Inner bark used as emergency food, raw or cooked.	Pine Family
PICEA	Spruce
<u>P. glauca</u> : Inner bark used as emergency food. Young shoots are flavouring ingredients in beer and tea making.	
TSUGA	Hemlock
<u>T. canadensis</u> : Inner bark eaten as emergency food, young tips for tea and beer making. Inner bark also used by Indians to make bread. Dietary homoeopathic tincture from fresh bark and young buds. A tea of the inner bark or the young twigs is helpful in kidney and bladder problems and makes a gargle or mouthwash for mouth and throat problems. Steep 1 tsp. inner bark or twigs in 1 cup water. Put powdered bark in the shoes for tender or sweaty feet or foot odour.	Hemlock (Do not confuse with Poison Hemlock)
LARIX	Larch
<u>L. laricina</u> : Young shoots eaten as emergency food.	Tamarack
PINUS	Pine
<u>P. banksiana</u> :	Jack Pine
<u>P. resinosa</u> :	Red Pine
<u>P. strobus</u> :	White Pine
<u>P. sylvestris</u> : Inner bark used as emergency food in spring, bark used as meal in bread making.	Scotch Pine



Photo 2-0 FW

Narrow-leaved Cattail (Typha angustifolia). One of the "best" wild plant foods. Take your pick - from the roots, young shoots, flower-bud heads, pollen and leaves, or make yourself a warm comforter from the mature fluffly "down". WARNING: Down is one of the finest materials for tinder.

PLANT NAME/VALUES

COMMON NAME

JUNIPERUS

J. communis: Fruit (as a pleasant nibble, masticatory, coffee substitute, ingredient in gin). Boughs burned or boiled as a fumigant and deodorizer. For rheumatic and skin problems, steep 1/2 lb. juniper berries or 1 lb. fresh shoots in boiling hot water. Add the infusion to a full bath.

Juniper

TYPHACEAE

Cattail Family

TYPHA

Cattail

T. angustifolia:

T. latifolia: Leading shoots of the rootstock as a salad or cooked vegetable. Sprout can be roasted, boiled, eaten raw or pickled. The green flower spikes, before yellow pollen shows, can be boiled like corn-on-the-cob. Pollen can be used as a supplement for breadstuffs, pancakes, etc.

SPARGANIACEAE

Bur-reed Family

SPARGANIUM

Bur-reed

S. chlorocarpum: Tubers eaten as starchy vegetable.

NAJADACEAE

Pondweed Family

POTAMOGETON

Pondweed

P. foliosus:

P. natans:

Floating Pondweed

P. obtusifolius: New branches of rootstocks used as starchy vegetable.

Blunt Pondweed



Photo 2-1 FW

Burreed (Sparganium chlorocarpum). Some folk feel that the difficulty in securing the Burreed's small starchy tubers, scattered and concealed in marsh ground just isn't worth the effort.

PLANT NAME/VALUES

ALISMATACEAE

Water Plantain Family

ALISMA

Water Plaintain

A. plantago-aquatica: Starchy tubers as a vegetable. These require thorough drying to rid them of an acrid taste.

Water Plaintain

SAGITTARIA

Arrow-head

S. latifolia: Starchy vegetable. Boil potato-like tuber for 30 minutes.

GRAMINEAE

Manna Grass

GLYCERIA

G. borealis:

G. grandis:

G. striata: Flour from seeds can be used for breads and thickening soups.

Woodland Manna Grass

AGROPYRON

A. repens: Flour can be made from dried and ground roots.

Quack Grass

ORYZOPSIS

Rice Grass

O. asperifolia: Flour can be made from large seeds.

DIGITARIA

D. sanguinalis: Seeds (although small) can be used as a rice substitute. Makes a novel breakfast food.

Barnyard-Grass

ECHINOCHLOA

E. crus-gallii: Seeds can be parched and ground for a flavoured meal.

<u>PLANT NAME/VALUES</u>	<u>COMMON NAME</u>
SETARIA	Fox-Tail Grass
<u>S. viridis</u> : A relative of Millet, with smaller grains, but similar uses.	
CYPERACEAE	Sedge Family
SCIRPUS	Bulrush
<u>S. validus</u> : Tips are edible when young - thirst quenchers. Dried rootstocks furnish meal. Bruised roots boiled in water are used as sweet syrup. Pollen gathered in cloth used for making cakes, and seeds as breadstuff.	Great Bulrush
ARACEAE	Arum Family
ARISAEMA	
<u>A. triphyllum</u> : Cake, biscuit or from the fleshy roots, powdered. Root very acrid when fresh.	Jack-in-the-Pulpit
LILIACEAE	Lily Family
ALLIUM	Leek
<u>A. tricoccum</u> : Vegetable, seasoning, pickles, using both young leaves and succulent bulbs.	Wild Leek
ERYTHRONIUM	Dog-tooth Violet
<u>E. americanum</u> : Leaves used as a pot- herb, and small bulbs cooked as a vegetable.	Dog-tooth Violet
CLINTONIA	
<u>C. borealis</u> : Young leaves used as a potherb or salad.	Blue-bead Lily
SMILACINA	False Solomon's Seal
<u>S. racemosa</u> : Starchy rootstocks for pickles, or potatoes, after soak- ing and boiling, the young shoots can be substituted for asparagus.	

S. stellata: Young shoots as a substitute for asparagus. Boiled young stems and leaves (before flowering time) are as palatable as dandelion-greens.

POLYGONATUM

Solomon's Seal

P. pubescens: Used like asparagus.

TRILLIUM

Wake-robin, Trillium

T. erectum:

Red Trillium

T. grandiflorum:

White Trillium

T. undulatum: Young unfolding plants eaten as potherb.

MEDEOLA

Indian Cucumber

M. virginiana: Crisp and starchy rootstock used as salad nibble and pickle.

Indian Cucumber

SMILAX

S. herbacea: Young shoots used as asparagus; tuberous rootstocks are chopped, pounded and strained. When dried in open air forms a fine reddish flour. This is mixed with hot water and sweetened with honey or sugar and when it cools is a nourishing jelly.

Carrion-flower

IRIDACEAE

IRIS

Iris

I. versicolor: Root stock used medicinally. Good for chronic vomiting, heartburn, chronic gastritis, liver and gallbladder ailments. Highly recommended for migraine, especially when caused by stomach disorders. Indians also used it for dropsy. The bruised fresh leaves are sometimes used externally for burns and sores. Gather the root in the fall. Use 1 teaspoon root stock and 1 pint boiling water. Take 2-3 tsps. six times a day, cold. CAUTION: contains an acrid resinous substance that acts on gastrointestinal tract, the liver, and the pancreas. May also cause dermatitis in some people.

PLANT NAME/VALUES

COMMON NAME

SALICACEAE

Willow Family

POPULUS

Poplar

P. balsamifera: See P. tremuloides.

Balsam Poplar

P. tremuloides: The slightly sticky winter buds can be made into a tea for internal or external use or into a soothing salve. Drink the tea for coughs or gargle with it for sore throat. Use it externally as a wash for inflammations, cuts, scratches, wounds, and burns. Boil the buds in olive oil to make a salve for the same external applications.

Quaking Aspen

BETULACEAE

Birch Family

CORYLUS

Hazel

C. cornuta: Fresh nuts, bread, cake - when nuts are ground into meal makes a delicious cake-like bread.

Beaked Hazel

BETULA

Birch

B. allegheniensis:

B. papyrifera: Wintergreen flavoured oil from buds, twigs, leaves for flavouring; tea from dried leaves. Pleasant drink from sap; sap boiled to make sugar; birch beer is made from fermented sweet birch sap.

Paper Birch

ALNUS

Alder

A. rugosa: Inner bark possible emergency food; young twigs and winter buds are a popular nibble.

Speckled Alder

FAGACEAE

Beech Family

FAGUS

Beech

F. grandifolia: Young leaves cooked as potherb; nuts roasted for coffee substitute; inner bark for bread.

American Beech

PLANT NAME VALUES

COMMON NAME

QUERCUS

Q. alba: For mouth and eye irritations, use as a gargle or mouth wash. Infusion: steep 1 tbsp. bark in 1 pint water, simmer for 10 minutes. Take up to 3 cups a day.

Q. rubra: This and White Oak have bitter, but edible nuts.

White Oak

Red Oak

URTICACEA

Nettle Family

PILEA

Clearweed

P. pumila: Potherb

Clearweed

ARISTOLOCHIACEAE

Birthwort Family

ASARUM

Wild Ginger

A. canadense: Fragrant rootstock used as tasty nibble, condiment or substitute for preserved ginger. Tea used to relieve flatulence, colic and upset stomach. The women of one American Indian tribe drank a strong decoction of rootstock and roots for contraceptive purposes. Infusion: steep 1 tbsp. rootstock in 1 pint water. Take 2 tbsps. at a time, as required.



Photo 4-9A RB

Wild Ginger (Asarum canadense)

PLANT NAME/VALUES

COMMON NAME

POLYGONACEAE

Buckwheat Family

RUMEX

Dock, Sorrel

R. crispus: In nineteenth century considered a "blood purifier." Was prescribed for eruptive diseases, such as scrofula and skin problems. Ointment used for itching, sores, swellings, and scabby eruptions. Decoction: boil 1 tsp. root in 1 cup water. Take 1 to 2 cups a day.

Sour Dock

POLYGONUM

P. aviculare: Recommended for diarrhea, bronchitis, jaundice, and lung problems. Taken regularly, the tea or the tincture dissolves gravel and stones. Infusion: steep 4 tsps. flowering herb in 1 cup water for 5 minutes. Take 1 to 1-1/2 cups a day: a mouthful at a time as needed.

Knotgrass

P. hydropiper: A cold extract of the herb can be taken for coughs and colds and can be applied externally for skin problems. A strong decoction has been used for hemorrhoids and scabies and as a gargle for toothache and problems in the larynx.

Waterpepper

CAUTION: The acrid juice can cause both internal and external inflammation. Medical supervision suggested.

P. punctatum: Same as above.

Water Smartweed

CHENOPODIACEAE

Goosefoot Family

CHENOPODIUM

Goosefoot

C. album: Potherb, breadstuff - flour from dark seeds when ground.

Lamb's Quarters

C. capitatum: Used as potherb like spinach; in later summer fruit is eaten raw or cooked; highly nutritious.

Strawberry Spinach

PLANT NAME/VALUES

COMMON NAME

AMARANTHACEAE

Amaranth Family

AMARANTHUS

Wild Beet

A. albus: Young plants as potherb -
as good as spinach. Seeds as a
breadstuff.

PHYTOLACCACEAE

Pokeweed Family

PHYTOLACCA

Pokeweed

P. americana: Potherb, new shoots
are a substitute for asparagus or
spinach (boil in 2 waters). Young
shoots are also made into pickles.
Dried root used for relieving pain,
reducing inflammation, treating
rheumatism and arthritis and com-
bating skin parasites and diseases.
CAUTION: fresh or insufficiently
cooked plant is poisonous, parti-
cularly root. Seeds and berries
also poisonous. Use fully dried
root or leaves.

Pokeweed

PORTULACACEAE

Purslane Family

PORTULACA

Purslane

P. oleracea: Spinach-like potherb,
salad, pickle, seed used for mak-
ing mush or bread, the plants
being placed in large piles, dried,
and then pounded to free the seeds.
Wash off all mud and sand. Con-
tains calcium, phosphorus and iron.

Purslane

CLAYTONIA

Spring Beauty

C. caroliniana: Starchy vegetable:
roots boiled in water having the
flavour of chestnuts. Young plants
serve as a possible potherb.

Spring Beauty

PLANT NAME/VALUES

COMMON NAME

CARYOPHYLLACEAE

Pink Family

STELLARIA

Chickweed, Starwort

S. calycantha: Young growing tips
boiled as spinach-like green.

S. media: Potherb: spinach-like.
Fresh leaves can be crushed and
applied directly or made into
an ointment with vaseline for
bruises, irritations, and other
skin problems. Steep 1 tsp. herb
in 1/2 cup water. Take 1/2 to 1
cup a day.

Chickweed

SILENE

Catchfly, Campion

S. cucubalis: Soup and potherb, when
young shoots about 2 inches long
they are a palatable cooked green
having a flavour suggestive of
green peas. A puree from boiled
shoots similar to puree of spinach.
CAUTION: contains saponin and
poisonous in large quantities.

Bladder Campion

SAPONARIA

Soapwort

S. officinalis: Commonly used as a
respiratory expectorant. Also
used for gout and externally as a
wash for dermatitis, itching skin,
furuncles and tumors. Has a mild
purgative action. Boil 1 to 2
tbsps. dried rootstock in 1 cup
water. Take 1 tbsp. at a time.

Soapwort

NYMPHAEACEAE

Water-Lily Family

NUPHAR

Yellow Water-Lily

N. variegatum: Rootstocks can be used
as a starchy vegetable, seeds for
bread, soups, and popped like corn.
Boiled seeds have nutty flavour.

PLANT NAME/VALUES

COMMON NAME

RANUNCULACEAE

Crowfoot Family

CALTHA

Marsh Marigold

C. palustris: Potherb - new leaves and stems boiled thoroughly for an hour or more, changing the water at least once and, if a mild potherb is desired, twice, since the first water extracts only part of the acrid principle.

Marsh Marigold

CAUTION: do not eat raw - fresh plant contains the poisonous glucoside helleborin, which is expelled in boiling.

RANUNCULUS

Buttercup

R. acris: Only the fresh plant is poisonous and effective medically. A homeopathic extract of the fresh plant is used for skin diseases, rheumatism, sciatica, arthritis and rhinitis. Do not use without medical supervision.

Buttercup

R. sceleratus: Potherb - as emergency food, boiled as a spinach. Pour off the water by which the acrid principle, anemonol, has been extracted. Properties and uses same as R. acris. Also, this one is very active and mere contact with the skin can cause irritation and blistering.

Cursed Crowfoot

HEPATICA

Hepatica

H. acutiloba: Tea used for bronchitis, liver congestion, gallbladder problems and kidney and bladder ailments. Stops gastric hemorrhage and vomiting of blood.

Acute Hepatica

CAUTION: large doses can produce symptoms of poisoning. Cold extract: use 2 tsps. fresh leaves or 4 tsps. dried leaves and flowers with 1 cup cold water. Let stand for 8 hours and strain. Take 1 cup a day.

<u>PLANT NAME/VALUES</u>	<u>COMMON NAME</u>
CRUCIFERAE	Mustard Family
LEPIDIUM	Peppergrass
<u>L. densiflorum</u> : Young shoots make a good substitute for water cress or garden cress. Peppery pods or seeds seasoning for salads or soups.	Peppergrass
CAPSELLA	Shepherd's Purse
<u>C. bursa-pastoris</u> : Young leaves cooked and eaten as spinach-like potherb and salad. Seeds serve as bread stuff ground into meal. Use as blood coagulant for internal or external bleeding. Also raises blood pressure, and regularizes it whether high or low. Do not keep longer than 1 year. One tsp. fresh or 2 tsps. dried herb in 1/2 cup water. Take 1 cup a day, unsweetened, a mouthful at a time.	
CARDAMINE	Bitter Cress
<u>C. pensylvanica</u> : Salad or ingredient of salad. Safest to disinfect plants before eating raw.	Swamp Cress
DENTARIA	Toothwort
<u>D. diphylla</u> : Rootstock serves as nibble, ingredient in salad or radish-like relish. Grated rootstock when mixed with vinegar makes a camp horse radish.	
NASTURTIUM	Watercress
<u>N. officinale</u> : Eaten as salad. Beware of contaminated water, disinfect with "chlorazene." High in vitamin C - good as illness preventative. Rich in iron and iodine - stimulates glandular activity. Also for hair loss from fungus. <u>CAUTION</u> : excessive use causes kidney problems. Undiluted juice produces inflammations in throat and stomach. Caution against use during pregnancy. Use when fresh.	

PLANT NAME/VALUES

COMMON NAME

RORIPPA

Yellow Cress

R. islandica: Use root as condiment
and young foliage as potherb.

Marsh Cress

BARBAREA

Winter Cress

B. vulgaris: Young foliage and new
stems used as potherb. Cooked in
2 or more waters, the first re-
moving the strongest bitter. Young
bitter leaves eaten as salad.

Common Winter Cress

SARRACENIACEAE

The Pitcher-plant Family

SARRACENIA

S. purpurea: Rootstock has been used
to stimulate appetite and diges-
tion. Indians used it against
small pox and to provide immunity
and to lessen the severity of the
disease.

Pitcher-plant

DROSERACEAE

Sundew Family

DROSERA

Sundew

D. rotundifolia: Juice of leaves is a
substitute for rennet. The herb
counteracts nausea and upset stom-
ach. Contains effective antibiotic,
wart remover and aphrodisiac.
Steep 1 tsp. herb in 1 pint water.
Take 1-2 cups a day, a mouthful at
a time.

Round-leaved Sundew

ROSACEAE

Rose Family

FRAGARIA

Strawberry

F. vesca: Tea from the young plant is
beneficial for diarrhea, dysentery,
and problems in urinary tract. Use
tea also for eczema and acne. Fresh
juice makes a good refrigerant for
feverish illnesses. Steep 2 tsps.
leaves or rootstock in 1/2 cup
water. Take as needed.

F. virginiana: Fruit can be made into
jam, preserve, short-cake, use
leaves for tea (see above).

Strawberry



Photo 4-8A RB

Wild Currant (Ribes ciste). These smooth and shining berries are similar in appearance and flavour to the Red Currant of the garden.



Photo 4-7A RB

Wild Strawberry (Fragaria vesca). This pretty little perennial has been reported to create potent blood purifying and blood building properties.

GEUM

Avens

Purple Avens

G. rivale: The boiled root makes a chocolate drink substitute. The plant stimulates appetite and digestion, clears up respiratory congestion and counteracts nausea. CAUTION: excessive amounts can produce unpleasant side effects. Infusion: steep 1 tsp. rootstock in 1 cup water for 30 minutes. Take 1/2 cup before going to bed, or a mouthful 3 times a day. Take no more than 2 cups in total consecutive doses.

RUBUS

Bramble

Red Raspberry

R. strigosus: Fruit is delicious fresh, cooked, or preserved. When combined with cream it will relieve nausea and vomiting. Once taken by pregnant woman to prevent miscarriage, increase milk and reduce labour pains. Fresh raspberries are mildly laxative. Infusion: steep 1 oz. leaves in 2 cups for 15 minutes. Take 2 cups a day.

ROSA

Rose

Bristly Rose

R. acicularis: Petals are pleasant to nibble. Sometimes prepared as a salad or confection (candied). Rose hips are a famous source of Vitamin C.

PRUNUS

Pin Cherry

P. pensylvanica: Masticatory - the sour fruit may be eaten raw, or mixed with currants or apple to make a jelly. Gum exuded from trunks is used as chewing gum.

P. serotina: Jelly from fruits.

Black Cherry

PLANT NAME/VALUES

COMMON NAME

P. virginiana: Delicious jelly from the fruit juice. The dried fruit and stones were pounded, harmful hydrocyanic acid leached from kernels of stones and the dried paste used as an addition to pemican or soaked out and sweetened in the winter.

Choke Cherry

PYRUS

P. malus: Marmalade and jelly made from fruit. Whole apples can be eaten as mild laxative.

Apple

CAUTION: seeds eaten alone in large quantities are poisonous.

CRATAEGUS

Hawthorn

Jelly, marmalade from fruits. Reputed benefits for the heart.

AMELANCHIER

Service Berry, Shade-bush

A. laevis: Fruit raw, cooked as sauce or in pies, or dried for winter use.

FABACEAE

Bean Family

TRIFOLIUM

Clover

T. pratense: Flowering tops stimulate liver and gallbladder activity, relieve constipation and sluggish appetite or rheumatic and gouty pains. A poultice can be used for athlete's foot and other skin problems. Infusion: steep 2 tsps. flowering tops in 1/2 cup water for 10 minutes. Take 1 to 1-1/2 cups a day with or without honey, a mouthful at a time.

Red Clover

MEDICAGO

M. sativa: Alfalfa tea is commonly used as beverage. It improves appetite and relieves urinary and bowel problems. Steep the dried flowering tops.

Alfalfa

	COMMON NAME
OXALIDACEAE	Wood Sorrel Family
OXALIS	Sheep Sorrel
<u>O. montana</u> :	Wood Sorrel
<u>O. stricta</u> : Use the fresh plant as a salad or masticatory. Use in small quantities on account of the abundance of oxalic acid.	Yellow Sorrel
ANACARDIACEAE	Cashew Family
RHUS	Sumach
<u>R. typhina</u> : Cool acid drink prepared by bruising fruit in water thus freeing malic acid, then straining off acidulated water through cloth to remove hairs, and adding sweetener. Brew from boiled berries used for sore throats.	Staghorn Sumach
AQUIFOLIACEAE	Holly Family
ILEX	Holly
<u>I. verticillata</u> : Leaves used as tea. Berries: cathartic, vermifuge. Bark: for dyspepsia, skin irritations and eruptions. Berries also for worms. <u>CAUTION</u> : too many berries can cause poisoning. Infusion: 1 tsp. root (or berries) to 1 cup water. Take 1-2 cups a day, cold.	Winterberry
CELASTRACEAE	Staff-tree Family
CELASTRUS	Bittersweet
<u>C. scandens</u> : Emergency food - boiled bark sweet and palatable (after saponin dispelled by boiling).	Bittersweet
ACERACEAE	Maple Family
ACER	Maple
<u>A. rubrum</u> : Good sap and sugar source, although inferior to that of Sugar Maple - yield is comparatively smaller.	Red Maple

PLANT NAME/VALUES

COMMON NAME

A. saccharinum: Sugar and sap, yield of sugar only 1/2 that of Sugar Maple).

Silver Maple, Sugar Maple

A. saccharum: Tree most depended on for syrup and sugar.

Sugar Maple

BALSAMINACEAE

Touch-me-not Family

IMPATIENS

I. capensis: Juice of whole plant is effective against Poison Ivy, fresh or boiled to concentrate.

Spotted Touch-me-not

VITACEAE

Vine Family, Grape Family

VITIS

Wild Grape

V. riparia: Jelly, marmalade, preserves and cold drink may be made from this fruit. The smaller and more acid fruits are used as masticatories.

Riverbank Grape

TILIACEAE

Linden Family, Basswood Family

TILIA

Basswood

T. americana: The sap contains considerable amount of sugar. Fruits ground with flowers furnish paste which in texture and taste "perfectly" resembles chocolate. Iroquois chewed bast in spring as a masticatory and buds as thirst quencher. Bast used as emergency food. Flowers as tea substitute. Flowers and leaves: for colds and coughs and sore throats. Bark: emollient for skin irritations and burns. Infusion: steep 1 tsp. flowers or leaves in 1 cup water. Take 1-2 cups a day.

Linden, Basswood

MALVACEAE

Mallow Family

MALVA

Mallow

M. neglecta: Mild mucilaginous juices used as potherbs. Scalloped fruits serve as nibble under the name of "cheeses".

Common Mallow



Photo 4-6A RB

Staghorn Sumac (Rhus typhina). Various Indian tribes warmed themselves in winter with a hot mug of dried sumach berry tea. This infusion is also known for its healing effect on sore throats.

Photo 4-5A FW

Touch-Me-Not (Impatiens capensis). The Omahas applied crushed leaves and stems of Touch-Me-Not to their skin for healing rashes and eczema. What a jewel of a weed!



	<u>COMMON NAME</u>
HYPERICACEAE	St. John's-wort Family
HYPERICUM	St. John's-wort
<u>H. perforatum</u> : Tea is helpful for insomnia and other nervous conditions, as well as some forms of melancholy. Also for stomachache, intestinal problems, anemia, headache, chest congestion and skin problems. <u>CAUTION</u> : may make skin light sensitive. Has sometimes poisoned livestock. Infusion: steep 1 tsp. dried herb in 1/2 cup water for 5 minutes, covered. Take warm, 1/2 cup before bedtime.	St. John's-wort
VIOLACEAE	Violet Family
VIOLA (Various) species leaves used for salad or soup making - use only herbage and flowers. Probably any of the blue violets may be used. Roots sometimes emetic.	Violet
LYTHRACEAE	Loosestrife Family
LYTHRUM	Loosestrife
<u>L. salicaria</u> : Effective against diarrhea - simple diarrhea and that associated with dysentery and typhoid fever. Stops internal bleeding without producing constipation. Infusion: steep 1 oz. fresh herb in 1 cup water.	Purple Loosestrife
ONAGRACEAE	Evening Primrose Family
EPILOBIUM	Fireweed, Willow-herb
<u>E. angustifolium</u> :	Fireweed
<u>E. ciliatum</u> :	
<u>E. hirsutum</u> :	Hairy Willow-herb
<u>E. leptophyllum</u> : New shoots as a substitute for asparagus. Leafy new stems make a wholesome and palatable potherb; thickening for soup, tea.	Narrow-leaved Willow-herb

PLANT NAME/VALUES

COMMON NAME

ARALIACEAE

Ginseng Family

ARALIA

A. nudicaulis: Rootstock often used as ingredient in root beer and emergency food. American Indians used roots to make cough medicine and also for its diuretic properties to help kidney and bladder ailments. Infusion: steep 2 oz. dried rootstock into 1 pint water for an hour. Take 2 to 3 tbsps. 3 or 4 times a day.

Wild Sarasparilla

A. racemosa: Root - vegetable, new stems used as green vegetable - cooked like asparagus. Used for rheumatism, asthma, coughs, skin diseases and externally for wounds, bruises, swellings, inflammations, and chest pains. Make into poultice or dressing. Infusion: steep 1 to 2 tsps. powdered rootstock and roots in 1 cup water. Take 1-2 cups a day.

Spikenard

UMBELLIFERAE

Parsley Family

CAUTION: this family contains many well known garden vegetables, but also many members are among the most notorious of poisons: Poison Hemlock, Water Hemlock or Beaver Poison, etc.

HYDROCOTYLE

Water Pennywort

H. americana: Salad, potherb - eaten whole, raw or steamed.

SANICULA

Black Snakeroot

S. marilandica: A gargle for irritations and mouth sores. Infusion: steep 1 tsp. rootstock in water. Take 1 cup a day.

CRYPTOTAENIA

Honewort, Wild Chervil

C. canadensis: Soup, potherb, salad, root - vegetable, seasoning. Tops used for greens to flavour soups, blanched stems used for salad and boiled. Very desirable vegetable.

OSMORHIZA

Sweet Cicely

O. claytonii: Stout, fleshy roots contain anise oil used for flavouring.

SIUM

Water Parsnip

S. suave: Root vegetable.

CAUTION: habitat similar to that of Water-Hemlock or Beaver Poison.

ANGELICA

Angelica

A. atropurpurea: Salad - new stems and leaf stocks when peeled, used as cooked vegetable in two waters. Confection - candied roots and young shoots after boiling are boiled again in sugar and cooled. Rootstock, roots, seeds used as stimulant for heartburn and flatulent colic. Infusion: 1 tsp. crushed seeds with 1/2 cup boiling water. Take as needed.

Swamp Angelica

CORNACEAE

Dogwood Family

CORNUS

Dogwood

C. canadensis: Berries are insipid and dry with a large stone; pudding, masticatory.

PLANT NAME/VALUES

COMMON NAME

ERICACEAE

Heath Family

MONOTROPA

M. uniflora: Cooked vegetable (for those who want it); fresh plant is almost tasteless, but when parboiled or roasted, it is "comparable to asparagus". Sedative, tonic. Mixed with fennel seed, makes a good eye wash. Infusion: Use 1 tsp. Indian pipe root and 1 tsp. fennel seed with 1 pint boiling water. Steep 20 minutes and strain.

Indian Pipe

PYROLA

Shinleaf

P. elliptica: Use as mouthwash and gargle. Leaves make good poultice for insect bites, bruises and other skin problems.

Shinleaf

LEDUM

L. groenlandicum: Tea from young leaves. Food conservator - known to drive away mice and fleas.

Labrador Tea

EPIGAEA

Trailing Arbutus

E. repens: Fragrant corollas are a spicy acid nibble and used to relieve thirst.

Trailing Arbutus

GAULTHERIA

G. procumbens: Mature leaves used as tea, young leaves highly flavoured with oil for use as condiment. Berries used as nibble and fruit. For headache and other aches and pains, inflammations, and rheumatism. Used as gargle for sore throat and mouth and as a compress or poultice for skin diseases and inflammations. Infusion: steep 1 tsp. leaves in 1 cup water. Take 1 cup a day, a mouthful at a time.

Wintergreen

VACCINIUM

V. myrtilloides: Leaf is an effective Bilberry
diarrhea remedy. Berries both pro-
duce and stop diarrhea in some peo-
ple. Fresh berries also regulate
bowel movements and stimulate appe-
tite.

CAUTION: leaves can produce symp-
toms of poisoning if used over long
periods. Gather the leaves when
the plant is fully developed, but
before the berries are ripe. In-
fusion: 2-3 tsps. leaves with 1
cup water - take 1 cup a day.

V. oxycoccos: Cooked fruit, jelly,
acid drink, pie, etc.

Small Cranberry

OLEACEAE

Olive Family

FRAXINUS

Ash

F. americana:

White Ash

F. nigra:

Black Ash

F. pennsylvanica: Pickle the young
seeds.

Red Ash

GENTIANACEAE

Gentian Family

MENYANTHES

Buckbean

M. trifoliata: Breadstuff - dry and
grind rootstocks, then wash or leach
the meal to extract some of the
bitter. Use tea to relieve fever
migraine, headache, or for indiges-
tion and to promote appetite. Ex-
ternally the buckbean can be used
for ulcerous sores and for herpes.
Infusion: use 1 tbsp. dried leaves
with 1 cup water. Steep for 15
minutes, and take 1 cup a day, un-
sweetened, a mouthful at a time. To
stimulate appetite, take 1/2 cup
about 30 minutes before eating.

PLANT NAME/VALUES

COMMON NAME

APOCYNACEAE

Dogbane Family

APOCYNUM

A. androsaemifolium: Used to relieve dyspepsia, constipation, fever, gallstones, and dropsy. Usually combined with less harsh medic. CAUTION: eating the leaves has killed livestock. Not recommended for use without medical direction. Infusion: steep 1 tsp. rootstock in 1 pint boiling water. Take cold, 2-3 tsps. six times a day.

Dogbane

ASCLEPIADACEAE

Milkweed Family

ASCLEPIAS

Milkweed

A. incarnata: Young pods - potherb, asparagus.

Swamp Milkweed

A. syriaca: The young green pods and flowers are a good cooked vegetable. American Indians rubbed juice on warts; others drank it to produce temporary sterility. CAUTION: The root is poisonous in large quantities, especially for children.

Common Milkweed

HYDROPHYLLACEAE

Waterleaf Family

HYDROPHYLLUM

Waterleaf

H. virginianum: Potherb; young leaves and tender summits of stems to be cooked 5 minutes.

VERBENACEAE

Vervain Family

VERBENA

Vervain

V. hastata: Seeds roasted and used as meal. Has been called a natural tranquilizer. Use tea for colds, fevers, congestion in the throat and chest, also for insomnia and other nervous conditions. It is effective for eliminating intestinal worms. Taken cold, the infusion acts as a tonic. Infusion: use 2 tsps. rootstock or herb with 1 pint boiling water; for a tonic, take 2-3 tsps. six times a day, cold.

Swamp Vervain, Blue Vervain

LABIATAE

Mint Family

SCUTELLARIA

Skullcap

S. lateriflora: An infusion has been used for spasms and convulsions and for nervous conditions. Infusion: steep 1 tsp. dried plant in a tea-cup of water for 30 minutes. Take 3-4 times a day.

Mad-dog Skullcap, Skullcap

NEPETA

N. cataria: Make catnip tea for upset stomach, colic, spasms, flatulency, and acid. Europeans use it for chronic bronchitis and diarrhea. Infusion: use 1 tsp. herb with 1 cup boiling water. Steep only: do not allow to boil. Take 1-2 cups a day.

Catnip

PRUNELLA

Self-heal

P. vulgaris: As a tea, this plant is beneficial for internal wounds; as a wash for external wounds. Used as a gargle for throat irritations, and for stomatitis. Extract: soak 1 tsp. herb in 1 pint brandy or whiskey for a few days. Take 2 tbsps. a day or as needed.

Woundwort

PLANT NAME/VALUES

COMMON NAME

GALEOPSIS

G. tetrahit: A tea of this herb can be used for clearing bronchial congestion and phlem and commonly used for coughs. Infusion: steep 2 tsps. dried herb in 1/2 cup water for 5-10 minutes. Take 1 to 1-1/2 cups a day.

Hemp Nettle

Common Hemp Nettle

LEONURUS

L. cardiaca: Infusions used for nervous heart problems, stomach gas and cramps, menopausal problems; shortness of breath, goiter and congestion of respiratory passages. CAUTION: contact with plant may cause dermatitis in susceptible individuals. Infusion: steep 1 tsp. tops or leaves in 1/2 cup water. Take 1 cup a day, unsweetened, a mouthful at a time.

Motherwort

Motherwort

MONARDA

M. fistulosa: This pleasant herb can be used for relief of flatulence and to stimulate the system. American Indians used it for mild fever, headache, colds and sore throat, and its oil for bronchial problems. Some used oil or boiled leaves to dry up pimples. Infusion: steep 1 tsp. leaves or tops in 1 cup water. Take 1-2 cups a day.

Wild Bergamot

Monarda

LYCOPUS

L. uniflorus: Radish-like tubers, as relish, root vegetable and pickle. Boil short time in salted water.

Water Horehound

Tuberous Water Horehound

MENTHA

M. arvensis: Palatable tea from leaves.

Mint

Wild Mint

PLANT NAME/VALUES

COMMON NAME

SOLANACEAE

Nightshade Family

SOLANUM

Nightshade

S. nigrum: Ripe berries, raw, cooked or in pies and preserves.

CAUTION: green berries contain toxic glucoside; few authenticated cases of poisoning.

SCROPHULARIACEAE

Figwort Family

VERBASCUM

Mullein

V. thapsus: Tea is good for coughs, hoarseness, bronchitis, bronchial catarrh, and cramps in the digestive tract. Infusion: steep 1 tsp. leaves or flowers in 1 cup water. Take 1-2 cups a day.

Mullein

CHELONE

Turtlehead

C. glabra: For weak stomach and indigestion, general debility, constipation and torpid liver, use a tea from this plant. Ointment relieves itching and irritation of piles. Infusion: use 1 tsp. leaves to 1 cup of water. Take 1-w cups a day.

White Turtlehead, Turtlebloom

VERNOICA

Speedwell

V. officinalis: The flowering herb for migraine headache and gargle for mouth and throat sores. Juice good for gout and use externally to relieve chronic skin problems. Infusion: take 2 tsps. in water or milk, 3 times a day.

Woodland Speedwell

OROBANCHACEAE

Broom-rape Family

EPIFAGUS

Beech-drops

E. virginiana: Used externally for wounds, bruises, cuts, skin irritation and other conditions where an astringent is called for.

Common Beech-drops

PLANT NAME/VALUES

COMMON NAME

PLANTAGINACEAE

Plantain Family

PLANTAGO

Plantain

P. lanceolata: The plant is good for cough irritations, hoarseness, gastritis and enteritis. Also for respiratory problems, especially those involving mucous congestion. Infusion: steep 1 tbsp. leaves in 1/2 cup water for 5 minuts. Take 1 cup a day.

English Plantain

P. major: Succulent leaves can be used as an emergency potherb. The plant has uses imilar to English Plantain. Infusion: steep 1 tsp. fresh or dried leaves in 1/2 cup water. Take 1 to 1-1/2 cups a day, a mouthful at a time, unsweetened.

Broad-leaf Plantain

RUBIACEAE

Madder Family

MITCHELLA

M. repens: Two eyed red berries - edible. Used during last few weeks of pregnancy by Indians to make child birth faster and easier. One tribe drank the tea to relive insomnia. Infusion: steep 1 tsp. leaves in 1 cup water for 30 minutes. Take 1-3 cups a day.

Partridge Berry, Squaw Vine

GALIUM

Bedstraw

G. aparine: Seeds roasted as coffee substitute, potherb as reducing diet, leaves as milk strainer. Commonly used externally. Juice and salve effective for skin problems. Use juice of fresh plant or dry the plant immediately to keep for later use. Infusion: steep 1 oz. dried herb in 1 pint warm water (not boiling) for 2 hours. Take 2-8 tbsps. 3-4 times a day.

Goosegrass, Bedstraw

PLANT NAME/VALUES

COMMON NAME

CAPRIFOLIACEAE

Honeysuckle Family

VIBURNUM

V. alnifolium: Fruit as nibble or masticatory.

Hobble-bush

V. cassinoides: Fruit as nibble or masticatory.

Withe-rod

V. lentago: Fruit as nibble or masticatory.

Nannyberry

SAMBUCUS

Elder

S. canadensis: Cooked berries, preserves, pies, jelly, beverage, soup, bread stuff, pickles, asparagus substitute. Young flowers beaten into batter to lighten muffins. Flowers used as tea.

Common Elder

CAUTION: Green parts of fresh plant can cause poisoning. Children have been poisoned by chewing or sucking bark. Cooked berries are safe.

TRIOSTEM

Feverwort

T. aurantiacum: Coffee substitute from the seeds.

Northern Feverwort

COMPOSITAE

Composite Family

ACHILLEA

A. millefolium: Tea used for lack of appetite, stomach cramps, flatulence, gastritis, enteritis, gallbladder and liver problems, and internal hemorrhage, particularly in lungs.

Yarrow, Milfoil

CAUTION: extended use may make skin light sensitive. Infusion: use 1 tbsp. dried herb with 1 cup water. Parboil and steep for 5 minutes. Take 1 cup a day.

<u>SCIENTIFIC NAME/VALUES</u>	<u>COMMON NAME</u>
CHRYSANTHEMUM	Chrysanthemum
<u>C. leucanthemum</u> : Leaves, flowers used for urinary and dropsical disorders and pulmonary diseases. Promotes blood flow to surface and possibly to treat warts.	Ox-eye Daisy, White Weed
ARTEMESIA	Wormwood
<u>A. vulgaris</u> : Condiment and bitter tea from herb.	Common Wormwood
ERECHTITES	Fireweed
<u>E. hieracifolia</u> : Young tops and tender foliage used as salad or pot-herb. Can be used for diarrhea and for fever. Very effective against hemorrhoids. In large doses it produces vomiting. Infusion: steep 1 heaping tsp. of the plant in 1 cup water. Take 1-2 cups a day.	Woodland Fireweed, Pilewort
TUSSILAGO	Coltsfoot
<u>T. farfara</u> : Coltsfoot is most effective for coughs, cold, hoarseness, bronchitis, bronchial asthma, pleurisy, and throat catarrh. Also for diarrhea, insect bites, inflammations, general swellings, burns. Collect flowers as soon as they open, the leaves when they reach full size. Infusion: use 1-3 tsp. leaves or flowers with 1 cup water. Steep for 30 minutes and strain. Take warm.	Coltsfoot
SOLIDAGO	Goldenrod
<u>S. nemoralis</u> : Leaves used especially as a carminative and diaphoretic.	Dryland Goldenrod, Gray Goldenrod
ASTER	Wild Aster
<u>A. macrophyllus</u> : Potherb when young.	Woodland Aster

ERIGERON

- E. annuus:
E. philadelphicus:
E. strigosus: Used for dispelling
 fleas.

Daisy Fleabane

Philadelphia Fleabane
Common Fleabane

CONYZA

- C. canadensis: Used for diarrhea,
 dysentery, internal hemorrhage,
 and hemorrhoids. American In-
 dians used root for menstrual ir-
 regularities. Also for bladder
 problems and rheumatism. Infu-
 sion: steep 1 level tsp. leaves
 or plant in 1 cup water for 30
 minutes. Take 1-2 cups a day.

Horseweed

ANAPHALIS

- A. margaritacea: Useful for coughs,
 colds, and fever. Has been used
 in place of tobacco. Infusion:
 for internal use, steep 1 oz.
 herb in 1 pint boiling hot water.
 Take 3-4 tbsps. at a time.

Pearly Everlasting

Everlasting

INULA

- I. helenium: Confection; cooked roots
 candied as sweetmeat, substitute
 for soda mints. Tea used to quiet
 coughing, to stimulate digestion
 and to tone stomach. Also for
 bronchitis, urinary and respiratory
 tract inflammation and menstrual
 problems. Infusion: 1 heaping
 tsp. rootstock and 1 cup water.
 Take 1-2 cups a day.

Elecampane

EUPATORIUM

- E. perfoliatum: Its effect depends on
 the form it is taken in. Taken
 cold the infusion has tonic and
 mildly laxative effects. Taken
 warm, it can be used to break up a
 common cold, for intermittent fever
 and for the flu. Infusion: use 1
 level tsp. herb with 1 cup boiling
 water; steep for 30 minutes and
 strain. As a tonic, take cold 1
 tsp., 3-6 times a day.

Boneset

ARCTIUM

A. minus: Salad, cooked vegetable, potherb, soup, confection; young tops, stems, leaves, branches, boiled as potherb. Throw first water out. Roots may be dried and stored for winter.

CARDUUS

C. nutans: Rennet, dried flowers used to curdle milk, cooked as vegetable when flowering stem is thick. Peel off bristles.

CIRSIUM

C. muticum:
C. vulgare: Cooked vegetable from roots or peeled young stems.

PRENANTHES

P. alba: Root helpful against diarrhea and dysentery. Poultice has been used for snake and insect bites. Decoction: use 1 tsp. root with 1 cup water. Take 1 cup a day.

HIERACIUM

H. pilosella: The herb as remedy for diarrhea and gargle for throat problems. As powder sniff into nose to stop nosebleed. Gather flowering plant. Infusion: steep 1-2 tsps. in 1 cup water. Take 1 cup a day.

TARAXACUM

T. officinale: Young leaves as potherb and salad, ground roots as coffee substitute. Roots also used as emergency food. Tea for dyspepsia with constipation, fever, insomnia, and hypochondria. Infusion of root for gallstones, jaundice and other liver problems. Also for chronic rheumatism, gout, and stiff joints. Infusion: steep 2 tsps. plant or root in 1 cup boiling water. Take 1/2 to 1 cup a day, lukewarm or cold.

Burdock

Common Burdock

Thistle

Nodding Thistle

Thistle

Bull Thistle

White Lettuace

Large White Lettuace, Lion's Foot

Hawkweed

Mouse Ear

Dandelion

Common Dandelion

LACTUCA

Lettuce

L. biennis: Potherb from leafy stems and unexpanded inflorescences.

Blue Wild Lettuce

CICHORIUM

Chickory

C. intybus: Young leaves used as pot-herb and salad; bitterness with-drawn by cooking in several waters; roots serve as coffee substitute. Rootstock, flowering herb as appe-tizer. Gather the rootstock from March to May.

Chickory

TRAGOPOGON

Goat's Beard

T. dubius: Potherb, cooked root, salad.

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