INFORMATION TO USERS

This manuscript has been reproduced from the microfilm master. UMI films the text directly from the original or copy submitted. Thus, some thesis and dissertation copies are in typewriter face, while others may be from any type of computer printer.

The quality of this reproduction is dependent upon the quality of the copy submitted. Broken or indistinct print, colored or poor quality illustrations and photographs, print bleedthrough, substandard margins, and improper alignment can adversely affect reproduction.

In the unlikely event that the author did not send UMI a complete manuscript and there are missing pages, these will be noted. Also, if unauthorized copyright material had to be removed, a note will indicate the deletion.

Oversize materials (e.g., maps, drawings, charts) are reproduced by sectioning the original, beginning at the upper left-hand corner and continuing from left to right in equal sections with small overlaps.

Photographs included in the original manuscript have been reproduced xerographically in this copy. Higher quality 6" x 9" black and white photographic prints are available for any photographs or illustrations appearing in this copy for an additional charge. Contact UMI directly to order.

ProQuest Information and Learning
300 North Zeeb Road, Ann Arbor, MI 48106-1346 USA
800-521-0600

NOTE TO USER

Page(s) missing in number only; text follows.
Microfilmed as received.

42

This reproduction is the best copy available.

UMI®

OJIBWAY PLANT TAXONOMY AT LAC SEUL FIRST NATION, ONTARIO, CANADA

Mary B. Kenny BIS, HBA First Class ©

A Graduate Thesis

submitted in partial fulfilment of the requirements

for the degree of

Master of Science in Forestry

Faculty of Forestry and Forest Environment

Lakehead University

Thunder Bay, Ontario

Canada

August, 2000

In Memory

of my daughter

Sarah Serena Crookham

June 27, 1975 - October 27, 1994

LIBRARY RIGHTS STATEMENT

In presenting this thesis in partial fulfilment of the requirements for the M.Sc.F. degree at Lakehead University at Thunder Bay, I agree that the University shall make it freely available.

This university thesis is made available by my authority solely for the purpose of private study and research and may not be copied or reproduced in whole or part (except as permitted by the Copyright Laws) without my written authority.

_____
Signature

_____
Date

A CAUTION TO THE READER

This M.Sc.F. thesis has been through a semi-formal process of review and comment by at least two faculty members.

It is made available for loan by the faculty for the purpose of advancing the practice of professional and scientific forestry.

The reader should realize that opinions expressed in this document are the opinions and conclusions of the student and do not necessarily reflect the opinions of either the supervisor, the faculty or the University.

ABSTRACT

Kenny, M.B. 2000. Ojibway plant taxonomy at Lac Seul First Nation, Ontario, Canada. 101 pp.
Advisor: Dr. W.H. Parker

Key Words: boreal forest, ethnobiological classification, ethnobotany, folk taxonomy, Ojibway, Ontario.

The Ojibway (Anishinabe) of Lac Seul First Nation reside in the transition zone of the Great Lakes-St. Lawrence and southern Boreal Forest regions of northwestern Ontario, Canada. Hunting and gathering of certain animal and plant species remain a significant part of their livelihood. Although Lac Seul Ojibway are traditionally hunter-gatherers, there is a manipulation of the plant community in the cultivation of wild rice *Zizania aquatica* L. beds and certain wild medicinal plants. During the winter and summers of 1996-1997, a preliminary study was undertaken to collect plant taxonomic information in the Oji-Cree dialect of the community. Four Elders, fluent in the Oji-Cree dialect and who were knowledgeable of plant names, were interviewed. They were presented with plant material for indentification. Five other Elders also contributed their knowledge about plants. Analysis of the taxonomic system followed Brent Berlin, with some exceptions. In Lac Seul folk plant taxonomy, there is no 'unique beginner' to correspond with Plantae. There are two Super Life-forms which include all vascular plants. This is the first use of the rank Super Life-form in ethnobotanical classification. There are eight named or covert Life-form taxa. Three of the Life-form taxa, characterized as 'medicinal root', 'berry' and 'bark utility', are 'cultural' or utilitarian and overlap with the remaining Life-forms; 'conifer' (covert), 'angiosperm tree' (covert), 'herbs, ferns and fern allies', 'shrub' and 'moss'. As noted by Turner, Hunn and Johnson-Gottesfeld in other studies of non-agrarian indigenous groups, plant classification at Lac Seul reveals utilitarian identification which overlaps with morphological identification. A significant aspect of the data is the percentage of polytypic folk genera. Polytypic folk genera are usually about 18% of the total folk genera in horticultural groups and 2% of the total folk genera for foragers. At Lac Seul, the polytypic folk genera are 9% which shows a higher differentiation of folk genera than for most hunter-gathering people. Certain ubiquitous species have the same name at Lac Seul as in other Algonkian dialects ranging geographically from northern Saskatchewan to western Quebec.

CONTENTS

		PAGE
	ABSTRACT	iv
	TABLES	viii
	FIGURES	ix
	MAPS	xi
	ACKNOWLEDGEMENTS	xii
1.0	INTRODUCTION	1
	1.1 LITERATURE REVIEW	4
2.0	BACKGROUND TO THE STUDY	11
	2.1 GEOGRAPHIC SETTING	11
	2.2 GEOPHYSICAL FEATURES AND CLIMATE	11
	2.3 VEGETATION	14
	2.4 THE OJIBWAY (ANISHINABE) OF LAC SEUL	16
3.0	MATERIALS AND METHODS	19
4.0	RESULTS	23
	4.1 SUPER LIFE-FORM, LIFE-FORM AND CULTURAL LIFE-FORM RANK TAXA	40
	4.2 INTERMEDIATE AND VARIETAL RANK TAXA	45
	4.3 GENERIC RANK TAXA	45
	4.3.1 FOLK GENERA IN THE COVERT LIFE-FORM TAXA "CONIFER" AND "ANGIOSPERM TREES"	45

PAGE

4.3.2 GENERIC TAXA IN THE LIFE-FORM - *AATIG*,"SHRUB" 51

4.3.3 GENERIC TAXA IN THE LIFE-FORM *AASAAGAAKIIK*, HERBACEOUS PLANTS, FERNS AND FERN ALLIES 51

4.3.4 GENERIC TAXA IN THE THREE CULTURAL LIFE-FORMS 52

4.3.5 GENERIC TAXA IN THE LIFE-FORM *GAAMIG*, "MOSS" 53

4.3.6 UNAFFILIATED GENERIC TAXA 53

4.4 SPECIFIC RANK TAXA 56

4.4.1 THE LAC SEUL BEAR SCROLL IN THE FOLK CLASSIFICATION SYSTEM 56

4.5 SIMILAR PLANT NAMES IN OTHER OJIBWAY AND CREE DIALECTS 59

5.0 DISCUSSION 64

5.1 NORTHERN OJIBWAY ETHNOBOTANICAL CLASSIFICATION 64

5.2 SUBSISTENCE AND FOLK SPECIES 68

5.3 STEWARDSHIP: NOT DOMESTICATION 71

5.4 THE LAC SEUL BEAR SCROLL 76

5.5 THE LAC SEUL DATA AND BERLIN'S PRINCIPLES OF FOLK CLASSIFICATION 79

5.6 TURNER AND UTILITARIAN LIFE-FORMS 85

6.0 SUMMARY AND CONCLUSIONS 87

LITERATURE CITED 90

APPENDIX I - VOUCHER SPECIMENS COLLECTED IN LAC SEUL, ONTARIO, UPPER ENGLISH RIVER REGION 95

PAGE

APPENDIX II - A SUMMARY OF BERLIN'S TWELVE PRINCIPLES OF ETHNOBIOLOGICAL CLASSIFICATION 100

TABLES

Table		Page
1.	Plant taxa with Oji-Cree and English translations from a study in folk plant taxonomy at Lac Seul First Nation, Lac Seul, Ontario.	25
2.	Morphological vocabulary describing plants in Lac Seul Oji-Cree.	29
3.	The Lac Seul Oji-Cree ethnobotanical taxa in hierarchical arrangement: I. Kingdom; II. Super Life-form; III. Life-form; IV.Folk Genus; and V. Folk Species.	34
4.	A comparison of plant names in other Ojibway and Cree dialects.	63

FIGURES

Figure		Page
1.	Key to the diagrammatic conventions used in this work	32
2.	Morphological vocabulary for Covert Kingdom Plantae	33
3.	Super Life-form and Life-form rank taxa.	41
4.	Two Covert Life-forms: Conifer and Angiosperm trees with Generic rank taxa	46
5.	The Life-form rank ***-aatig*** (shrub) with Generic rank taxa.	47
6.	The Life-form rank ***Aasaagakiik*** (Herbaceous plants, Ferns and Fern Allies) with Generic rank taxa and the Cultural Life-forms ***Ochiibig*** (medicinal root), ***Miin*** (Berry), and Bark Utility (Covert)	48
7.	The Cultural Life-forms ***Ochiibig*** (medicinal root), ***Miin*** (Berry), and Bark Utility (covert) with Generic taxa.	49
8.	The Life-form ***Gaamig*** (ground cover) with Generic rank taxa ***waabangaamig*** (white ground cover) and ***ozhaagaamig*** (green ground cover) and trinomial Specific rank taxa of Genus ***waabangaamig.***	55
9.	Unaffiliated Generic rank taxa ***miishiigan*** and ***saagaategan.***	55
10.	Specific rank taxa of the Genus ***Shingob*** within the Super Life-form ***Mitig*** (tree) and the Covert Life-form Conifer.	57
11.	Specific rank taxa within the Genus ***miin,*** *Vaccinium spp.* (only blueberries) in the Cultural Life-form ***Miin*** (Berry)	58

Figure		Page
12	Lac Seul Bear Scroll, Lac Seul First Nation, Lac Seul , Ontario, Canada.	75

Maps

Map		Page
1	Lac Seul First Nation, Lac Seul, Ontario, Canada.	13

ACKNOWLEDGEMENTS

My initial research idea upon applying to the Master of Science in Forestry programme at Lakehead University was a study of harvesting medicinal plants by my band Lac Seul First Nation, as an economic development opportunity and as a form of competitior suppression in silviculture, an alternative to herbicide application. To this end, I began setting up plots on my reserve and adjacent Crown lands to study phenology of specific medicinal species in harvested and unharvested sites. However, it soon became apparent that since this was geared as a project incorporating Traditional Ecological Knowledge (TEK) of medicinal plants, what I really needed to know first was how people at Lac Seul First Nation relate to the plant world of the boreal forest ecosystem; how they name it and how they use it.

Naming and ordering of the plant kingdom by indigenous people is termed folk plant taxonomy in ethnoecological studies of traditional knowledge. This branch of ethnobotany assists in bridging the gap between cultures in their approach to forest use. Ethnobotanical studies can promote understanding between Native people and industrial and recreational forest users. Hopefully, this modest, preliminary study of folk botanical taxonomy at Lac Seul First Nation, Lac Seul, Ontario, Canada, will shed light on the broad spectrum of plant use and knowledge of the Ojibway people at Lac Seul.

I would like to thank the following Lac Seul First Nation Elders for contributing their knowledge to this study: Shamandy Kejick and Bessie Kejick, Sam Southwind, Mary Jane Brisket, Archie Bottle, Alice Kejick, Leo Binguis, Roger Southwind and George Kenny. In addition, the following Elders (now deceased) led me towards this path by their encouragement and gifts of their knowledge over the past twenty -five years: Polly Jordan (Shebandowan Lake); Hector King (White Sands First Nation); Angelique Thompson (Rocky Bay First Nation); Harvey Churchill (Lac des Milles Lac First Nation) and Jeff Chief (Wabigoon First Nation).

I want to thank my supervisor, forest botanist and tree geneticist, Dr. William H. Parker, for stepping into the world of ethnobotanical classification. He gave thoughtful critcism of my analyses and shared his wealth of botanical knowledge and scholarship. Without his financial support, this study would not have been completed. Insigh ful and valueable suggestions were made by Dr. Lense Meyer and Frances Bennett-Sutton. Dr. Nancy J. Turner, ethnobotanist at Universtiy of Victoria, gave an encouraging critique for the final revisions.

And especially I want to thank my husband, anthropologist George Kenny, for his Oji-Cree translation, scholarship, insights, and support. His knowledge of Lac Seul people allowed me to conduct this research in a non-intrusive manner.

Any mistakes in this thesis are mine.

1.0 INTRODUCTION

Human beings have survived in large part by our dependence on the plant world for use as food, medicine, shelter, fuel, clothing, spiritual symbols and pleasure. Probably since the development of language in early foraging hominids, the human species has been communicating about plants not only for subsistence, but also for survival. Offspring will not survive if they eat or interact with poisonous plants and so they must learn early to tell the difference, often slight, between what is edible and even touchable and what is harmful or fatal.

Our ability to utilize and most likely order and name the vegetation in our indigenous ecosystems is evidenced by archaeo botanical material recovered in archaeological excavations. Remains of pharmacologically active species of peyote cactus, mescal bean and Mexican buckeye bean have been found in a series of rock shelters first occupied 8,000 years ago in Coahuila, Mexico (Schultes 1978:138), giving rise to speculation about early knowledge of the hallucinogenic and toxic properties of these species. Native American horticulturalists had selected and begun to cultivate squash, peppers and pumpkin 9,000 years ago (Morton 1981:3).

In the historic period, the Sumerians had documented their medicinal plant knowledge by 2500 B.C. (Schultes 1978:138). The Greco-Roman

physicians, biological theorists and botanists writing from the late fifth century B.C. to the first century A.D. influenced European plant lore for centuries and provided the basis for modern botanical taxonomy (Schultes 1978:141-2). The study of these early systems of plant classification whether passed on orally or written down has been referred to as "folk plant classification" or "folk taxonomy" (Conklin 1962; Raven *et al.* 1971; Turner 1995:273). Folk plant taxonomies have certain features in common which are found in the plant taxonomic linguistic terms of ethnic and indigenous cultures around the world. These common features include a subset of the total local flora recognized by morphological characteristics and usefulness (Berlin 1992:21; Hunn 1982:844; Johnson-Gottesfeld and Hargus 1998:78; Turner *et al.* 1990:62), a (usually) hierarchical structure of contrasted groups of these plants, and usually a large number of identified and named folk genera ranging in number between 250 and 800 (Raven *et al.* 1971:1210-11).

The antecedents of scientific botanical taxonomy give perspective on the recent research into folk plant taxonomy. Early Greeks advancing the science of botany relied on the folk taxonomy based on the ecosystems of the region. In "Enquiry into Plants", botanist Theophrastus (384-322 B.C.), a student and colleague of Aristotle, described a classification of plants based on morphology (e.g., tree, shrub, under shrub, herb) and use (*e.g.*, cultivation) which was essentially a folk taxonomic system (Morton 1981:35; Mayr 1982:154).

Theophrastus' work influenced European botany and medicine into the 17th century (Schultes 1978:141). Dioscorides (first century A.D.) documented the uses and description, but not classification, of over 500 medicinal plants in "De Materia Medica" which was a standard authority into the Renaissance (Morton 1981:77; Schultes 1978:141) . The number of plants he identified falls within the average for folk taxonomies. By the 17th century, botanists, such as Cesalpino, Ray and Tournefort, were developing plant systematics based on earlier folk classification and employing a logical downward system of classification requiring choice of differentiating characteristics (Raven *et al* 1971:1211; Mayr 1982:159-60). Cesalpino (1519-1603) was considered by Linnaeus to have been the first systematist (Morton 1981:136). Cesalpino rejected the herbalist's, such as Dioscorides', utilitarian classification of plants and approached taxonomy from a morphological and anatomical perspective. He retained the essentially "folk" life forms - tree, shrub, under shrub and herbs - of Theophrastus. Tournefort (1656-1708) described 698 plant genera, which Linnaeus later employed (Mayr 1982:164). According to Raven *et al.* (1971:1211), Linnaeus (1707-1778) developed his binomial taxonomic system from the genera of European folk taxonomy.

The study of indigenous folk plant taxonomies examines how people with intimate knowledge of their ecosystem order that knowledge. It is also a means of recording and preserving rapidly vanishing traditional ecological

knowledge. For this reason, a preliminary study of folk plant classification was undertaken at Lac Seul First Nation, Lac Seul, Ontario, Canada. This is the first ethnobotanical classification research with Oji-Cree speaking people in northwestern Ontario.

The purpose of this study was to: 1) document plant names and plant category terms in the Oji-Cree language at Lac Seul First Nation, in northwestern Ontario, Canada; 2) determine how the plants were classified; 3) compare the Lac Seul plant taxonomy to other folk taxonomies; and 4) determine its level of correspondence with the universal folk classification for biological organisms outlined by Berlin's (1992) principles of folk classification.

1.1 LITERATURE REVIEW

Modern ethnobotany is a broad and multidimensional discipline uniting scholarship in such various fields as botany, anthropology, archaeology, ecology, forestry, natural resource conservation, biology, agriculture, plant genetics, phytochemistry, linguistics, medicine, nutrition and economics (Balick 1996:58; Turner 1995:274 and 276). People in indigenous and developing societies, where most ethnobotanical field work is undertaken, have provided researchers with the raw material of their traditional knowledge of the plant world for over one hundred years (Ford 1981:2179). By 1977, 904 ethnobotanical studies had been published on Native North Americans'

traditional plant knowledge (Ford 1981:2179; Balick 1996:58). (With the explosion in all aspects of Native North American ethnobotanical research since the 1970's, the number of studies must now be well over 1500.) The subject of this study, folk classification, is a subdiscipline of ethnobotany. Folk classification is grounded in research and theory developed over the past 40 years. This literature review traces the earliest, ground-breaking work in ethnobotanical classification and narrows to research related to the current study.

Conklin's dissertation, "The Relation of Hanunóo Culture to the Plant World" (1954) was the first study combining botanical systematics and ethnography (Berlin 1992:4). Conklin's work revealed that indigenous taxonomies reflect a sophisticated, biologically-based knowledge of the natural world (Davis 1995:43). Similarities in typology, especially taxonomic hierarchy and nomenclatural features, between Conklin's Hanunóo data (Philippines) and Tzeltal Maya plant classification (Chiapas, Mexico), led Berlin to speculate on the possibility of developing typological principles for ethnobotanical and all types of ethnobiological classification (Berlin 1992:14). Berlin, Breedlove and Raven (1966; 1968) explored the nomenclature of species and covert (unnamed) categories in Tzeltal plant classification. Their research found no named "unique beginner" corresponding to the term Plantae; the highest level in botanical classification (Berlin *et al.* 1968:290). Covert midlevel or intermediate

categories were delineated by Berlin *et al.* (1968:292-94) on the basis of a number of tests with the Tzeltal informants. Berlin *et al.* (1968:292) downplayed their informants' utilitarian groupings of plants used for "food, herbs, firewood and so on" as "anecdotal"and not culturally significant. The avoidance of the idea of traditional plant knowledge and classification as utilitarian has been criticized by later researchers (Hunn 1982:831).

A set of "general principles for classification and nomenclature" was set forth by Berlin , Breedlove and Raven (1973) . These folk classification principles drew on their results from the Tzeltal Maya (horticulturalists) ethnobotanical work as well as research findings in other ethnobiological studies. Berlin *et al.* (1973:240) proposed a hierarchy of five or six mutually exclusive, ethnobiological categories or ranks: unique beginner, life form, intermediate, generic, specific and varietal (cultivars only). Higher order categories down to the generic usually receive primary names, *e.g.*, plant, tree, grass, and lower order categories often receive secondary names, *e.g.*, bur oak, jack pine, while the unique beginner is usually covert or unnamed. Berlin (1992) has reworked these earlier general principles of ethnobiological classification in "Ethnobiological Classification: principles of categorization of plants and animals in traditional societies". This text provides an historical review of ethnobiological classification as well as a general outline of Berlin's recent theories in folk taxonomy. Berlin proposes twelve revised general

principles, which, he maintains, may be applied to all folk taxonomies (1992:20-35).

In the Pacific Northwest of Canada and the United States, French, Turner and Hunn have made significant contributions to ethnobotanical classification, specifically in the study of non-agrarian societies. French (1981:2327) proposed that folk genera and species could also be unnamed or covert. He based this theory on his work with the Warm Springs Sahaptin in eastern Oregon over a 30 year period. His research found that Sahaptin speakers could often describe a plant and relate the uses but did not have a name for the species. Out of 135 medicinal plants known to his consultants, 28% were identified by a description and 24% had no name at all. The remaining 47% were named. These species were all identified by the respondents as medicinally valuable.

Turner (1973) published the first ethnobotanical taxonomic study in Canada, "Plant Taxonomic Systems and Ethnobotany of Three Contemporary Indian Groups of the Pacific Northwest (Haida, Bella Coola and Lillooet)". This study and Turner's subsequent huge body of work bring to light the many components of indigenous plant knowledge in the Pacific Northwest. By working closely with First Nations people, Turner has broadened the scope of academic ethnobotany in the region to include the preservation and revitalization of traditional indigenous knowledge and the promotion of

conservation of traditional native food plant species through propagation and cultivation (1995:273-275). Her recent chapter in "Ethnobotany: evolution of a discipline" (Schultes and Von Reis 1995) reviews the evolution of ethnobotanical work done in the region from the early 19th century to the present. In plant taxonomy, Turner has recorded the indigenous classification systems of the Haida, Bella Coola (Nuxalk) and Lillooet (Stl'atl'imx) (1973), the Nitiniaht (Ditidaht) of Vancouver Island (Turner *et al.* 1983), the Thompson (Nlaka' pamux) and Lillooet (1987; 1988a; 1988b; 1989; Turner *et al.* 1990) and recently the Shuswap (Secwepeme)(Turner *et al.* 1992). The Thompson speakers show similarities in their plant classification structure with other indigenous groups (Turner *et al.* 1990:59). There is no "unique beginner" term for "plant" but there is a suffix "=*e*ɬ*p*" identifying plant names (1990:60). Turner *et al.* (1990:60-61) found that Thompson did not comply with Berlin *et al.* (1973) general principles of classification in a number of instances. Berlin *et al.* (1973:215) state that "taxa assigned to each [hierarchical] rank are mutually exclusive". In Thompson classification groups do overlap, and plants may have "multiple classification based on context" (Turner *et al.* 1990:61). In addition, life-form taxa are not necessarily grouped strictly by morphological characteristics (Berlin 1992:15 and 21), but may be grouped by utility (Turner *et al.* 1990:62).

Hunn (1982) argues for the incorporation of utilitarian life-forms into

general principles of folk classification. This debate is addressed further in this paper. In addition, Hunn reasons that folk science is essentially "applied science" (1982:831) and that taxonomic systems encode much more than just a morphological description into plant class names (1982:841) . The nomenclature of a plant class may, for instance, describe life forms by "morphological specialization", such as Sahaptin "food plants which are dug (roots and tubers)" and "food plants which are picked (berries)" (1982:839). But, it also carries cultural information in the "activity signature" of that class of plants by which a member of the community would know what the plants are used for, where the plants grow, when and how they are harvested and how they are prepared for use (1982:841-42). Hunn points out that all of this practical knowledge should not be brushed off as "beside the point" when analyzing folk taxonomies (1982:831).

Recently, Johnson-Gottesfeld and Hargus (1998) have examined classification in Witsuwit'en ethnobotany. The mode of subsistance of the Witsuwit'en people of northwestern British Columbia is traditionally non-agrarian, fishing, hunting and plant harvesting. Johnson-Gottesfeld and Hargus found that in Witsuwit'en classification, plants were often grouped in more than one life-form. For instance, a number of plants in the. life-form 'berry' were also grouped in the utilitarian 'large woody plant' category (1998:80). The researchers also found that at least two life-forms were utilitarian

in that their name signified use as well as morphological description (1998:79). The present study also found overlapping life-forms and utilitarian life-form names based on use and morphology (e.g. medicinal roots and bark utility) in the non-agrarian Lac Seul Ojibway classification of plants.

2.0 BACKGROUND TO THE STUDY

2.1 GEOGRAPHIC SETTING

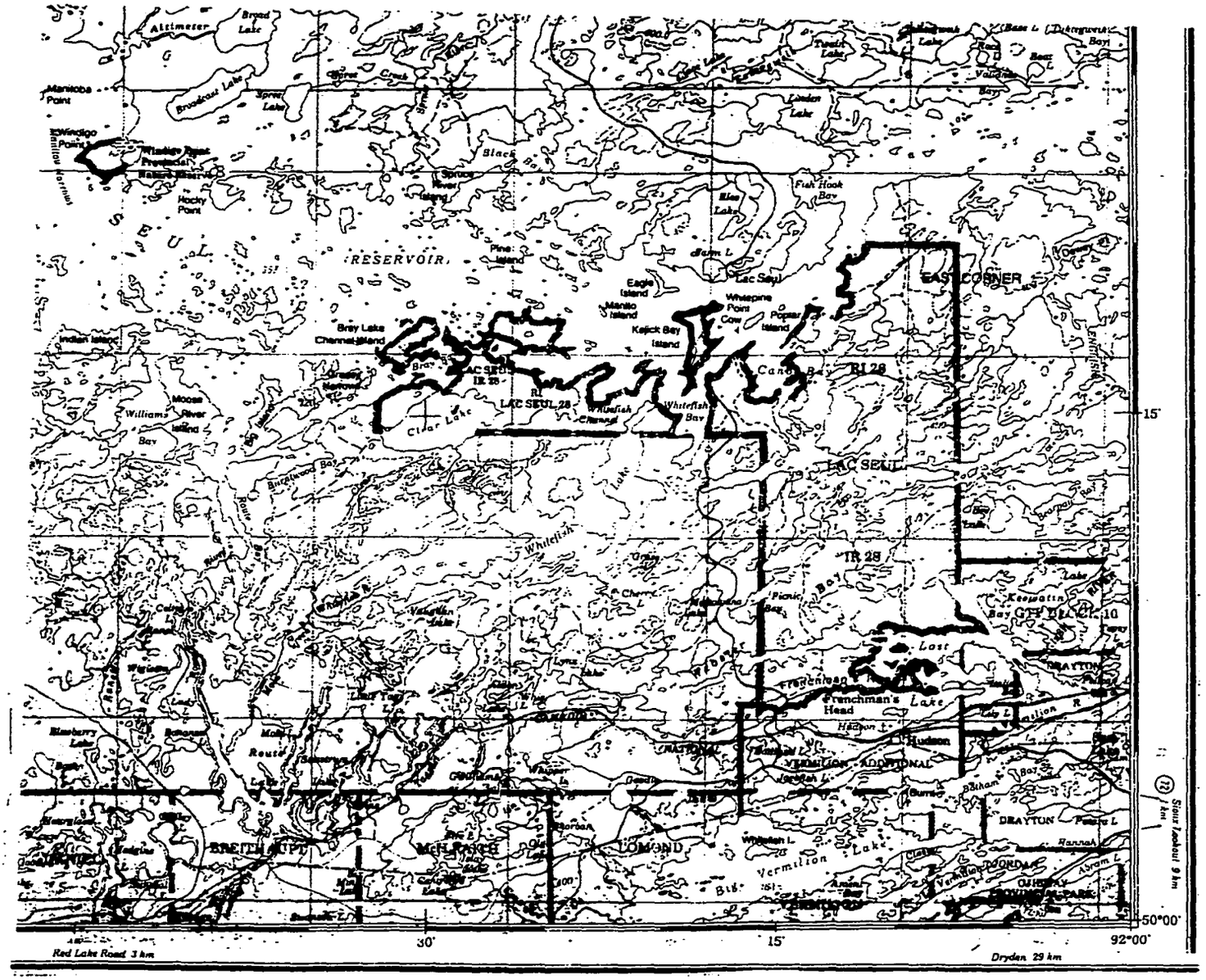
Lac Seul First Nation is situated on the south shore of Lac Seul at approximately Latitude 50°09' and Longitude 92°12'. The total land area is currently under investigation due to fluctuating water levels from the dam at Ear Falls, Ontario, but it is estimated to be 27,287 ha (67,375 acres). The on-reserve population resides in three communities. Whitefish Bay and Kejick Bay at the north end of the reserve, and situated on Lac Seul proper, are home to about 500 people in total. Frenchman's Head community, population about 500, is located 23 km south on Lost Lake, an arm of the English River. Directly across Lost Lake to the south is the town of Hudson, Ontario. Hudson is located 50 km north of Highway 17, the Trans-Canada highway (Map 1).

2.2 GEOPHYSICAL FEATURES AND CLIMATE

Lac Seul is part of the English River drainage system which flows west, emptying into the Winnipeg River. The construction of the Ear Falls Dam in 1928 converted the lake into a reservoir approximately 161 km long extending from Deception Bay in the east to Ear Falls at the west end. The topography of the Lac Seul-English River region is generally low to moderate relief with an

average elevation of 366 m a.s.l (Johnston 1972:2). The landform elevation lies between 61 m and 92 m a.s.l. (Lambert 1980:146). The landforms (above the effects of the current fluctuating high water levels of the reservoir) have not changed for about 8000 years (Lambert 1980:146). According to Elson (1967:84,89), "the Lac Seul area overburden consists of colloidal clays deposited during glacial melting" approximately 9,000 years ago. Glacial features include "morainic ridges, deep soil lacustrine flats and till plains" (Rowe 1972:26). Humo-ferric podzols, commonly occuring in the boreal forest region, are developed on fine textured soils (Rowe 1972:26).

The mean annual total precipitation (1951-1980) was 700 mm. The growing degree days above 5° C (e.g. the total degrees of difference between the daily mean and the degrees above 5° C), for the same period, was in the 1250 - 1500 range (Sims *et al.* 1989:6-7).



LAC SEUL

KENORA DISTRICT

ONTARIO

Scale 1:250 000 Échelle

Miles 5 0 5 10 15 20 Miles

Kilometres 5 0 5 10 15 20 25 30 Kilomètres

Map 1. Lac Seul First Nation, Lac Seul, Ontario, Canada. The reserve territory is outlined in green.

2.3 VEGETATION

According to Rowe (1972:26), Lac Seul lies within the Upper English River sub-section of the Boreal Forest Region. This is a transition zone between the Great Lakes-Saint Lawrence forest to the south and the Boreal forest to the north (Rowe 1972:26). The vegetational regimes at Lac Seul show typical boreal diversity due to a continuum of patch disturbances by fire, blowdown, and insect infestation. In addition, human activity has created long-term modifications in the forest. Clearing for favourable habitation sites, trails and portages has gone on for hundreds, perhaps thousands of years. In the last century, fluctuations in water level due to hydroelectric flooding and selective (i.e. high grade) and clearcut timber harvesting have severely modified areas.

Remnants of once large stands of *Pinus strobus* L. and *Pinus resinosa* Ait. are scattered along the lakeshore, on islands and in well drained uplands. Both *Pinus* species reach their northern limits at Lac Seul (Rowe 1972:26). Mixed stands of *Picea glauca* (Moench) A. Voss, *Abies balsamea* (L.) Mill., *Populus tremuloides* Michx. and *Betula papyrifera* Marsh are common. Pure even-aged stands include *Picea mariana* (Mill.) BSP., *Thuja occidentalis* L., *Populus tremuloides* Michx. and *Pinus banksiana* Lamb. *Fraxinus nigra* Marsh. is scattered in poorly drained areas and was previously harvested locally for building commercial fishing boats and tools such as tobogans and snowshoes.

The predominant shrub understory species are *Acer spicatum* Lamb. and

Corylus cornuta Marsh. *Corylus cornuta* Marsh. is especially prevalent in the long- needled pine stands. Other common shrub species include: *Rubus idaeus* L., *Rubus pubescens* Raf., *Diervilla lonicera* Mill., *Cornus stolonifera* Michx., *Prunus pensylvanica* L. fil, *Prunus virginiana* L., *Rosa acicularis* Lindl., *Alnus crispa* (Ait.) Pursh, *Sorbus decora* (Sarg.) Schneid., *Vaccinium angustifolium* Ait., *Vaccinium myrtilloides* Michx., *Ribes glandulosum* Grauer, *Taxus canadensis* Marsh., *Chimaphila umbellata* (L.) Bart., *Arctostaphylos uva-ursi* (L.) Spreng. and *Linnaea borealis* L. Scattered understory species associated with the Great Lakes-Saint Lawrence forest ecosystem include *Sambucus pubens* Michx., *Cornus rugosa* Lam., and *Cratageus* species (probably *Cratageus succulenta* Link).

Typical herbaceous plant and fern communities include various combinations of *Aralia nudicaulis* L. with *Streptopus roseus* Michx., *Clintonia borealis* (Ait.) Raf., *Melampyron lineare* Desr., *Cornus canadensis* L., *Trientalis borealis* Raf. and *Maianthemum canadense* Desf. in a wide range of habitats, and sometimes *Trillium cernum* L. in rich habitats. *Coptis trifolia* (L.) Salisb., *Mitella nuda* L., *Mertensia paniculata* (Ait.) G. Don and *Galium triflorum* Michx. are found in mixed *Thuja occidentalis* L. stands. *Epilobium angustifolium* L., *Apocynum androsaemifolium* L., *Pteridium aquilinum* (L.) Kuhn and *Oenethera biennis* L. often occur together in poor to rich well drained sites. At their northern limit, *Eupatorium perfoliatum* L., *Aralia racemosa* L., and *Asarum canadense* L. are found occasionally.

A variety of bryophytes and lichens grow in the Lac Seul region. Bryophytes which carpet the forest floor include: *Dicranum, Polytrichum,* and *Sphagnum* species, *Rhytidiadelphus triquetrus* (Hedw.) Warnst., *Ptilium crista-castrensis* (Hedw.) De Not., *Pleurozium schreberi* (Brid.) Mitt., and *Hylocomium splendens* (Hedw.) BSG. *Cladina* and *Cladonia* species lichens are common on the ground. The *Ramalina, Usnea* and *Bryoria* species of gristle and hair lichens occur here as well in the forest canopy.

Many Polyporaceae fungi are found in this region including: *Inonotus obliquus* (Fr.) Pil., *Ganoderma applanatum* (Pers. ex Wall) Pat., *Fomes fomentarius* (Fr.) Kickx., *Piptoporus betulinus* (Fr.) Kar., *Heterobasidion annosum* (Fr.) Bref., *Fomitopsis pinicola* (Fr.) Kar., *Phellinus rimosus* (Berk.) Pil. and *Phellinus igniarius* (Fr.) Qu,l.

Many of the species noted above have cultural importance for Anishinabe and other First Nations people in the Boreal and Great Lakes-Saint Lawrence forests.

A list of the voucher specimens collected and pressed during the study is available in Appendix I.

2.4 THE OJIBWAY (ANISHINABE) OF LAC SEUL

From archaeological remains, it is known that aboriginal people have occupied the region of Lac Seul and the English River watershed for about 9000

years (Dawson 1983:3). Anishinabe people resided on Lac Seul when the first European furtraders came into the waterways. By the 1700's they were actively involved in the fur trade and at least one family on the lake built and repaired canoes for the early traders.

From pre-contact to first contact with European traders in the 1750's and well into the latter half of the 20th century the Lac Seul Anishinabe have been a fishing, hunting, and gathering culture of the Boreal and Great Lakes-St. Lawrence ecosystems. This transition zone was rich and varied in food resources before Lac Seul was flooded to create a reservoir by a joint agreement between Canada and the United States (first in the early 1930's and again in the 1950's). The once extensive wetlands supported wild rice beds and high waterfowl populations, extensive fish spawning ground, muskrat and beaver habitat, and contained an array of wetland plants no longer available for food and medicine. Sand beaches lined much of the lake and made for easy landing of canoes. Pre-flood, the clear water supported lake trout. Since the flood, earning a living off the land is much more difficult and many traditional pursuits have passed away from the severe environmental changes. Unemployment is consequently high and aggravated by the remote location and government restrictions on commercial pursuits. The band owns two small seasonal tourist fishing lodges which employ some band members as guides, cabin cleaners, cooks and dock hands. Other on-reserve work is primarily

administrational and operational. A few individuals trap for income. Fishing, hunting and the wild rice harvest provide important dietary supplements to expensive store-bought foods.

The language spoken at Lac Seul is a dialect of Oji-Cree, a blend of two Algonkian languages (Kenny, Lac Seul First Nation, pers. comm., 1996). Elders have said that some families speak with a more Cree inflection to their accent. This is explained by the fact that historically some families of the band were originally from farther north where the Cree and Ojibway languages blend. People who speak only Ojibway or Oji-Cree are over fifty years old. Some people in this age group speak English as well. Many band members 40-50 years of age who live on the reserve still speak their traditional language. The younger people and children are for the most part not fluent in it. Although there are standardized Ojibway language classes in the school, children are taught, watch television and converse in English. Many of the names for plants and their uses are not being learned.

3.0 MATERIALS AND METHODS

This research was divided into three components: vegetation inventory of the Lac Seul area; interviews with Lac Seul Elders regarding Oji-Cree plant names; and analysis of the data.

The field study began in the summer of 1996 with the identification of the most common species and the preparation of a pressed voucher specimen plant collection from the Upper English River sub-section of the Boreal Forest Region (Appendix I). In February 1997, the researcher and translator began interviewing Elders who were known in the community for their knowledge of plants. Interviewing continued during the summers of 1997 and occasionally in the summers of 1998 and 1999 when the Elders had the time. Four Elders were interviewed. Three spoke Oji-Cree exclusively and the fourth spoke English but preferred Oji-Cree. Other Elders also became interested in the study and contributed information.

Interviewing took place in the respondents' homes. In the winter, pressed voucher specimens and evergreen species were used and in the summer, fresh specimens were presented for identification. The interviews were either taped or recorded in handwritten note form. Questions were addressed to the respondents in Oji-Cree through the translator, a resident of the community. Answers sometimes included not only the name of the plant

but also its perceived importance to people, harvesting time, use and growth habits. People were not interrupted or kept to a strict questionnaire type format. Respondents spoke or remained silent–thinking and remembering about the plants, and this was recorded on tape and in written notes. Occasionally, a plant would not be in the collection, but the respondent would describe the form and habitat so thoroughly that a tentative identification was made. This situation also occurred in Turner's Pacific Northwest study (1974:37). At Lac Seul there was some difficulty for a few respondents when herbarium sheets were used as identification tools because of the two dimensional presentation of the plants. In these cases, fresh or even wilted specimens elicited more responses than the pressed herbarium specimens. Questions about plant names always generated discussion about the plant harvesting and uses. Where the plants grew, who knew about their uses in the past, and when they were harvested were topics of animated conversation. Past trips to gather plants were an especially fond memory. Changes in the landscape and vegetation patterns were also identified. It became obvious that the people enjoyed talking about the land and the patterns of vegetation and how they utilized it in the past and the present.

One of the problems encountered in the research was lack of funds to pay the contributors. Reciprocal activities were essentially traded for the information such as rides to town for groceries, small gifts, and specific

medicinal plants which Elders asked to have collected for them. Since the researcher and translator reside permanently on the reserve, these things were easy to do for people.

The data analysis began with translation of the interview tapes and notes. Questions concerning the relationships of plants to each other had been part of the interview process and were indispensable in the data analysis. For instance, when Shamandy and Bessie Kejick were asked, " is there a name for all the growing things together?" they responded with ***aasaagakiik***. Their translation of this was a discourse, "(it is) things that grow out of the earth, small plants and shrubs, because their flowers open up, fall off die and change but trees keep growing". When asked if a pine was ***aasaagakiik***, they responded "no". However, when asked if a poplar was ***aasaagakiik***, they said" yes because it changes and dies (e.g. loses its leaves)".

The type of discussion described above about plant relationships and the plant names themselves verified and delineated the folk plant taxonomic system at Lac Seul First Nation. The analysis of the folk taxonomic information provided by the Elders revealed a general consensus among those interviewed on plant names and categories. The categories of "tree", "woody shrub", "herbaceous plant", "medicinal root", "berry"and "bark utility" are recognized by the respondents as entities. The category of "evergreen" or "needled"tree is inferred from the vocabulary for those categories of plants and their separation

from deciduous trees. Where synonyms exist, different Elders offered different names for the same plant (e.g. ***zshaashaagopemaagaatig*** and ***zshaashaagopemigoon*** for *Acer spicatum* Lamb., mountain maple) as often happens in common English plant names (e.g. Goldthread and Canker Root for *Coptis trifolia* (L.) Salisb.).

4.0 RESULTS

The data set from this study totals 65 Oji-Cree phrases, nouns, suffixes and prefixes collected from respondents at Lac Seul First Nation. These 65 names and phrases identify 38 botanical taxa (Table 1) and 19 morphological characteristics of plants (Table 2).

A complete list of the plant taxa is provided in Table 1 with corresponding botanical binomials and Oji-Cree translations. Also included in the table are additional words used as synonyms, a part of the plant itself or the descriptive name of what the plant does. Synonyms occur when respondents offer different names for the same plant. For example, *Cornus stolonifera* Michx. is named ***paashkoaatig***, 'scraping (inner bark) for use' and ***miskaabemig***, 'visible (from a distance) because of its redness' and *Diervilla lonicera* Mill. is named ***ozhaawaapimaatig***, 'green bark shrub' and ***ozhaawaakiimiinaatig***, 'green inner bark, berry shrub' . *Apocynum androsaemifolium* L. is named ***mahkwa ochiibig*** , 'bear's root'and ***osheysep***, 'for twine', for the root or the stem. *Clintonia borealis* (Ait.) Raf. is described as ***shaashgobuteh*** '(it is) going through the body' which refers to its medicinal activity as a laxative.

The pronunciation and spelling of Lac Seul Oji-Cree words and phrases follow the conventions of Ningewance (1993:12-14):

Consonants

Pronounced as in English: **m, n, y, h,** and **w**.
Ojibway Consonants: **k, p, ch, t,** and **sh** are similar to English.
g, b, j, d, and **zh** are softer than English.
Aspirated (sometimes) in pronunciation: k (**hk**), p (**hp**), and t (**ht**).
Consonants at the end of a word are voiced: **-iw, -ng, -nd, -nzh, -tw, -dw, -shkw,** etc.

Vowels

Short vowels: (**i**) as in b**i**t
(**o**) as in l**oo**k
(**a**) as in c**u**p
Long vowels: (**e**) as in r**e**d
(**ii**) as in p**ee**k
(**aa**) as in "ah"
(**oo**) as between b**oo**t and b**oa**t
Nasal vowel endings: **-ens, -aans, -oons, -enz, -iinz, -aanz,** and **-oonz**

Table 1. Plant taxa listed alphabetically by scientific name with Oji-Cree and English translations from a study in folk plant taxonomy at Lac Seul First Nation, Lac Seul, Ontario, Canada. (Nomenclature follows Baldwin and Sims 1989; Gleason and Cronquist 1963)

Taxon	Oji-Cree	English Translation	Common Name
Abies balsamea (L.) Mill.	shingob bigiw	fir/spruce with gum	Balsam Fir
Acer spicatum Lam.	zshaashaagopemaagaatig (n.) zshaashaagopemigoon (v.)	"chewing wood (shrub)" "chewed upon this wood has been"	Mountain Maple
Achillea millefolium L.	wabigooniinzens	"flower which is little"	Yarrow
Acorus calamus L.	achiitehmoo azoo wiikensh	"squirrel tail" no translation	Sweet Flag
Alnus crispa (Ait.) Pursh.	moozpaagoon	"(like the) hanging moose bell"	Green Alder
Amelanchier spp.	zhigaagomiinen zhigaagomiinaatig	"skunk's berry" "skunk's berry wood (shrub)"	Saskatoon Berry
Anaphalis margaritacea (L.)Benth & Hook.	agawaapamakiin	"when it comes out in the daylight"	Pearly Everlasting

Taxon	Oji-Cree	English Translation	Common Name
Apocynum androsaemifolium L.	mahkwa ochiibig osheysep	"bear's root" "for twine"	Spreading Dogbane
Aralia nudicaulis L.	waabooz ochiibig	"rabbit's root"	Wild Sarsparilla
Arctostaphylos uva-ursi (L.) Spreng.	menozhaatig	" healing wood (shrub)"	Bearberry, Kinnikinnick
Betula papyrifera Marsh.	wiigwaas	no translation	White Birch
Clintonia borealis (Ait.) Raf.	zhaashaagomiinaatig (n.) shaashgobuteh (v.)	"chewable berry wood" "(it is) going through (the body)"	Blue Bead Lily
Coptis trifolia (L.) Salisb.	osawa ochiibigens	"yellow root little"	Goldthread
Cornus canadensis L.	zhaashaagomiinen	"chewing berries"	Bunchberry
Cornus stolonifera Michx.	paashkoaatig	"scraping it (bark) to use shrub"	Red Osier Dogwood
	miskaabemig	"being red it is visible"	
Corylus cornuta Marsh.	bigaanaatig	"nut wood (shrub)"	Beaked Hazel
Diervilla lonicera Mill.	ozhaawaapimaatig ozhaawaakiimiinaatig wiikaasenseywin	"green bark shrub" "green innerbark berry shrub "being peelable"	Bush Honeysuckle
Epilobium angustifolium L.	shiingibiishkag	"like the fish duck" (red grebe)	Fireweed
Eupatorium perfoliatum L.	aazhaabaakesiing	"(stem) going right through"	Boneset

Taxon	Oji-Cree	English Translation	Common Name
Fraxinus nigra Marsh.	aagemag	no translation	Black Ash
Gaultheria hispidula (L.) Muhl.	amiinaadekag	"leaf/berry that smells good"	Creeping Snowberry
Inonotus obliquus (Fr.) Pil.	saagaategun	"in the light"	Clinker Conk, Cinder Conk
Linnaea borealis L.	paapiishaagakiig	"(flowers) come in later in the summer"	Twinflower
Picea spp.	shingob	no translation	White or Black Spruce
Pinus spp.	zhingwaak	no translation	Red or White Pine
Pinus banksiana Lamb.	kik	no translation	Jack Pine
Populus spp.	azaadii	no translation	Trembling Aspen Balsam Poplar
Pteridium aquilinum (L.) Kuhn	ginebigoon	"snake place"	Bracken Fern
Sambucus pubens Michx.	wiimbashkwaatig	"bursts off the stem wood"(bark)	Red Elderberry
Sorbus decora (Sarg.) Schneid.	mahkwa omiinaatig	"bear's berry wood"	Showy Mountain Ash
Sphagnum spp.	waabangaamig aaki	"earth white ground cover"	Sphagnum or Peat Moss
.	ikwewaabangaamig	"woman white ground cover"	Sphagnum or Peat Moss
Class Bryidae ("true mosses")	ozhaagaamig	"green ground cover"	Feather Moss
Thuja occidentalis L.	kiizhig	no translation	Eastern White Cedar

Taxon	Oji-Cree	English Translation	Common Name
Usnea cavernosa Tuck.	miishiigan	"hairy thing" (used for those lichens hanging from trees)	Old Man's Beard
Vaccinium spp.	miin	"blueberry"	Blueberry
Vaccinium angustifolium Ait.	miinens	"little blueberry"	Low Sweet Blueberry
Vaccinium myrtilloides Michx.	michaa miin	"large blueberry"	Velvet Leaf Blueberry

Table 2. Morphological vocabulary describing plants in Lac Seul Oji-Cree.

English	Oji-Cree
Nouns	
berry	miin
leaf	niibish
inner bark (with sap and latex)	oshiiban
root	ochiibig
needled branches of pine	ozhiigoopiin
needled branches of spruce/fir	bigiwoopiin
gum	bigiw
nut	bigaan
flower	waabigwan
tree	mitig
plant -that grows, changes and dies (herbaceous plant)	aasaagakiik
Suffixes	
wood	-aatig
root	-ochiibig
berry	-omiinen
conifer needle	-opii
moss, lichens	-gaamig
Prefixes	
chewing	zhaashaa-
yellow	osaa-
green	ozhaa-

The analysis of the data is presented in Berlin's format of modified Venn diagrams (1992:47). A key to the format is shown in Figure 1. All ethnobotanical taxa are represented by grey circles and labelled in bold italics. Botanical taxa are represented by black circles, usually at the genus or species level, and labelled in italics. Hierarchical relationships are shown by nesting the circles representing taxa. Where taxa are interpreted to converge (*ie.* are not mutually exclusive) the circles are overlapped.

Vocabulary associated with the covert kingdom Plantae is shown in Figure 2. The suffixes and nouns describe morphological characteristics of plants and are considered as evidence of the covert kingdom (Berlin 1992:191). The noun ***aasaagakiik*** defines a large part of the domain of plants. According to one respondent (Bessie Kejick), ***aasaagakiik***, which is explained as "all things which grow up out of the ground, change and die"(except probably *Larix laricina* (DuRoi) K. Koch), includes what we consider botanically to be angiosperms and fern and fern allies; herbaceous plants, deciduous trees and shrubs, and ferns.

The data set recorded at Lac Seul is presented in hierarchical ethnobotanical format in Table 3. The ranks are displayed in descending order. The Covert Kingdom *Plantae* (I) is the most inclusive rank and the Specific (V) rank is the most exclusive. Super Life-form (II), Life-form and Cultural Life-form (III), Genus (IV) and Species ranks are complete. Intermediate and

varietal rank taxa were not found in this preliminary study.

Table 3 presents two Super Life-forms, two covert Life-forms and six Life-forms. The two Life-forms, ***Aasaagakiik*** and ***-aatig***, are not mutually exclusive of the three Cultural Life-forms. The Unaffiliated Genera are not associated with any life-form, which is usually due to conspicuous morphological differences or special economic use (Berlin *et al.* 1973:216).

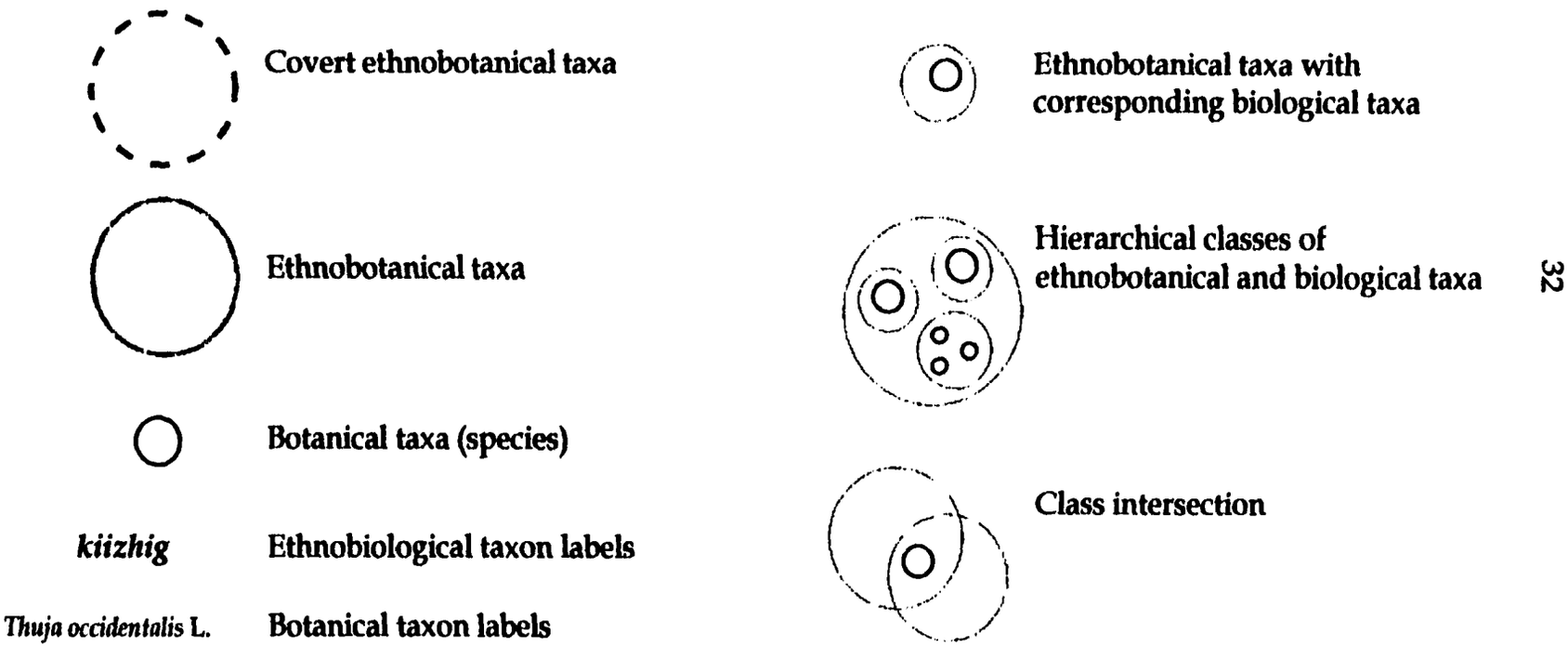


Figure 1. Key to the diagrammatic conventions used in this work. (After Berlin 1992:47)

Suffixes

-aatig 'shrub' or 'woody'
-ochiibig, 'root'
-omiinen 'berry'
-opii 'conifer needle'
-gaamig 'moss'

Nouns

miin 'berry'
niibish 'leaf'
oshiiban 'inner bark'
bigiw 'gum', 'pitch'
ozhiigoopiin 'pine frond'
zhingopii 'pine needle'
bigewopii 'spruce/fir needle'
ochiibig 'root'
bigaan 'nut'
waabigwan 'flower'
aasaagakiik 'herbaceous plant'
gaamig 'moss'
mitig 'tree'

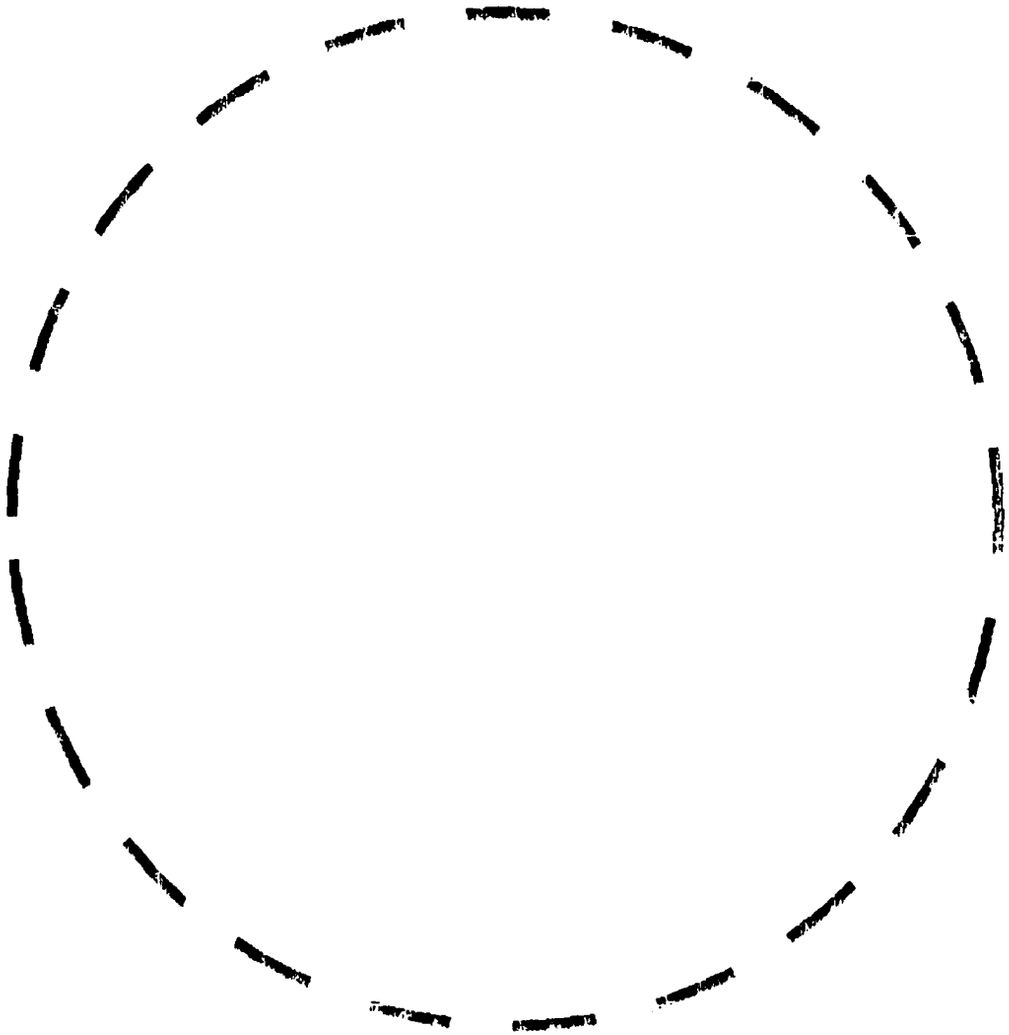


Figure 2. The morphological vocabulary for Covert Kingdom Plantae.

Table 3. The Lac Seul Oji-Cree ethnobotanical taxa in hierarchical arrangement: I. Kingdom; II. Super Life-form; III. Life-form; IV. Genus; and V. Species.

	Plant Taxa	Oji-Cree	Explanation
I.	Kingdom Plantae	Covert -no unique beginner	- inferred from botanical vocabulary
II.	Super Life-form	***Mitig***	"Tree" Angiosperms Conifers
		Aasaagakiik	"things that grow up, die, and change" Angiosperm Trees & Shrubs Herbs, Ferns & Fern Allies
III.	Life-form	Conifers (Covert) Angiosperm Trees (Covert)	Conifers Angiosperm Trees
		-aatig	"woody" Angiosperm Shrubs
		Aasaagakiik	Herbs, Ferns & Fern Allies
		Gaamig	"ground cover" Moss
III.	Cultural Life-form	***Ochiibig***	"Root" (medicinal)
		Miin	"Berry"
		Bark Utility (Covert)	Useful bark (shrubs with one exception)

	Plant Taxa	Oji-Cree	Explanation
IV.	Covert Conifer Life-form Genera	***shingob***	*Picea glauca* (Moench) A. Voss *Picea mariana* (Mill.) BSP *Abies balsamea* (L.) Mill
		zhingwak	*Pinus resinosa* Ait. *Pinus strobus* L.
		kik	*Pinus banksiana* Lamb.
		kiizhig	*Thuja occidentalis* L.
IV.	Covert Angiosperm Tree Life-form Genera	***aagemag***	*Fraxinus nigra* Marsh.
		azaadii	*Populus balsamifera* L. *Populus tremuloides* Michx.
		moozpaagoon	"hanging moose thing" *Alnus crispa* (Ait.) Pursh
		wiigwaas	*Betula papyrifera* Marsh.
IV.	'-aatig' Angiosperm Shrub Life-form Genera	***bigaanaatig***	"nut shrub" *Corylus cornuta* Marsh.
		makwa omiinaatig	"bear's berry shrub" *Sorbus decora* Sarg. (Schneid.)
		menozhaatig	"healing or good shrub" *Arctostaphylos uva-ursi* (L.) Spreng.
		ozhaawaapimaatig ***ozhaawaakiimiinaatig***	"green bark shrub" "green innerbark berry shrub" *Diervilla lonicera* Mill.

	Plant Taxa	Oji-Cree	Explanation
		paashkoaatig	"scraping it (bark) to use shrub" *Cornus stolonifera* Michx.
		wiimbashkwaatig	"bursts off the stem (bark) shrub" *Sambucus pubens* Michx.
		zhigaagomiinaatig	"skunk's berry shrub" *Amelanchier* spp.
		zhaashaagomiinaatig	"chewable berry shrub" *Clintonia borealis* (Ait.) Raf.
		zhaashaagopemaagaatig	"chewing shrub" *Acer spicatum* Lam.
IV.	***Aasaagakiik*** Herbs, Ferns & Fern Allies Life-form Genera	***aazhaabaakesiing***	"(stem) going right through" *Eupatorium perfoliatum* L.
		achiitemoo (wiikensh)	"squirrel tail" *Acorus calamus* L.
		agawaapaamakiin	"when it comes out in the daylight" *Anaphalis margaritacea* (L.) Benth. & Hook.
		ginebigoon	"snake place" *Pteridium aquilinum* (L.) Kuhn
		paapiishaagakiig	"ready later in the summer" *Linnaea borealis* L.
		shiingibiishkag	"like the fish duck" (red grebe) *Epilobium angustifolium* L.

	Plant Taxa	Oji-Cree	Explanation
		waabigooniinzens	"flower which is little" *Achillea millefolium* L.
IV.	***Ochiibig,*** Root (medicinal) Cultural Life-form Genera	***makwa ochiibig***	"bear's root" *Apocynum androsaemifolium* L.
		osaawa ochiibigens	"yellow root which is little" *Coptis trifolia* (L.) Salisb.
		waabooz ochiibig	"rabbit's root" *Aralia nudicaulis* L.
IV.	***Miin,*** Berry Cultural Life-form Genera	***amiinaadekag***	"leaf/berry that smells good" *Gaultheria procumbens* L.
		miin	"blueberry" *Vaccinium* spp.
		ozhaawaakiimiinaatig	"green innerbark berry shrub" *Diervilla lonicera* Mill.
		zhaashaagomiinaatig	"chewable berry shrub" *Clintonia borealis* (Ait.) Raf.
		zhaashaagomiinen	"chewable berries" *Cornus canadensis* L.
		zhiigaagomiinen	"skunk's berries" *Amelanchier* spp.
IV.	Covert Bark Utility Cultural Life-form Genera	***menozhaatig***	"healing (medicinal) shrub" *Arctostaphylos uva-ursi* L.
		osheysep	"for twine making" *Apocynum androsaemifolium* L.

	Plant Taxa	Oji-Cree	Explanation
		ozhaawaakiimiinaatig	"green innerbark (for use) berry shrub" *Diervilla lonicera* Mill.
		pashkoaatig	"scraping it (bark) to use shrub" *Cornus stolonifera* Michx.
		wiimbashkwaatig	"bursts off the stem (to use the bark) shrub" *Sambucus pubens* Michx.
		zhaashaagopemaagaatig	"chewing shrub" *Acer spicatum* Lam.
IV.	***Gaamig,*** Moss Life-form Genera	***waaban gaamig***	"white ground cover"
		ozhaa gaamig	"green ground cover"
IV.	Unaffiliated Genera	***saagaategan***	"in the light" *Inonotus obliquus* (Fr.) Pil.
		miishiigan	"hairy thing" *Usnea cavernosa* Tuck.
V.	***Shingob,*** Fir/Spruce Genus Species	***shingob***	*Picea glauca* (Moench.) A. Voss *Picea mariana* (Mill) BSP
		shingob bigiw	"gummy ***shingob***" *Abies balsamea* (L.) Mill
V.	***Miin,*** Blueberry Genus Species	***michaa miin***	"big blueberry" *Vaccinium myrtilloides* Michx.
		miinens	"little blueberry" *Vaccinium angustifolium* Ait.

	Plant Taxa	Oji-Cree	Explanation
V.	***Waabangaamig,*** Sphagnum moss Genus Species	***waabangaamig aaki***	"earth's white ground cover" *Sphagnum* spp.
		ikwe waabangaamig	"woman's white ground cover" *Sphagnum* spp.

4.1 SUPER LIFE-FORM, LIFE-FORM AND CULTURAL LIFE-FORM RANK TAXA

Super Life-form and Life-form rank terms are shown in Figure 3. The Super Life-form taxa are *Mitig* 'tree', which includes all trees and *Aasaagakiik*. Super Life-form *Aasaagakiik* is the most inclusive taxon and contains all angiosperms (trees, shrubs and herbaceous plants) and fern and fern allies. Together these two taxa are the most inclusive and rank on the same level below Kingdom but above Life-form. All the Life-form taxa presented are polytypic since all encompass more restricted named taxa. There are eight taxa at Life-form rank: conifer, deciduous tree, shrub, herbaceous plant and fern, berry, medicinal root, bark utility, and moss.

The Super Life-form taxon *Mitig* 'tree' includes coniferous and deciduous trees. 'Conifer' is a Covert Life-form taxon inferred from the vocabulary describing parts of coniferous trees (Table 2.): *opii* 'conifer needle', *ozhiigoopiin* 'needled branch of conifer (usually spruce and fir) and *bigiw* 'spruce or fir gum'. 'Deciduous' trees are also a Covert Life-form taxon as described by a respondent being a group of trees (four generic taxa) within *Aasaagakiik*, Angiosperms and Fern Allies (Figure 4.).

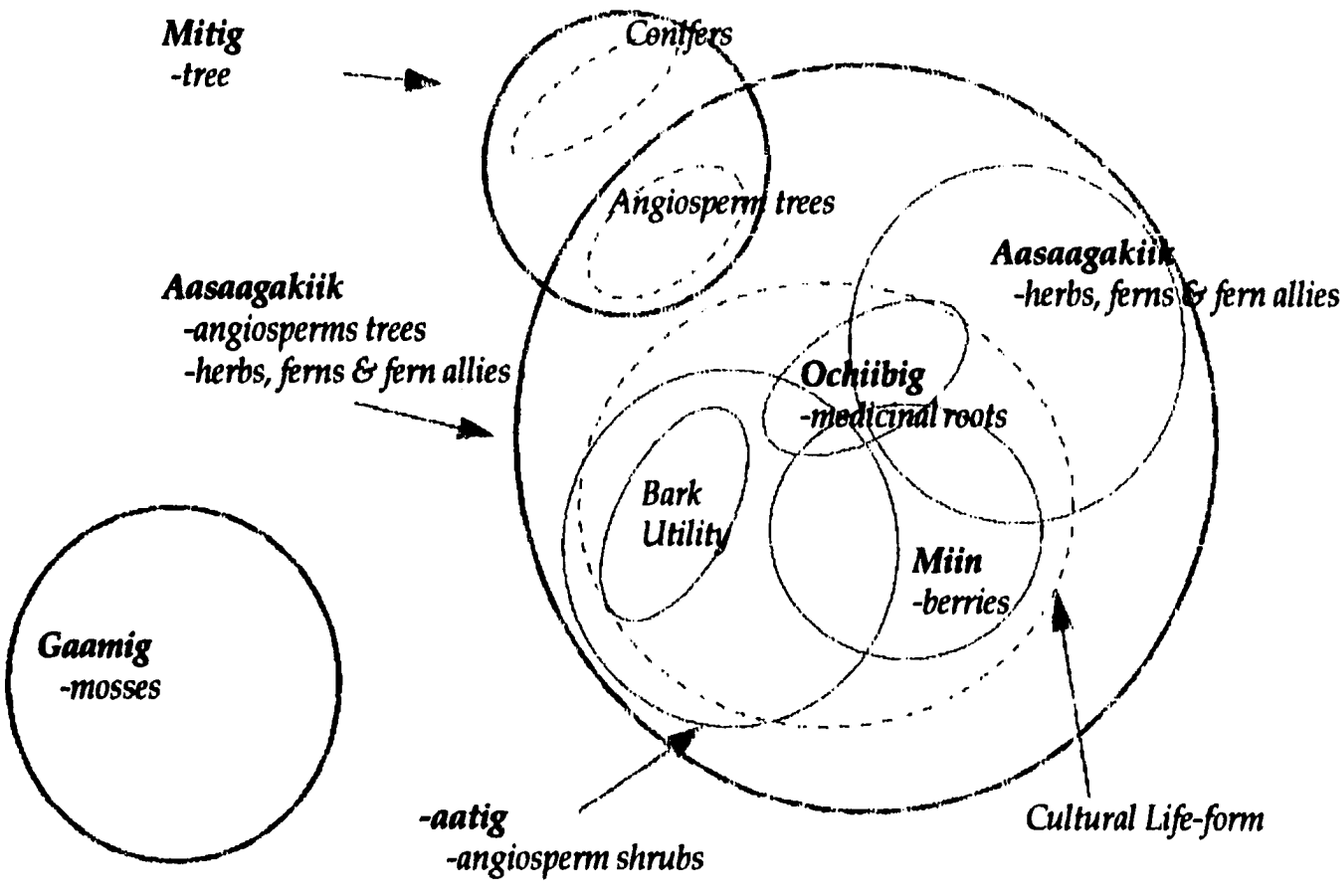


Figure 3. Super Life-form and Life-form rank taxa .

The suffix ***-aatig*** refers to the Life-form of deciduous shrubs which are included in the Super Life-form ***Aasaagakiik*** 'deciduous plant'. It is not currently determined if ***-aatig*** also refers to coniferous shrubs such as *Juniperis communis* L. and *Taxus canadensis* Marsh., which are present at Lac Seul. ***-Aatig*** is the suffix of the names of eight genera, seven of which are considered shrubs (Figure 5). One aberrant generic was encountered, ***zhaashaagomiinaatig,*** *Clintonia borealis* (Ait.) Raf., which morphologically is non-woody. It has not been determined why this anomaly exists.

The Life-form ***Aasaagakiik*** is polysemous, being applied at more than one taxonomic rank. Besides referring to a Super Life-form category, it also applies in a more restricted context, to only herbaceous plants, ferns and fern allies. The meaning is "things that grow, change and die". There are 26 genera within this life-form, seven of which have two or more synonyms (Figure 6).

The three Cultural Life-forms are also named on the basis of cultural utility with the nomenclatural recognition in the useful morphological feature or medicinal value.

The word ***miin*** 'berry' is included in eight folk genus names and is considered a special life-form taxon identified by cultural importance. The six folk genera in the Cultural Life-form taxon ***Miin*** are characterized by their edible berries, with one exception. ***Ozhaawaakiimiinaatig*** *Diervilla lonicera* Mill. has small oblong seed capsules which are described by the word ***miin***

'berry'. The word *miin* also refers to any tiny, rounded thing.

The second Cultural Life-form taxon *ochiibig* 'root' includes medicinal root herbaceous plants. The word 'root' is separate from the modifier (e.g. *makwa ochiibig* 'bear root'). These are not food plants but in the case of *makwa ochiibig* there is a synonym *osheysep* 'twine' which labels another economic use for the species and refers to the stem of the plant. Medicinal roots were (are) of high cultural significance.

The third Cultural Life-form is covert and corresponds to Bark Utility. Although there is not a single word for this concept, there are six generic names related to the scraping or peeling of the bark to be used for smoking, medicine and twine making (Figure 7).

The Life-form *Gaamig* 'moss' is in direct contrast to the other eight. This Life-form term means 'ground cover' and includes all Bryophyta which have this spreading, unbroken growth pattern (Figure 8). At this time it is not known if the ground lichens are included in this category.

Grasses did not appear as a life-form category at this time. Although flowering plants were presented to the respondents, there was no named category simply of "flowers". All the flowering herbaceous plants named fit into *Aasaagakiik*.

4.2 INTERMEDIATE AND VARIETAL RANK TAXA

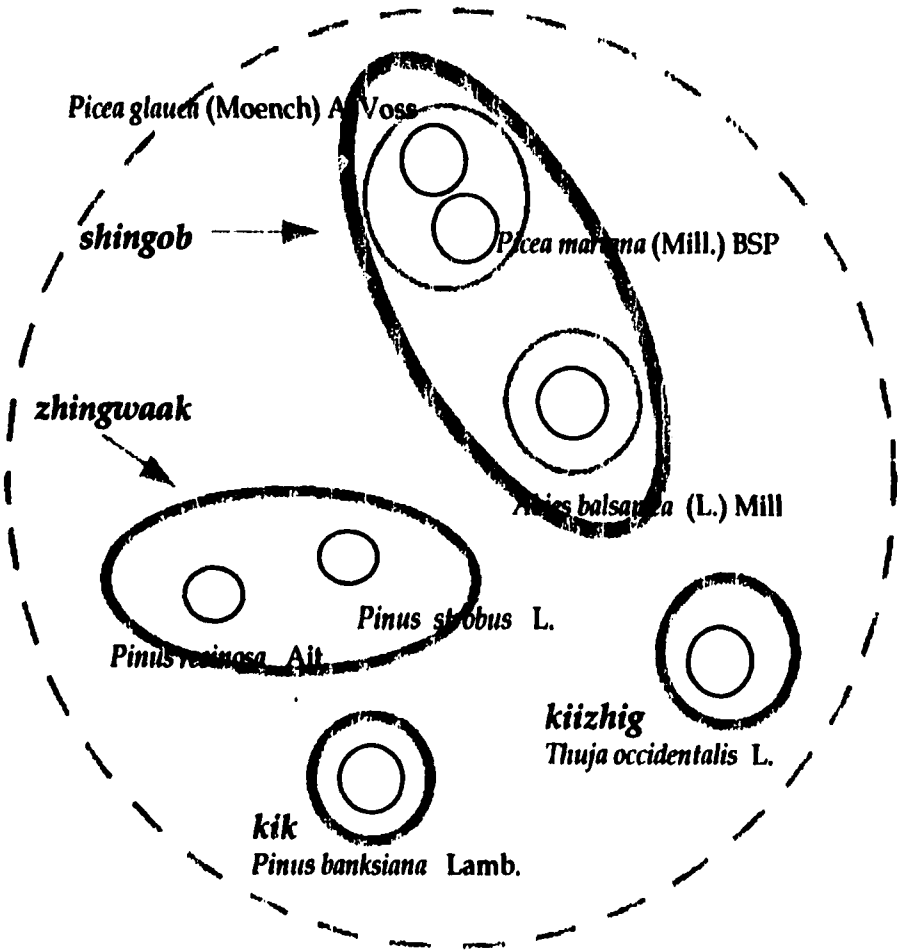
No Intermediate or Varietal rank taxa were identified in this study at this time.

4.3 GENERIC RANK TAXA

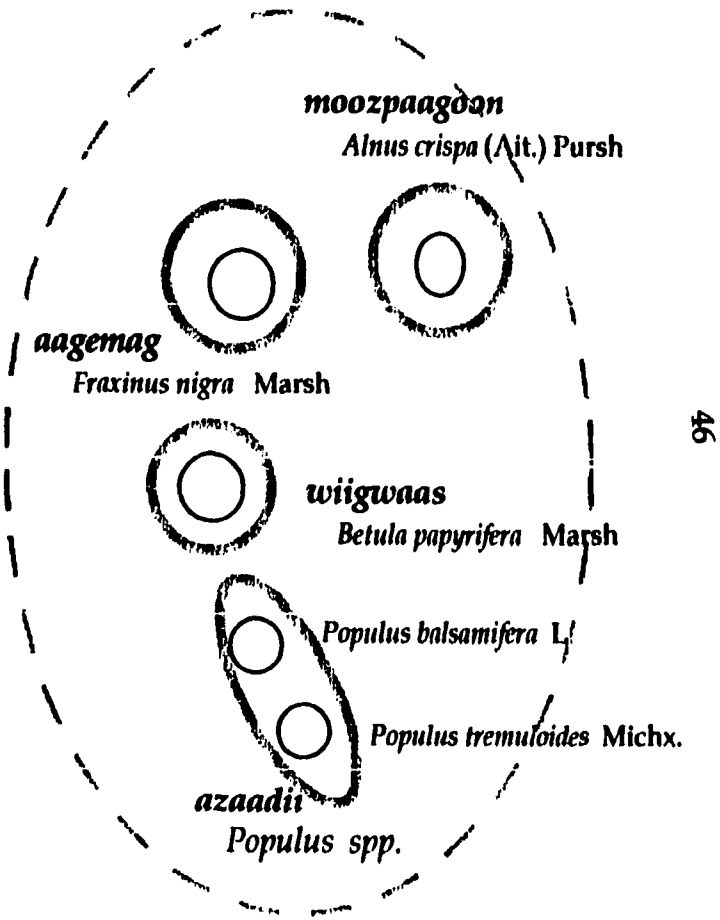
The Generic rank taxa are the largest lexical set in the study with 33 named folk genera (Figures 4-9).

4.3.1 Folk Genera in the Covert Life-form Taxa " Conifers" and "Angiosperm Trees"

The Covert Life-form ranks Conifer and Angiosperm trees are shown with associated genera (Figure 4). The covert Conifer Life-form contains four generic taxa. ***Shingob*** contains both *Picea glauca* (Moench.) A. Voss and *Picea mariana* (Mill.) BSP as well as *Abies balsamea* (L.) Mill. The *Picea* species are not differentiated and are a folk example of the botanical"type concept" for the folk genus ***Shingob***. ***Zhingwak*** contains both *Pinus resinosa* Ait. and *Pinus strobus* L. but excludes *Pinus banksiana* Lamb. which is recognized as ***Kik***. The Covert Life-form Angiosperm trees contains four folk genera: ***Aagemag***, *Fraxinus nigra* Marsh., ***Azaadii***, *Populus* spp., ***Moozpagoon***, *Alnus crispa* (Ait.) Pursh. and ***Wiigwaas***, *Betula papyrifera* Marsh. ***Azaadii*** names both *Populus balsamifera* L. and *Populus tremuloides* Michx. *Alnus crispa* (Ait.) Pursh., ***Moozpaagoon***, is not modified by the 'shrub' suffix ***-aatig*** and is considered an angiosperm tree.



"Conifers"/(Covert)



"Angiosperm trees"/(Covert)

Figure 4. Two Covert Life-forms: Conifers and Angiosperm trees with Generic rank taxa.

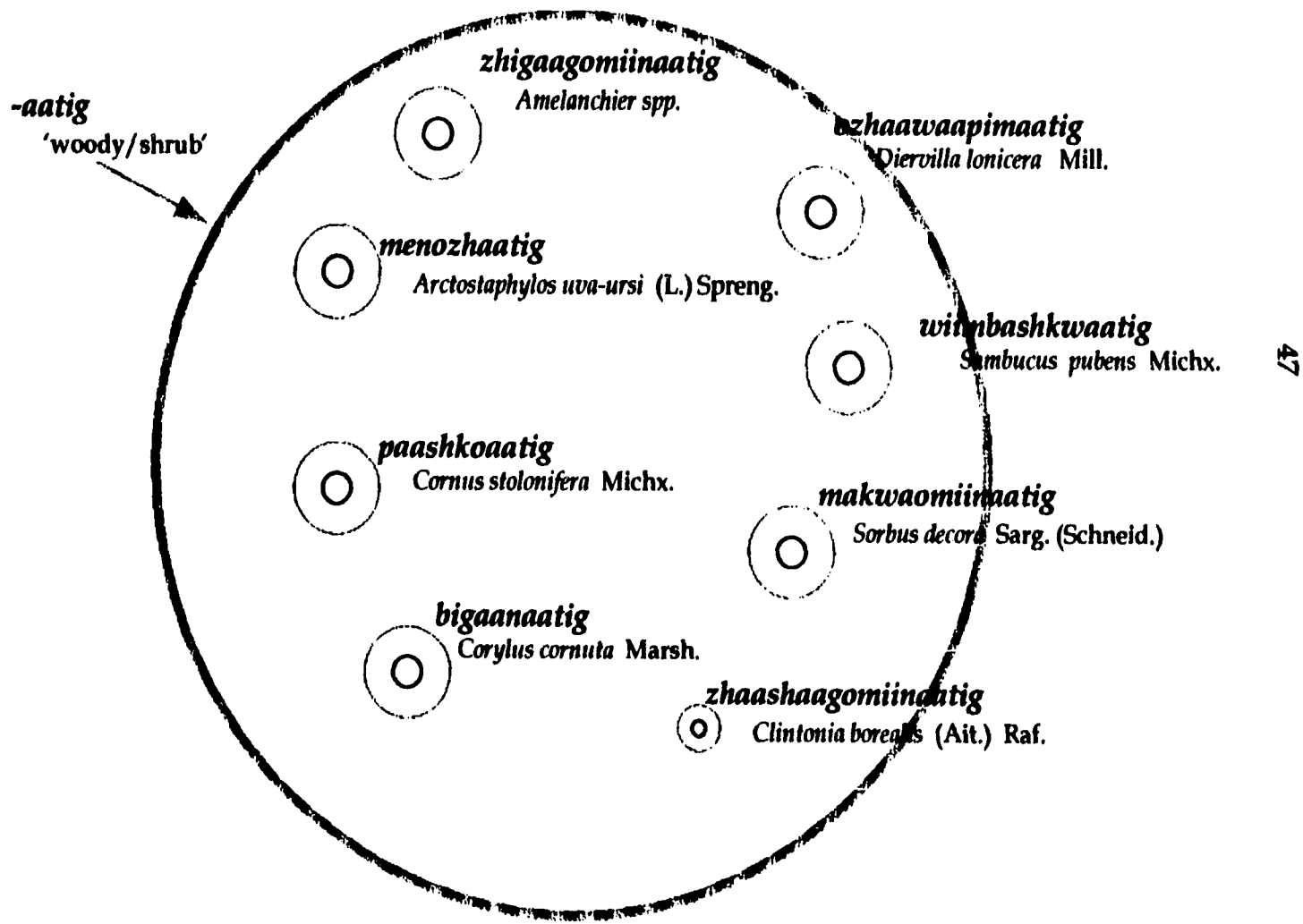


Figure 5. The Life-form rank - ***aatig,*** (shrub) with Generic rank taxa.

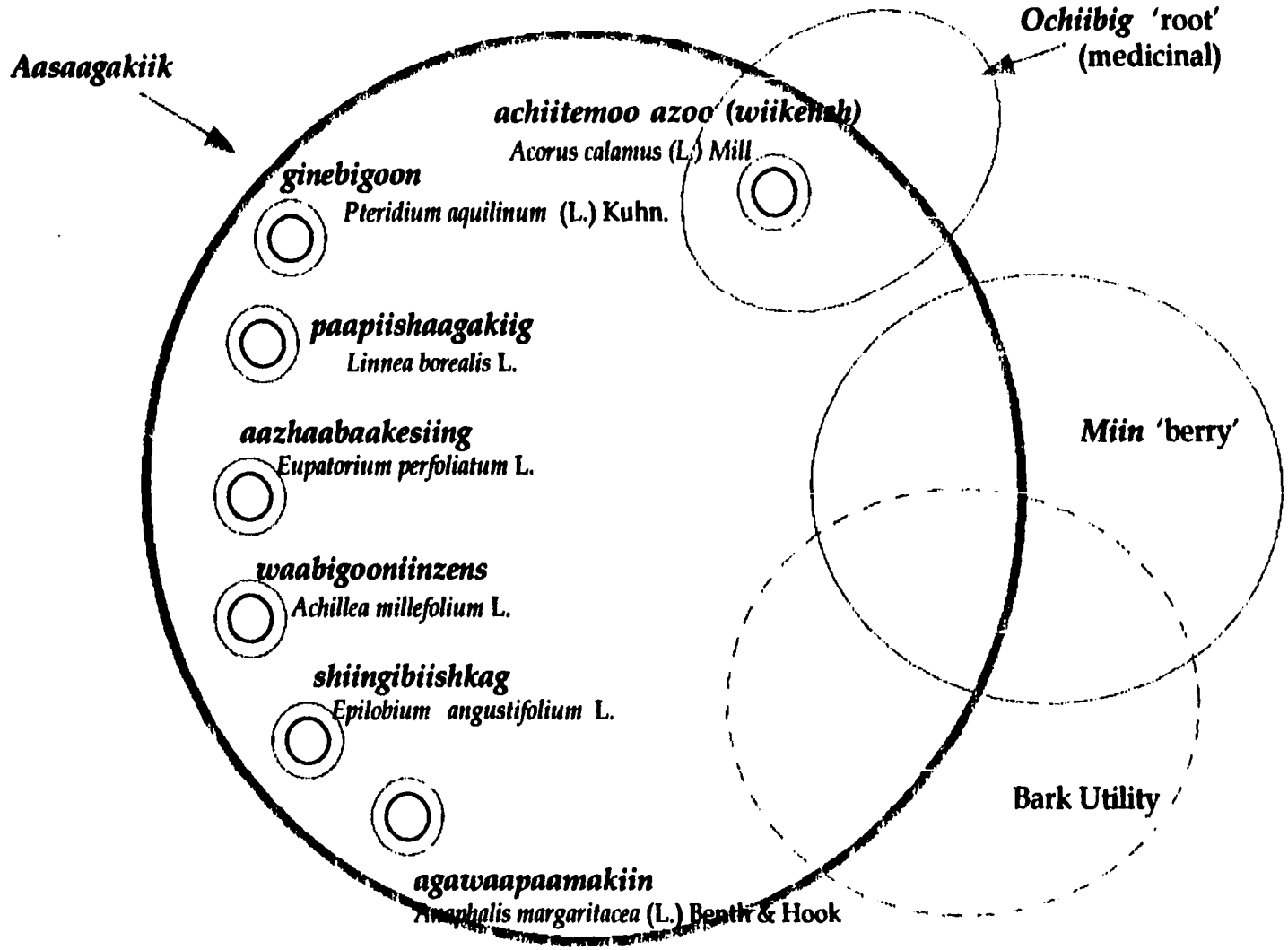


Figure 6. The Life-form rank ***Aasaagakiik*** (Herbaceous plants, Ferns and Fern Allies) with Folk Genera and the Cultural ife-forms ***Ochiibig***(medicinal root), ***Miin*** (Berry) and Bark Utility (Covert).

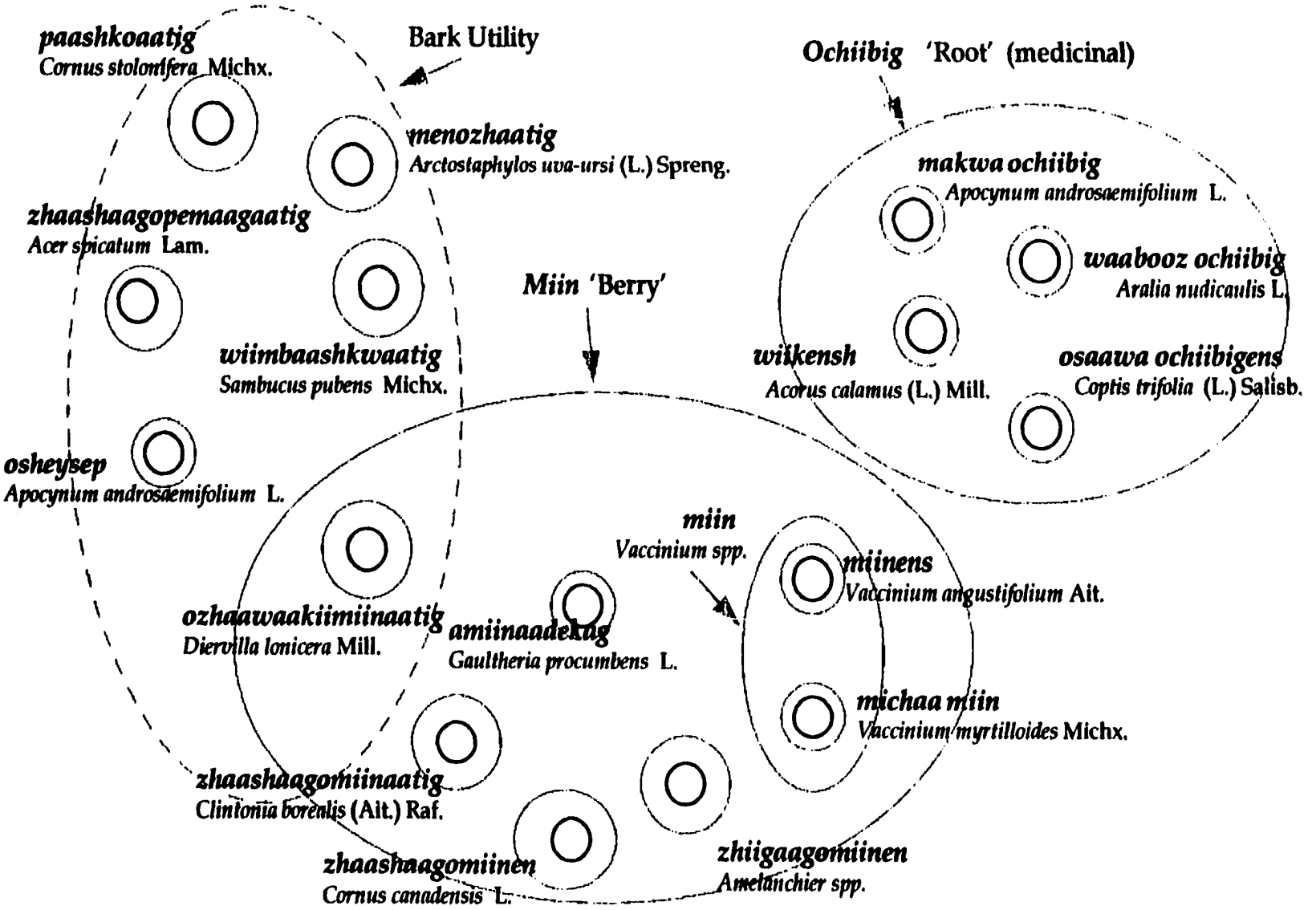


Figure 7. The Cultural Life-forms *Ochiibig* (Root; medicinal), *Miin* (Berry) and Bark Utility (Covert) with Generic taxa.

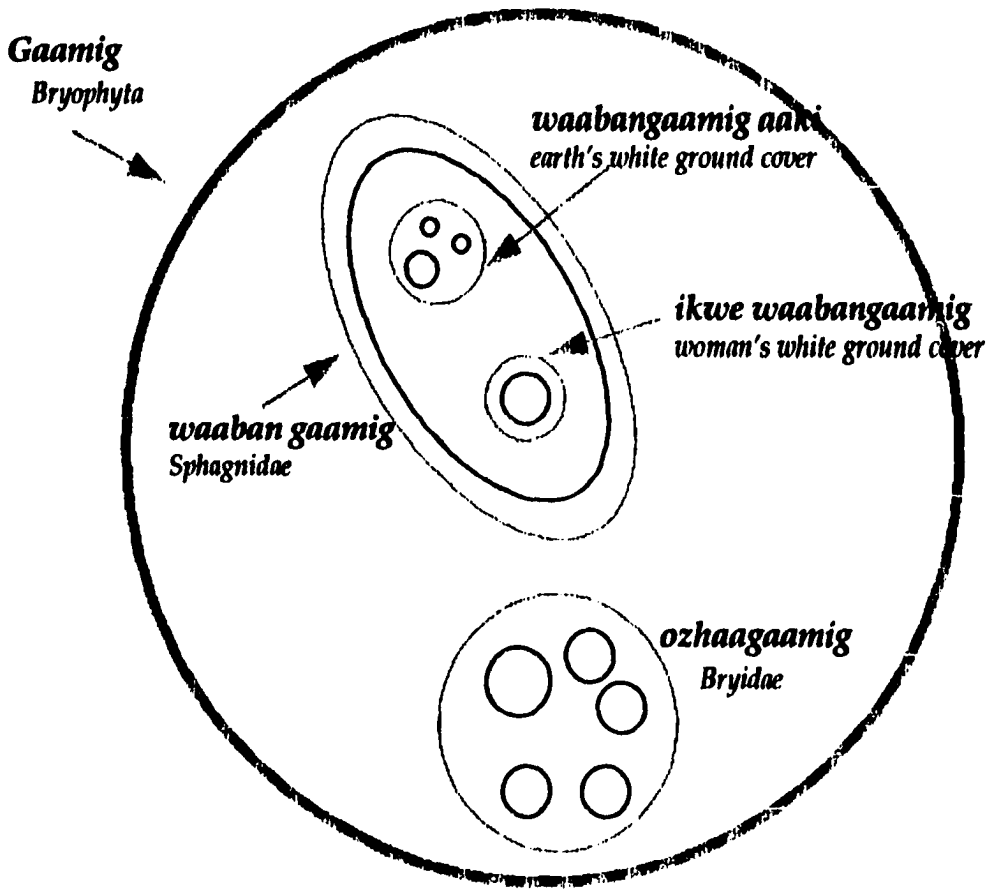


Figure 8. The Life-form *Gaamig* (ground cover; "moss") with Generic rank taxa ***waabangaamig*** (white ground cover) and ***ozhaagaamig*** (green ground cover) and trinomial Specific rank taxa of Genus ***waabangaamig*** .

4.3.2 Generic Taxa in the Life-form *-aatig*, "Shrub"

The eight Generic rank taxa with the suffix ***-aatig***, shrub, (Figure 5) would all be classed the 'woody shrub' category except for one taxon, ***Zhaashaagomiinaatig***, *Clintonia borealis* (Ait.) Raf. which is non-woody. The eight shrub taxa are ***zhigaagomiinaatig***, *Amelanchier* spp.; ***menozhaatig***, *Arctostaphylos uva-ursi* (L.) Spreng.; ***zhaashaagomiinaatig***, *Clintonia borealis*(Ait.) Raf.; ***paashkoaatig***, *Cornus stolonifera* Michx.; ***bigaanaatig***, *Corylus cornuta* Marsh.; ***ozhaawaapimaatig***, *Diervilla lonicera* Mill.; ***wiimbashkwaatig***, *Sambucus pubens* Michx.; and, ***makwaomiinaatig***, *Sorbus decora* Sarg. (Schneid.) (Table 1. for English translation of Oji-Cree).

4.3.3 Generic Taxa in the Life-form *Aasaagakiik*, Herbaceous Plants, Ferns and Fern Allies

The seven generic taxa in the Life-form ***Aasaagakiik*** "herbaceous plants, ferns and fern allies" (Figure 6) are: ***waabigooniinzens***, *Achillea millefolium* L.; ***achiitemoo azoo*** (syn. ***wiikensh***), *Acorus calamus* (L.) Mill.; ***agawaapaamakiin***, *Anaphalis margaritacea* (L.) Benth. & Hook; ***shiingibiishkag***, *Epilobium angustifolium* L.; ***paapiishaagakiig***, *Linnaea borealis* L.; ***ginebigoon***, *Pteridium aquilinum* (L.) Kuhn.; and ***aazhaabaakesiing***, *Eupatorium perfoliatum* L. (Table1 . for English translation of Oji-Cree). ***Achiitemoo azoo***, *Acorus calamus* (L.) Mill., is used as a medicinal root and therefore this taxon overlaps

the 'medicinal root' life-form. The root of *Acorus calamus* is used extensively for medicine and ceremony. A synonym, ***wiikensh,*** is used by respondents when referring to the plant use for ceremonial purposes, the morphologically based name ***achiitemoo azoo,*** 'squirrel tail' is used in identification of herbarium specimens.

4.3.4 Generic Taxa in the Three Cultural Life-forms

The three Cultural Life-forms, which overlap with ***Aasaagakiik*** (Figure 6), contain 15 generic taxa (Figure 7).

The four ***Ochiibig,*** 'root', genera are used for medicinal roots: ***makwa ochiibig,*** *Apocynum androsaemifolium* L.; ***waabooz ochiibig,*** *Aralia nudicaulis* L.; ***osaawa ochiibigens,*** *Coptis trifolia* (L.) Salisb. and; ***wiikensh,*** *Acorus calamus* (L.) Mill..

The ***Miin*** 'berry' Cultural Life-form contains six named folk genera: ***miin,*** *Vaccinium* species; ***zhiigaagomiinen,*** *Amelanchier* species; ***zhaashaagomiinaatig,*** *Clintonia borealis* (Ait.) Raf.; ***zhaashaagomiinen,*** *Cornus canadensis* L.; ***ozhaawaakiimiinaatig,*** *Diervilla lonicera* Mill.; and, ***amiinaadekag,*** *Gaultheria procumbens* L. The type is ***miin,*** *Vaccinium* species, and includes only the 'blueberries'. One ***Miin*** taxon, ***ozhaawaakiimiinaatig,*** *Diervilla lonicera* Mill., overlaps the covert Bark Utility Cultural Life-form.

The Bark Utility Cultural Life-form contains six named folk genera:

zhaashaagopemaagaatig, *Acer spicatum* Lam; ***menozhaatig,*** *Arctostaphylos uva-ursi* (L.) Spreng. ; ***osheysep,*** *Apocynum androsaemifolium* L.; ***paashkoaatig,*** *Cornus stolonifera* Michx.; ***ozhaawaakiimiinaatig,*** *Dierovilla lonicera* Mill.; and, ***wiimbashkwaatig,*** *Sambucus pubens* Michx. The Oji-Cree names describe how the bark is harvested or used: ***zhaashaagopemaagaatig,*** 'chewing wood'; ***menozhaatig,*** 'healing shrub'; ***osheysep,*** 'twisted for twine'; ***paashkoaatig,*** 'scraping (inner bark) for use'; ***ozhaawaakiimiinaatig,*** 'green inner bark (shrub) with a berry' (note: *miin* is used to identify the capsule of this shrub); and ***wiimbashkwaatig,*** 'bursts off the stem (when it is peeled)'.

4.3.5 Generic Taxa in the Life-form *Gaamig*, "Moss"

The Life-form ***Gaamig*** contains two folk genera, ***waabangaamig,*** the *Sphagnidae* and ***ozhaagaamig*** the *Bryidae* (Figure 8). It is not known how many additional genera are recognized in this Life-form group, either named or covert.

4.3.6 Unaffiliated Generic Taxa

Not currently categorized under any life-form, as far as could be determined, are Unaffiliated Generic taxa (Figure 9). Unaffiliated genera are usually morphologically different than the genera of other life-forms. In this data set from Lac Seul there are two genera of the Unaffiliated Generic

category which Berlin (1992:172-181) describes as 'ambiguous'. In this study, the two genera are a lichen and a fungus. The lichen, *Usnea cavernosa* Tuck., is named ***miishiigan***. This may actually be a Life-form taxon since all *Usnea* species are recognized as ***miishiigan*** which may designate all hanging arboreal lichens. The other Unaffiliated Generic is ***saagaategan***, *Inonotus obliquus* (Fr.) Pil., the Clinker Polypore conk which looks like a mass of burned coal stuck on a birch tree and certainly is morphologically discreet from any other life-form and even from any other decay conks which may themselves constitute another life-form.

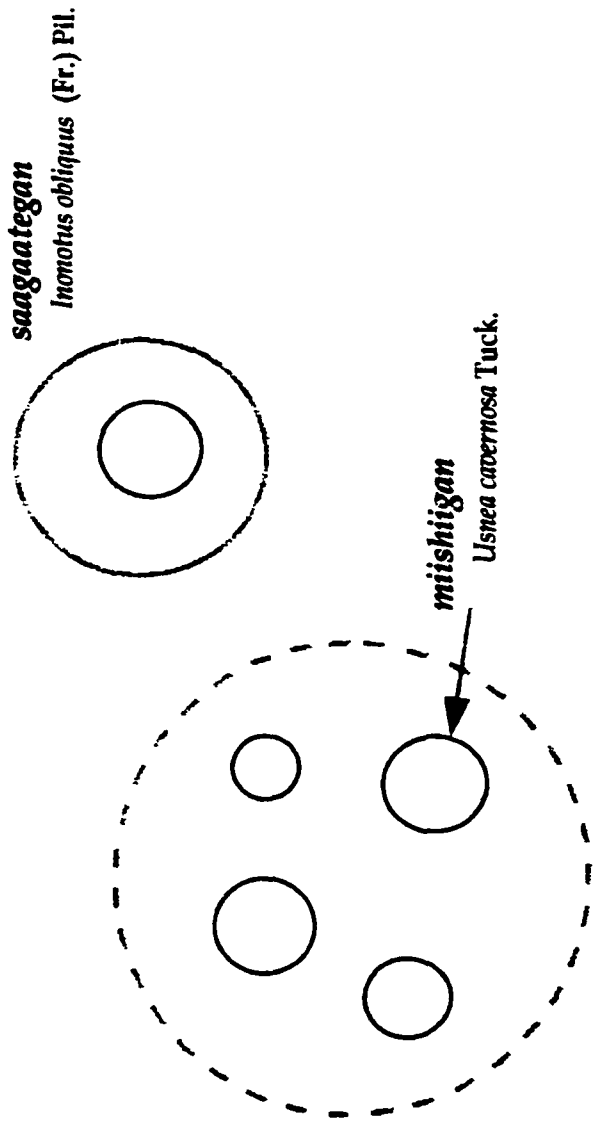


Figure 9. Unaffiliated Generic rank taxa ***miishiigan*** and ***saagaategan***.

4.4 SPECIFIC RANK TAXA

Taxa of Specific rank are designated by ethnobotanical specifics. Those in Figure 8 are designated by the suffix ***-gaamig*** and were grouped together by a respondent and include numerous unidentified *Sphagnum* species The specific names ***waabangaamig aaki*** and ***ikwe waabangaamig*** are trinomials.

The Specific rank taxa ***shingob bigiw*** refers to *Abies balsamea* (L.) Mill. and is included in the ethnobotanical Genus rank ***Shingob*** which also includes both *Picea* species (Figure 10).

The ***miin*** genus (Figure 11) is the type for the Cultural Life-form ***Miin*** and contains two specifics; ***michaa miin*** *Vaccinium myrtilloides* Michx. and ***miinens*** *Vaccinium angustifolium* Ait.

4.4.1 The Lac Seul Bear Scroll in the Folk Classification System

This birchbark scroll, which is detailed in the Discussion section (Figure 12), is a written record of the place of plants in Lac Seul Ojibway perception and life and most certainly contains taxonomic information. The scroll is a sacred artifact and due to the sensitivity of the information, was not the subject of this study. Elders reiterated that it is a medicine person's record of plant medicinal formulas.

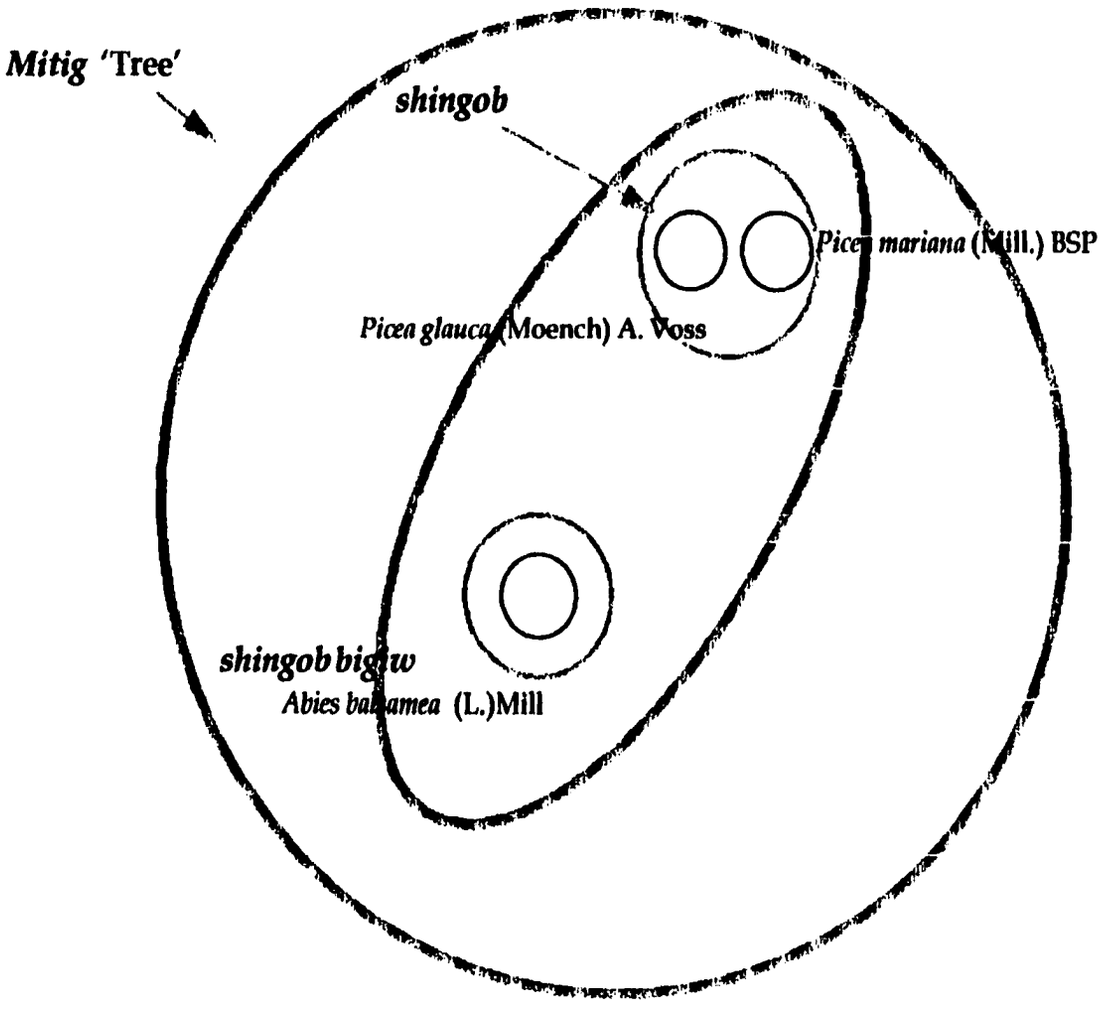


Figure 10. Specific rank taxa of the Genus ***Shingob*** within the Super Life-form ***Mitig*** (tree) and Covert Life-form Conifer.

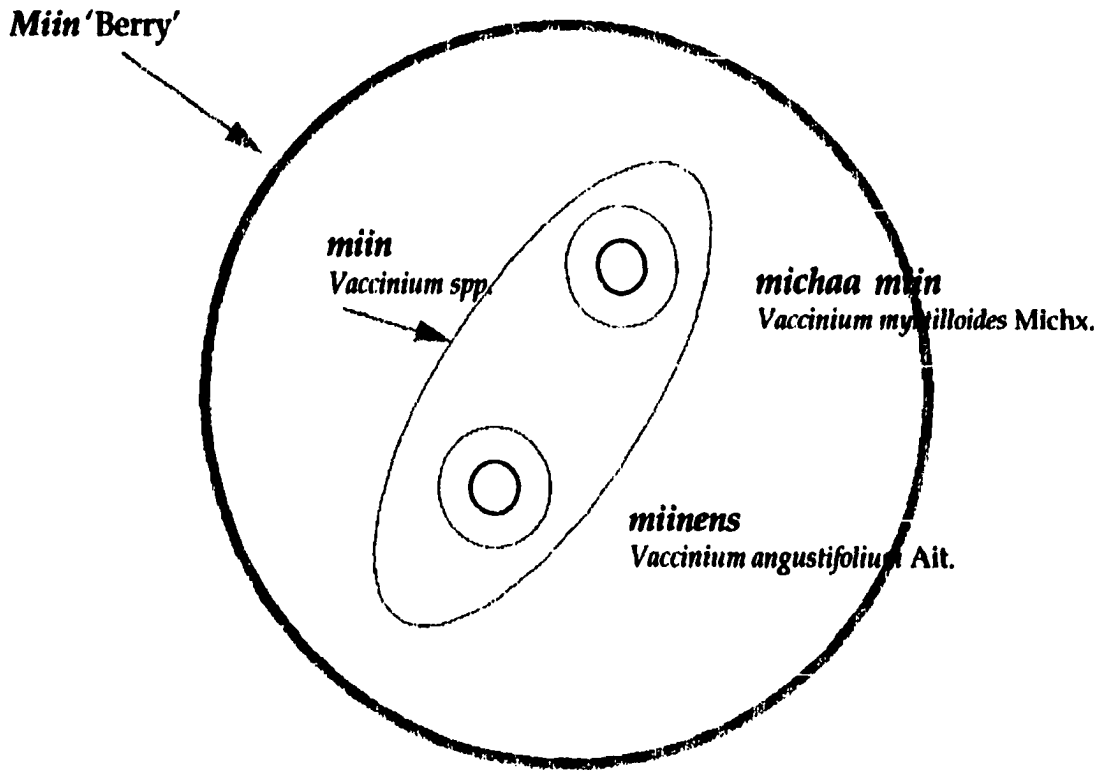


Figure 11. Specific rank taxa within the Genus *miin, Vaccinium* spp. (only blueberries) in Cultural Life-form *Miin* (Berry).

4.5 SIMILAR PLANT NAMES IN OTHER OJIBWAY AND CREE DIALECTS

A comparison of similar plant names in other Ojibway and Cree dialects is shown in Table 4. The eight species shown are ubiquitous in the Boreal Forest ecosystem where northern Ojibway and Cree reside and in the Great Lakes-Saint Lawrence Forest ecosystem where the more southern Ojibway reside. Numerous ethnobotanical studies with Ojibway and Cree communities have collected names of plants along with the uses of the species without analysing the folk taxonomies. Although the researchers used slightly different spelling systems for the Ojibway and Cree dialects, the names of plants show a marked correspondence across widely separated geographical areas. *Aralia nudicaulis* L. is named ***waaboozojiibik*** by the Great Lakes Ojibway (Meeker, Elias, and Heim 1993:25), ***wabos'odjibik*** by the Ojibway in northern Minnesota and Ontario's Lake of the Woods area (Densmore 1928:286), ***waposocipihk*** by the Woods Cree of east-central Saskachewan (Leighton 1985:29) and ***waaboozochiibig*** at Lake Seul (Table 4). All of these words mean 'rabbit's root'. The consistency of these names covers a distance of several thousand kilometers. The Ojibway and Cree languages are part of the larger Algonquian language family which extends from the Atlantic coast of North America across Canada and the United States to Iowa, eastern North Dakota and as far west as Alberta (Ningewance 1993:7).

The eight species shown in Table 4 are discussed below.

Abies balsamea (L.) Mill., balsam fir, is similar in the four Ojibway dialects, with overlapping among the names and the synonyms (*i.e.* ***shingob bigiw, zhingob bigiwaandag,*** and ***aninaandag***). The Lac Seul dialect leaves off the ***-aandag*** suffix used in the three other Ojibway dialects. This may be the suffix ***-aatig,*** 'woody', which people at Lac Seul use for denoting shrubs. The northern Woods Cree name seems dissimilar but there may be a remnant of similarity in ***napak***.

The names for *Acer spicatum* Lam., mountain maple, were not collected by Densmore (1928) or Leighton (1985) although the species is found in their regions of study. The names are similar in the three Ojibway dialects. Lac Seul includes the 'shrub' suffix ***-aatig***. The differences in spelling are more a feature of variation in English spelling systems than in actual pronunciation. The suffixes ***-gobiimag*** and ***-gobi'mûk*** are comparable. The "c" is pronounced "sh" in both the Densmore (1928:283) and Smith (1932:336) phonetic pronunciation systems. ***Zshaashaa-*** is pronounced the way it appears.

Aralia nudicaulis L., wild sarsaparilla, would be translated as 'rabbit's root' in all dialects except the Minnesota/Wisconsin Ojibway (Smith 1932:356) where the Ojibway word may mean 'rabbit woman's medicine'. Smith (1932:356) gives the Pillager Ojibway name, ***wabo's ûskwe,*** and a description of women's use of it as a "remedy for blood purification during pregnancy".

Betula papyrifera Marsh., white birch, has high affinity in all dialects and

was a staple product for manufacturing containers, canoe covering, and ***wiigwaamen*** (home). The Ojibway who Densmore (1928) interviewed included the 'wood' ***-atig*** suffix in their dialect.

Smith's (1932) word, ***ode'imîndji'bîk***, for *Cornus canadensis* L., bunchberry, is the only one significantly different from the others. There may have been some confusion in Smith's data because he also has *Fragaria virginiana* Duchesne (1932:384) translated as, ***ode'imîndji'bîk***, 'heart berry root'. The wild strawberry had a significant place in southern Ojibway sacred stories and it seems unlikely informants would have confused it with bunchberry. The other four dialects contain the morpheme ***miin*** or ***min*** for 'berry' and probably all translate as 'chewable or edible (little) berry'. *Cornus stolonifera* Michx., red osier dogwood, shows the highest affinity between the names. They all include the name for 'red', ***miska, meskwa*** or ***miskwa***. The Lac Seul name ***miskkbemig***, 'being red it is visible' is a synonym (syn. ***paashkoaatig***, 'scraping the bark to use shrub') found in Table 1. Red osier dogwood bark becomes bright red in late summer. The straight sections of the stem were peeled in small rings and used ceremonially at Lac Seul. Elders at Lac Seul said the shrubs are visible in the fall and winter along shore from a far distance and you can tell where they are growing. For *Cornus stolonifera* Michx., the unique morphological characteristic of high visibilty redness is identified in the dialects over a wide geographical area.

Corylus cornuta Marsh., beaked hazel, is the only nut shrub in the forest regions where the Ojibway and Cree reside. ***Bigaan, bagaan,*** and ***pakān*** , all mean 'nut'. At Lac Seul the suffix 'shrub' ***-aatig,*** is included. The word 'nut' implies food (Europeans adopted the word 'pecan'). The names for *Corylus cornuta* Marsh. are morphological, referring to the 'nut', but also imply cultural use.

The final species, *Populus balsamifera* L. and *P. tremuloides* Michx., are similarly named in the Ojibway dialects, ***azaadii, asadi,*** and ***asa´di*** , but different in Woods Cree.

Table 4. A comparison of plant names in other Ojibway and Cree dialects.

Lac Seul Oji-Cree	Great Lakes Ojibway[1]	Woods Cree Nihīthawak[2]	Minnesota/ Wisconsin Ojibway[3]	Minnesota/ NW Ontario Ojibway[4]	Scientific Binomial
shingob bigiw	zhingob bigiwaandag, syn. aninaandag	napak ā(h)siht	jīngo'b pīkewa'ndag	a'ninandak'	*Abies balsamea* (L.) Mill.
zshaashaagopamaagaatig	zhaashaagobiimag	n/a	cacagobi'mûk	n/a	*Acer spicatum* Lam.
waabooz ochiibig	waaboozojiibik	wāposocīpihk	wabo' s ûskwe	wabos'odji'bīk	*Aralia nudicaulis* L.
wiigwaas	wiigwaas	waskway	wigwas	wi'wasa'tig	*Betula papyrifera* Marsh.
zhaashaagomiinen	zhaashaagominens	sāsākominān	ode'imidji'bik	caca'gomin	*Cornus canadensis* L.
miskaabemig	miskwaabiimizh	miskwāpīmak, syn. mithkwāpīmak	meskwabi'mic	miskwabi'mic	*Cornus stolonifera* Michx.
bigaanaatig	bagaanimizh	pakān	bapa'	bagan'	*Corylus cornuta* Marsh.
azaadii azaadii	azaadii azaadii	māthamītos mītos	manasa'di asadi	man'asa'dī asa'dī	*Populus balsamifera* L. *Populus tremuloides* Michx.

1.Meeker *et al.* (1993) 2. Leighton (1985) 3. Smith (1932) 4. Densmore (1928)

5.0 DISCUSSION

5.1 NORTHERN OJIBWAY ETHNOBOTANICAL CLASSIFICATION

The study is the first research concerning the ethnobotanical classification system of a northern Oji-Cree speaking community in northwestern Ontario. The results indicate that a complex, hierarchical folk classification system does exist in the traditional culture and language of the Lac Seul Ojibway.

This plant taxonomic system is based on the traditional perception and use of the ecosystem and mode of subsistance of the people of Lac Seul First Nation. The Lac Seul Ojibway and Cree lived off their traditional lands and waters in the transition zone between the Boreal and Great Lakes-Saint Lawrence forest ecosystems by harvesting the natural resources and their plant names exhibit relational comparisons of the plants to animals and landscapes of their environment (e.g. ***ginebigoon,*** 'snake place' (bracken fern), ***miskabemig,*** 'being red it is visible from a distance along shore (implied)', (red osier dogwood). The rich and diverse forest ecosystem provided all the materials for the construction of homes, canoes, boats, toboggans, sleds, equipment for gathering, hunting, and warfare, religious objects, household implements and utensils and clothing. Fishing, hunting, gathering plants and the cultivation of wild rice, ***manoomin,*** *Zizania aquatica* L. were their sources of food. European colonization introduced an additional variety of agricultural products and the

cultivation of the South American garden potatoes. Even today with most families shopping for groceries at a supermarket, traditional foods and medicines such as whitefish, beaver, moose, wild rice, blueberries, red osier dogwood and ***saagaatagan,*** clinker conk, are harvested and processed. These nutrient-rich foods and safe, time-tested medicines are an important supplement and replacement for expensive store-bought proteins, fruits and medications. Native timber species are used for log cabins, sawn lumber for frame houses, docks and wharfs, snowshoes, sleds, ice fishing gear, trapping accessories, and tool handles. With the passing of the Elders, the knowledge of the extensive use of plant resources in the Lac Seul ecosystem is rapidly passing away. The Elders interviewed for this study gave some insights into the value of these resources.

In discussing the traditional use of plant resources, Lac Seul Elder Mary Brisket stated "we used everything". This is an indication of the depth of knowledge and valuation of the resources of the ecosystem. This is only a preliminary study and certainly does not cover the approximately 1000 vascular plant species available in the region (Garton 1984). However, given that the usual average range of recognized taxa in typical temperate region folk taxonomies is between 200 and 300 (Turner, pers. comm., 14 Oct 2000), probably at least half of the local vascular species are named or recognized, or at least were in the past. When first shown a collection of 15 native plant

species, Mrs. Brisket said, "we used all of these plants for medicine but I can't remember the names of all of them". By the end of the interview she had recalled the names of 12 species.

The naming of plants seemed an obvious and simple process to the elders at Lac Seul. Shamandy Kejick gave the reason for naming plants, "all have different names so that each plant can be recognized, like a person having a name, and then people recognize that person by his or her name". As Turner (1973:192) points out "the apparent aim of folk taxonomies is the practical one of communication" as opposed to the modern botanical taxonomies which serve to identify evolutionary relationships.

The results of this study show that no name for the unique beginner Kingdom Plantae exists at Lac Seul, which is typical of most folk taxonomies (Berlin 1992:34). The rank of Covert Kingdom Plantae is inferred from a vocabulary of botanical terms (Figure 2). Some of this vocabulary is genus specific, meaning that a word will describe the plant part of only one genus as in *ozhiigoopiin,* which refers to the boughs of genus ***zhingwak,*** *Pinus* species.

The plant taxonomy at Lac Seul shows a number of features which have been found in the botanical taxonomies of other foraging people (Turner 1973:189-192; Hunn 1982:839). At Lac Seul there is a continuum of overlapping categories from life-form rank to genus with some folk taxa in two or three levels, or cutting across levels simultaneously, and therefore are not mutually

exclusive as in modern botanical taxonomy. In addition, there are synonyms which are used interchangeably to name species or when discussing a species' utility. In Table 3, the Lac Seul ethnobotanical taxa are arranged in hiearchical format showing the overlapping of categories at the life-form and genus levels. Because of the double meaning of ***Aasaagakiik*** and the supremacy of ***Mitig***, 'tree' as a life-form, the level Super Life-form has been applied. The Super Life-form ***Aasaagakiik*** contains all angiosperms (including deciduous trees) as opposed to the lesser level Life-form ***Aasaagakiik*** which contains herbs, ferns and fern allies. Super Life-form ***Mitig*** can mean all trees (angiosperm and conifer) but it can also imply only conifers. ***Mitig*** and ***Aasaagakiik*** overlap within rank and ***Aasaagakiik*** is polysemous between ranks. At the Life-form rank two Covert Life-forms are designated, one for angiosperm trees and one for coniferous trees. This is inferred from the statements by Bessie and Shamandy Kejick that trees are ***mitig*** but trees that lose their leaves are also ***aasaagakiik***. Conifers also have a special vocabulary for their plant parts (Figure 2).

At the Life-form rank an additional taxon, Cultural Life-form, has been applied (Table 3; Figures 6 and 7). This is to accommodate the the numerous overlapping genera which are simultaneously identified by morphology and utility and or cultural meaning (*e.g.* ***menozhaatig***, 'healing shrub'; ***pashkoaatig***, 'scraping it (the bark) for use shrub') or where semantically the morphological

name implies the utility as in the Cultural Life-form Root (medicinal). The species ending in ***ochiibig, -ens,*** are culturally valued medicinal plants.

The proportion of species having two or more synonyms is 18% of this data set. One name may be morphological or culturally meaningful and the other may describe utility (e.g. ***makwa ochiibig,*** 'bear's root' and ***osheysep,*** 'twineable (useful for making twine)' for *Apocynum androsaemifolium* L.).

5.2 SUBSISTENCE AND FOLK-SPECIES

Mode of subsistance is an important factor in how a group of people conceptually organize their bio-physical world. Most ethnobotanical studies where classification of plants has been analysed have been undertaken with horticultural people in tropical or sub-tropical regions of the world (Berlin 1992:274). The prevailing theory has been that folk species are found primarily in agrarian cultures and rarely or in less numbers in foraging or hunter-gathering groups. The Seri of Mexico who reside on the Gulf of California are hunter-gatherers who have a classification system similar to agrarian populations (Berlin 1992:288). Their 18% polytypic folk genera is typical of an horticultural people. Foraging people usually average 2% polytypic genera (Berlin 1992:275).

The Lac Seul Ojibway are also considered hunter-gatherers and the folk taxonomic data gathered so far shows 9% polytypic folk genera, in between

horticulturalists and foragers, containing six ethno-species out of a total of 33 ethno-genera. The three polytypic genera contain highly utilitarian species. ***Shingob*** genus contains the two species ***shingob,*** *Picea glauca* (Moench.) A. Voss and *Picea mariana* (Mill.) BSP and ***shingob bigiw,*** *Abies balsamea* Lamb. The ***Waabangaamig*** genus contains two ethno-species ***waabangaamig aaki*** and ***ikwe waabangaamig,*** both *Sphagnum* species. ***Miin*** genus contains two species, ***michaa miin,*** *Vaccinium myrtilloides* Michx. and ***miinens,*** *Vaccinium angustifolium* Ait..

The two ***Shingob,*** 'spruce/fir', species are used medicinally as well as for everyday serviceable goods such as roots for sewing birch bark and for other lashings, fronds thatched on the floor of a dwelling, light wood for implements and firewood. The two ***Waabangaamig,*** 'white ground cover', species have multiple uses. Bessie Kejick stated "***waabangaamig aaki*** for everything it was used; washing dishes, cleaning ducks after being singed, washing floors, house chinking". ***Ikwewaabaagamig*** was used as women's moss and for baby diapers. The *Sphagnum* species are an all-purpose absorbent while the other mosses, ***ozhaagaamig*** 'green ground cover', are used for chinking cabins and ***wigwaamens,*** birch bark and spruce pole dwellings, as well as for a soft sleeping surface over *Picea mariana* (Mill.) BSP. boughs. It is unusual to have moss included in the life-form rank (Atran 1985:300). In the boreal forest ecosystem, ground covering mosses are a major forest floor and

wetland vegetational entity. It is not surprising that ***Gaamig*** is recognized as a life-form.

The two ***Miin,*** 'blueberry', species were one of the staple foods for the Lac Seul people and were harvested and dried or stored fresh in large covered birch bark baskets. They are still harvested extensively at Lac Seul for family use or income.

Another possible folk genus may be ***wiikensh***. There is an ambiguity when discussing *Acorus calamus* L. and *Iris versicolor* L. about the use of the name ***wiikensh***. Both are used medicinally but for different ailments. Bessie Bottle noted that ***wiikensh,*** *Acorus calamus* L. is used for the throat and lungs while another type of ***wiikensh*** is used for bruises. Paddy and Ida Kenny also distinguished different types of ***wiikensh***.

The data gathered to date at Lac Seul does not reach the 18% polytypic average for folk species of the hunter-gathering Seri, who resemble horticulturalists in their taxonomy. However, the 9% of folk genera bearing more than one folk species at Lac Seul is higher than that for other foraging people who average 2% polytypic genera (Berlin 1992:275; Johnson-Gottesfeld and Hargus 1998:78). The polytypic genera at Lac Seul contain culturally useful and locally common plant species.

5.3 STEWARDSHIP: NOT DOMESTICATION

The people of Lac Seul First Nation have a relationship with the plant world which is not strictly foraging and has not in the past been considered horticultural in the usual sense. The tending of wild species has often been termed "incipient agriculture" (Berlin 1992:280) and at Lac Seul there is evidence of this practice. This may not be domestication in the agricultural sense of selectively controlling species and varieties of plants, but it is a form of stewardship of the natural plant resources.

Although this study did not propose to deal with the management and harvest of wild rice, ***manoomin*** , *Zizania aquatica* L. which has its own extensive vocabulary, it is certainly apparent that this species was cultivated, perhaps even selectively manipulated. Respondents discussed the management of wild rice, ***manoomin,*** and ***aazhaabaaksing*** and ***wiikensh*** , two medicinal plants included in this study, by using words which translate as "nurturing" beds of plants in wetland and riparian areas.

Manoomin, wild rice, is currently harvested by a few families at Lac Seul, usually from small upland lakes which were purposely dammed to control the water level and then seeded with wild rice. This method of horticulture was resorted to when the extensive beds of wild rice on Lac Seul proper were flooded first in 1928 with the construction of the Ear Falls Dam and again in the 1950's with the Lake St. Joseph diversion project. Prior to the

late 1950's, many families were still able to "rice" on Lac Seul. According to John and Evelyn Bull, the rice beds were tended before and after harvest to ensure a quality grain and proper maintenance of the beds.

An unidentified medicinal species which Sam Southwind named ***aazhaabaakesing,*** with a description like *Eupatorium perfoliatum* L., boneset, was allowed to be tended and harvested only by medicine people, religious herbal healers, in plots along a river flowing into Lac Seul. The name ***aazhaabaakesing*** means 'stem going right through' which is the leaf morphology of *Eupatorium perfoliatum* L.. The growing site along a river is also the type of moist, riparian zone habitat preferred by *Eupatorium perfoliatum* L. although the species would be north of its normal range in this region. The plants were harvested before the flowers opened.

Acorus calamus L., ***wiikensh,*** is also highly valued for religious and medicinal purposes and beds were nurtured and tended according to the elders in the wetlands before Lac Seul was flooded in 1928. In western Quebec, Black (1978:258-59) cites a number of areas where the Algonquin (Ojibway) may have introduced *Acorus calamus* L. into their boreal forest wetlands. It is far out of its range growing on at least two Algonquin reserves and Algonquin and Cree people will travel long distances to obtain it. Small and Catling (1997:25) show *Acorus calamus* L. range extending along the Minnesota-northern Ontario border but not into the Lac Seul- English River drainage system which is 230

km north of this area and within the Boreal Forest region.

According to the Lac Seul respondents, the extensive wetlands and riparian zones along the lake provided numerous medicinal species before flooding in 1928. As well, according to Sam and Roger Southwind, Lac Seul medicine people would travel by canoe to Mount McKay near Fort William (now Thunder Bay), Ontario to harvest and trade certain medicinal plants. This is a distance of over 400 km today by highway and much farther by canoe. Sam's mother, Jane Southwind, ***Pisey wey***, who was a powerful medicine woman and healer and still practicing into the 1950's, told him about making the journey to Mount McKay on the Fort William First Nation, Thunder Bay.

Lac Seul herbal healers were esteemed (and feared) by the Cree and Ojibway from other regions (Bishop 1974:67) (Angelique Thomson, pers. comm., Rocky Bay First Nation, Nipigon, Ont., 1984). An order of herbal and religious healers was active at Lac Seul and the site of their meeting lodges is protected on the reserve to the present day. These people were not generally referred to as Mide or members of the Midiwewin, the Grand Medicine Society, which was active in other Ojibway communities. According to the elders, at Lac Seul medicinal healers are referred to as ***mashkikiiwinini***, medicineman, and ***mashkikii; ikwe***, medicinewoman. They practiced what is spoken of as 'the traditional Anishinabe Way of life', which included the old beliefs, ceremonies and practices about the ecosystem: the land and its resources, the

weather and the Anishinaabe people. These practices included, among others, ceremonies performed on the land and water for the benefit of the specific natural resources, the Shaking Tent, fasting vision quests, dancing and shamanic rites for controlling weather and the prescription of plant (and animal product) medicines along with prayer for curing (Kenny, pers. comm., July 2000)). The term ***Anishinaabe Izhichigewin*** is also used by Ojibway elders from farther northeast in the Lake Nipigon-Albany River region (Peter Kookookoons, pers. comm.,1985).

The familiarity with the regional vegetation of the Lac Seul ecosystem is apparent from the statements of the respondents in this study. The tending and harvesting of three species while not true domestication is a form of horticulture. The complete integration of the plant world in the Lac Seul Ojibway traditional way of life, from sustenance to healing and religion, reveals a level of awareness and stewardship of the botanical realm in the Lac Seul ecosystem.

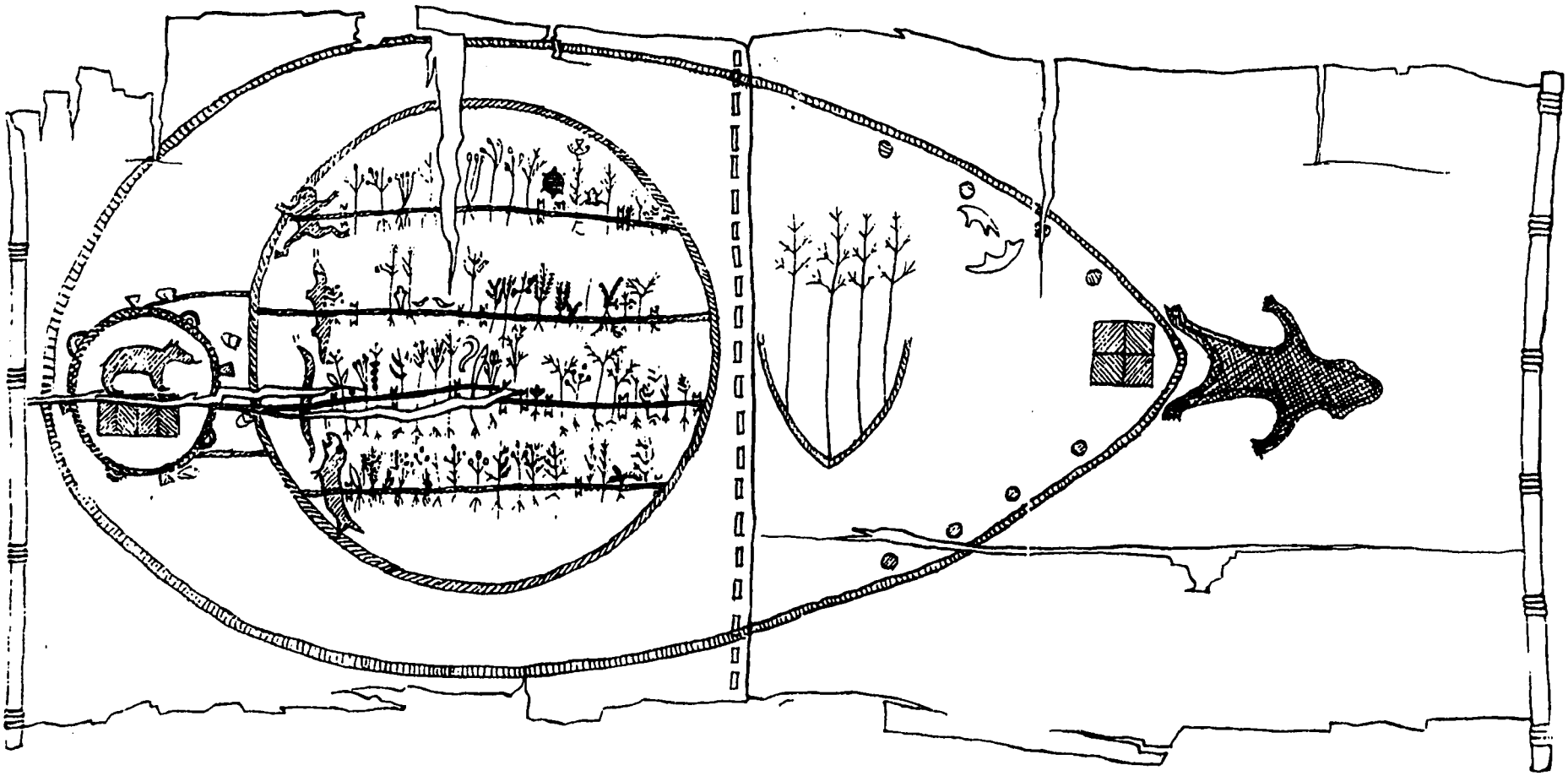


Figure 12. Lac Seul Bear Scroll, Lac Seul First Nation, Lac Seul, Ontario, Canada. (Dewdney 1975:148-149).

5.4 THE LAC SEUL BEAR SCROLL

The Lac Seul Bear Scroll shows the extensive medicinal pharmacopia of an herbal medicine healer (Figure 12). This rare scroll depicts the Keeper of ***Mushkeke,*** plant medicine, the Bear, ***Makwa,*** and numerous mammals, birds, amphibians, reptiles and spirit beings with 64 plant images. According to Sam Southwind, this scroll is a medicine person's record of medicinal plant formulas. It was once the property of a ***mushkeke*** healer at Lac Seul but was removed from the reserve by a collector sometime in the 1950's or 1960's (negotiations are underway for its repatriation).

The author of the Lac Seul Bear Scroll took great care in representing the different taxa morphologically. Within the large central circle, on lines representing the land or perhaps in some cases water, the plant growth forms and the root systems below the soil surface line are depicted. It is difficult to determine the species from the drawings, but growth habit and morphology are discernable. There is a definite notation of the branching and perhaps leaf arrangement of the species. A number of images look shrubby, with straight stem growth and many branching straight 'twigs'. Seven species are trichotomous with a circular form at the end of each branch which could represent one leaf, as in *Coptis trifolia* (L.) Salisb., but may represent a grouping of leaflets as in the form of *Aralia nudicaulis* L.. Six species appear to have basal leaves or growth pattern.

Starting with the top row, which is preceded by the frog it is evident that groups of plants are separated by small, notched shapes. A series which is noted by the author of the scroll with special symbols is the second series on the first row. The turtle and the frog are spaced between two plants. The first has a sacred Thunderbird symbol above it, turned upside down as though flying . The leaf arrangement is carefully drawn and appears alternate. It is obvious from the other plant depictions that the author observed the difference between alternate and opposite branching.

The second row down, preceded by the otter, shows one series with probably important plants . Two tall trees are shown with a spirit being between them and two birds next to them. The little dots at the top of the trees may be cones. There is no way to actually tell size relationships in the images, although some of the plants are drawn quite small which seems to indicate some relative scale.

It is difficult to determine the species from the scroll without an understanding of the notation method. The drawings are almost certainly schematics of plants. It is possible to make a few speculations based on what is known about the local flora and the uses of plants at Lac Seul. In the third row down, following the serpent, the fourth plant depicted shows a perfoliate sessile leaf. The only species in the area described by the study respondents with that morphology is ***aazhaabaakasing*** *Eupatorium perfoliatum* L.. A number

of the Liliaceae are used medicinally and the scroll shows two plants with the wide basal leaves of this family (e.g. see third and fourth rows).

On the bottom row, preceded by the figure of what may be a ***miishbishoo***, 'water cat spirit' (which is thought to have a fishes tail), or some other water being, there is a series of thirteen plants marked off by little wedge-shaped markings which are used throughout the scroll to separate groups of plants. These 13 plants are probably the ingredients in a medicinal formula. About half of the inscriptions appear to be herbaceous plants. In the next section, on the bottom row are a series of four plants, one of which is almost certainly a fern depiction given the frond-like leaf morphology. The plant to the right of the fern may be a tree and the same image appears to be the last plant in the series of 13 we discussed above.

The four large trees in the "v" formation to the right of the circle look like poplar but they could also be one of the long-needled pines which are revered.

The Lac Seul Bear Scroll is the only Ojibway scroll known with this number of plants depicted on it and in such organization. The depiction of plant medicines may have been a convention that was widely used but we do not know much about it because the medicine knowledge has generally been kept secret.

The obvious care and planning that the author put into the scroll may

signify that it was shared with other medicine people and that it was meant to be handed down to an apprentice as a teaching tool. In a real sense, the Lac Seul Bear Scroll parallels the "De Materia Medica" of Dioscorides as a vehicle for recording the plant species and medicinal uses of an indigenous culture. It is a 'materia medica' for a Lac Seul Ojibway healer and may be only one of a large set of medicinal scrolls made by this person. According to Lac Seul elders, long ago, medicine people drew many scrolls and secreted them with other sacred ceremonial objects in special storehouses in the forest.

5.5 THE LAC SEUL DATA AND BERLIN'S PRINCIPLES OF FOLK CLASSIFICATION

As mentioned at the beginning of the Discussion, the results of this study indicate that a folk classification system does exist in the traditional culture and language of the Lac Seul Ojibway. The similarities and contrasts to Berlin's principles of folk classification which are found in the Lac Seul data will be discussed in this section.

Berlin (1992:31-35) has developed a set of twelve principles of ethnobiological classification; seven for categorization and five for nomenclature. The Lac Seul Ojibway system generally follows the the first seven principles in the following manner.

One, the most noticeable plants in the ecosystem are named and two, the

classification is based primarily on morphology and affinities with some exceptions discussed further (1992:21). To illustrate, all the trees, *'mitig'*, are named as well as the shrubs, *'-aatig'*, two Life-forms which make up the overstory and understory of the boreal forest. The herbaceous layer of the boreal forest is made up of herbaceous plants, grasses and ferns which fall within the Life-form *'aasaagakiik'*. Moss, *'gaamig'*, constitutes a major biological form as a ground cover in the boreal forest and is given Life-form status.

Consistent with Berlin's principles three and four, the Lac Seul Ojibway folk taxonomic system reflects a hierarchical arrangement of inclusive, descending ranks including Kingdom (covert), Super Life-form, Life-form and Cultural Life-form, Folk Genus and Folk Species (1992:22).

Principle five states that across systems of ethnobiological classification there are similarities within the taxa of each rank which are reflected in the following similarities to sub-categories of Principle five (1992:22). At Lac Seul this principle is upheld by the following data. Generic taxa are the most numerous, comprising 72% of all named taxa recorded, with 78% monotypic. This is close to the 80% monotypics for genera in typical folk taxonomic systems asserted by Berlin (1992:23). Unaffiliated Genera, which are not included in any Life-form, are morphologically distinct. The two Unaffiliated Generics in the data are *'saagaategan'* *Inonotus obliquus* (Fr.) Pil. and *'miishiigan'* *Usnea*

cavernosa Tuck. ***'Saagaategan'***, a fungus, is called clinker conk in English because it looks like a burned clinker of coal. However the Ojibway name ***'saagaategan'*** refers to its manner of growing on the sunlit side of a tree rather than to its form. ***'Miishiigan'***, a lichen, receives basically the same morphology-based name in Ojibway as in English; 'hairy thing' in Ojibway and 'Old Man's Beard' in English. The eight Life-form taxa are broadly polytypic (1992:24) and, excluding the Unaffiliated Genera, include all the lesser taxa. The Life-form taxa are shown in Table 3.

Principle six asserts that Generic rank taxa sometimes show 'type' species (1992:34). This is exhibited in the Folk Genus ***'shingob'*** (Spruce/Fir) which retains the polysemous type species ***'shingob'*** and the additional, defined by a modifier, species ***'shingob bigiw'***.

Principle seven states that Generic rank taxa correspond closely with Western scientific botany (1992:34). For the most part this is true with the current data except for the Spruce/Fir genus, ***Shingob*** (Figure 4). Life-form rank taxa have the lowest correspondence to scientific taxonomic categories and this is especially apparent in the Cultural Life-form taxa.

The remaining five principles in Berlin's classification system are organized under the heading 'nomenclature' and reflect general rules for naming ethnobiological systems (1992:20). The Lac Seul data follows these principles as shown below.

Nomenclatural Principle one explains the occurance of covert or unnamed taxa(1992:34). This condition exists in the current data at the Kingdom and Life-form ranks. The lack of a named Unique Beginner (*ie.* Plantae) is common in ethnobiological taxonomic systems. As in the current study, the rank of Kingdom Plantae is inferred from a vocabulary of botanical terms (Figure 2). In addition, our data supports Berlin's findings of evidence of Covert Life-form taxa (1992:34). Both Conifers and Angiosperm trees are covert at the Life-form rank (Table 3). Angiosperm trees are considered *'Mitig'*, tree, by respondents, a Super Life-form but they are distinguished from conifers and considered to be *'Aasaagakiik'*, 'things which growup, change and die', also a Super Life-form. Here we have a polysemous relationship where at the Super Life-form rank we have all trees and all angiosperms in two overlapping taxa (Figure 3). At the Life-form rank, the trees are covertly separated by respondents into conifers and angiosperm trees. A third Covert Life-form, Bark Utility, exists within the category of Cultural Life-forms and is inferred from the descriptive language of the plant names which carries the plant's use and preparation.

Nomenclatural Principle two states that there are two lexical structures for plant names, primary and secondary (Berlin 1992:34). *Mitig* is an example of a simple primary name. *Bigaanaatig* is an example of a productive primary name and *shiingibiishkag* 'like the fish duck (red grebe)' may be similar to an

unproductive name like the English folk name 'silverfish' for a type of insect (which may have once been 'like a silverfish'). Secondary names are binomial in meaning (*e.g.* ***miicha miin,*** 'big berry' and ***miinens,*** 'little berry').

Principle three observes that life-form and generic rank taxa are named by primary terms and sub-genera (folk species, varietals) are usually named with secondary terms (Berlin 1992:34). At Lac Seul life-forms may be indicated by a suffix (*e.g.* ***-aatig, -ochiibig***) and genera may be indicated by a seconary name (*e.g.* ***waabangaamig***). Sub-genera may be trinomial (*e.g.* ***ikwe waabangaamig,*** 'woman's white groundcover').

Principle four is concerned with the primary specific epithets of sub-generic taxa. ***Shingob*** is the genus name for the spruce / fir genus. ***Shingob*** is also the specific name for both *Picea mariana* (Mill.) BSP. and *Picea glauca* (Moench.) A. Voss.

Principle five (Berlin 1992:31-33) refers to binomials (*e.g.* ***shingob bigiw,*** gummy ***shingob*** and ***zhigaagomiinaatig,*** skunk's berry shrub) which are named for "morphological, behavioral, ecological or qualitative" characteristices.

The two taxa which do not follow Berlin's principles are Super Life-form and Cultural Life-form. The Super Life-form rank has been discussed previously. The Cultural Life-form taxa (***Ochiibig, Miin,*** and Covert Bark Utility) cut across the shrub life-form taxon ***-aatig*** and even across each other (e.g. ***ozhaawaakiimiinaatig*** 'green innerbark for use shrub').

Ozhaawaakiimiinaatig carries within the name the implication that the innerbark is peelable and therefore useable probably for medicine (which it is).

Hunn (1982:841) succinctly discusses the concept of activity signatures of plants and what he has named "practical life form". The activity signature and the practical life-form take into consideration the "practical significance [of a species] from the native point of view"(Hunn 1982:840). The activity signature is the cultural implications within the names of the plants. In Sahaptin, ***xnit*** and ***tmaanit*** are "edible plants which are picked" (Hunn 1982:840). However, each name carries with it the type of harvesting, implements, and season. Thirteen species in the Lac Seul rank Cultural Life-form carry activity signatures within the name by direct implication (*e.g.* ***menozhaatig*** 'healing shrub', ***wiimbaskwaatig*** 'bursts off the stem (with peeling) shrub'). This relates back to the concept described earlier of ***Anishinaabe Izhichigewin*** in which a person raised in the traditional culture understands all the references and subtle meanings in the language about use of the ecosystem components. As a parallel, the term "logging" in rural North American English in forested regions carries with it a very large set of visual images of activities and meanings which would not be accessible to an outsider.

The inclusion of Cultural Life-forms is considered to be a form of concurrent folk classification or to suggest the existence of more than one taxonomic system simultaneously. Although Berlin does not support

utilitarian or practical life-forms which cut across ranks or overlap at the same rank, he notes that they are not unusual in Indigenous societies where cultural use and manipulation of plants is high (Berlin 1992:184-85).

With further research, it may become apparent that the Cultural Life-forms are better classed in an Intermediate rank below the Life-form rank.

5.6 TURNER AND UTILITARIAN LIFE-FORMS

Berlin (1992:153) does not recognize rank based on cultural utility, which seems inconsistent with his recognition of the Intermediate rank based on cultural mythology of utilitarian cultivars. Other authors (Turner 1973; 1987; 1989; 1990; Hunn 1982) recognize cultural utility as a natural rank as it is included here. Lac Seul botanical taxonomy resembles the systems of other foraging peoples in that life-form taxa may be based on cultural utility (Turner 1973:201). Lac Seul life-forms are also not mutually exclusive, another feature similar to Turner's study of the Haida, Bella Coola (Nuxalk) and Lillooet (Stl'atl'imx), Pacific Northwest people (1973:201). These three groups include "root" and" berry" life-form categories (1973:71-91). There is no term for the "root" life-form in the three groups. Root plants are either grouped together in discussions about the plant species, the genera names identify the plants by their roots or there is a suffix which denotes the root part (1973:71-91). In Lac

their roots or there is a suffix which denotes the root part (1973:71-91). In Lac Seul Oji-Cree the suffix ***-ochiibig*** is applied to plants whose roots are medicinal. The "berry" life-form overlaps with the shrub, tree, and/or plant life-forms in Haida, Bella Coola (Nuxalk), and Lillooet (Stl'atl'imx) (Turner 1973:71-91). In the Lac Seul system the berry life-form overlaps with the shrub and bark utility life-form (Figure 6). Turner (1990:62) found that the Thompson (Nlaka' pamux), a Salishan-speaking group in British Columbia, included an economic life-form of "berry/fruit-bearing plants/bushes". A recent study by Johnson-Gottesfeld and Hargus (1998:78) with the Witsuwit'en, Athapaskan-speakers in northern British Columbia, found that life-forms may be partly utilitarian and not mutually exclusive.

A final life-form which could be considered of cultural utility is 'moss'. At Lac Seul in the life-form ***Gaamig*** there are two genera, ***waaban gaamig*** and ***ozhaagaamig***. ***Waabangaamig*** contains two named species of high utility (Figure 8). The moss life-form was named but empty in each of the groups Turner (1973) interviewed and in the Johnson-Gottesfeld *et al* study (1998). Atran (1985:301) includes moss in a "residual" category of unnamed and "often hidden plants that lack phenomenal resolution for human beings". It would be very unusual for inhabitants of the Boreal, Subalpine or Coastal forests to not recognize as a vegetational entity the moss which carpets the floor of these forest regions.

6.0 SUMMARY AND CONCLUSIONS

The goal of this preliminary study was to record plant names and botanical vocabulary of Oji-Cree speaking elders at Lac Seul First Nation. Thirty-eight taxa were recorded with synonyms and eighteen morphological characteristics totalling 65 botanical names or phrases. Although the data set was small, it was apparent that the data constituted a botanical taxonomic system for ordering the plant world.

The plant ranks included Covert Kingdom, Super Life-form, Life-form and Cultural Life-form, Folk Genus and Folk Species. No Intermediate or Varietal ranks were found. The Super Life-form is a new rank in the folk taxonomic literature and was added to encompass the polysemous meanings of ***Aasaagakiik,*** all angiosperms or simply herbaceous plants and fern and fern allies. ***Miitg,*** tree, was designated a Super Life-form because it contained two separate covert life-forms, coniferous trees and angiosperm trees. Cultural Life-forms were designated to finally bring into ethnobotanical taxonomy the reality of simultaneous ways of classifying plants and the plants with names denoting their use. As Turner (1973:201) points out, life-form taxa "are not necessarily mutually exclusive. They imply utilization categories as well as growth form categories, sometimes both simultaneously" (e.g. Haida *xil* = leaf/medicine/herbaceous plant - suffix or prefix).

One of the most significant aspects of the data is the percentage of folk

genera bearing more than one folk species. Most hunter-gathering people average 2% polytypic genera, while agrarian groups average 18%. At Lac Seul, even in this preliminary study the average is 9% polytypic genera. Lac Seul Ojibway have a history of manipulating plants for special uses and these numbers may reflect that activity.

There has been no research previously into the ethnobotanical taxonomic systems of the Oji-Cree and Cree speaking people. There is a consistency in names of certain plants over a very large geographical area where these groups of people have resided for thousands of years. There are three factors which could have led to this consistency. The east-west trade routes brought people together for centuries prior to European contact; these later became part of the fur-trade routes. People spoke the same language, if different dialects, and would have been able to converse with each other about plants for food and healing. The Boreal forest ecosystem in the north is inhabited by people who speak the same language from the Atlantic coast to Alberta. Many species are found over large expanses of this region and people would have been able to recognize and talk about the plants in new localities.

Finally, the Lac Seul Bear Scroll represents a unique and valuable record of the level of knowledge and familiarity of a Lac Seul medicine person with the plant world. This beautiful and careful rendering of plants, animals and spirit beings preserves a small part of what was once known and used by the

Anishinabe of Lac Seul first Nation for following their traditional way of life Anishinabe Izhichgewin.

LITERATURE CITED

Atran, S. 1985. The nature of folk-botanical lifeforms. Amer. Anthro. 87:298-315.

Baldwin, K.A. and R.A. Sims. 1989. Common Forest Plants of Northwestern Ontario. Ont. Min. Nat. Resour. Toronto, Ont. 344 pp.

Balick, M.J. 1996. Transforming ethnobotany for the new millennium. Ann. Missouri Bot. Gard. 83:58-66.

Berlin, B. 1992. Ethnobiological Classification. Princeton University Press. Princeton, New Jersey. 335 pp.

Berlin, B., D.E. Breedlove, and P.H. Raven. 1966. Folk taxonomies and biological classification. Science 154:273-275.

Berlin, B., D.E. Breedlove, amd P.H. Raven. 1968. Covert categories and folk taxonomies. Amer. Anthro. 70:290-299.

Berlin, B., D.E. Breedlove, and P.H. Raven. 1973. General principles of classification and nomenclature in folk biology. Amer. Anthro. 75:214-242.

Bishop, C A. 1974. The Northern Ojibway and the Fur Trade: An Historuical and Ecological Study. Holt, Rinehart and Winston of Canada Ltd., Toronto. 379 pp.

Black, M.J. 1978. Plant dispersal by native North Americans in the Canadian subarctic. pp.255-262 *in* Ford, R.I. (ed.) The Nature and Status of Ethnobotany. University of Michigan, Mus. Anthro., Anthro. Papers No. 67.

Conklin, H.C. 1954. The relation of Hanunóo culture to the plant world. Ph.D. dissertation. Yale University. 471 pp.

Conklin, H.C. 1962. Lexocographical treatment of folk taxonomies. Int. J. Amer. Ling. 28:119-41.

Davis, E. W. 1995. Ethnobotany: an old practice, a new discipline. pp. 40-59 *in* Schultes, R.E. and S. Von Reis. Ethnobotany: evolution of a discipline. 1995. Dioscorides Press, Portland, Oregon. 414 pp.

Dawson, K.C.A. 1983. Prehistory of Northern Ontario. Thunder Bay Historical Museum. Thunder Bay, Ontario. 40 pp.

Densmore, F. 1928. Uses of plants by the Chippewa Indians. Bureau of American Ethnology, Annual Report 44:275-397.

Dewdney, S. 1975. The Sacred Scrolls of the Southern Ojibway. University of Toronto Press, Toronto.199 pp.

Elson, J.A. 1967. Geology of glacial Lake Agassiz. pp. 37-97 *in* Mayer-Oakes, W.J. (ed.) Life, land and water. University of Manitoba Press, Manitoba.

Ford, R.J. 1981. Ethnobotany in North America: an historical phytogeographic perspective. Can. J. Bot. 59:2178-2188.

French, D.H. 1981. Neglected aspects of North American ethnobotany. Can. J. Bot. 59:2326-2330.

Garton, C.E. 1984. Checklist of Vascular Plants of Thunder Bay District. Thunder Bay Field Naturalists. Lakehead University, Thunder Bay, Ontario. 43 pp

Gleason, H.A. and A. Cronquist. 1963. Manual of Vascular Plants of the Northeastern United States and Adjacent Canada. D. Van Nostrand Company, New York. 810 pp.

Hunn, E.S. 1982. The utilitarian factor in folk biological classification. Amer. Anthro. 84:830-847.

Johnson, D., L. Kershaw, A. MacKinnon, and J. Pojar. 1995. Plants of the Western Boreal Forest and Aspen Parkland. Lone Pine Publishing Company, Edmonton. 392 pp.

Johnson-Gottesfeld, L.M. and S. Hargus. 1998. Classification and nomenclature in Witsuwit'en ethnobotany: a preliminary examination. J. Ethnobiol. 18(1):69-101.

Johnston, F.J. 1972. Geology of the Vermillion Abrams Lakes area, District of Kenora. Geological Report 101. Ontario Division of Mines, Toronto.

Lambert, P.J.B. 1980. Archaeological suvey of west Lac Seul pp.133-404 *in*

Ross, W.A. (ed.) Studies in West Patricia archaeology No. 3 1980-1981, Archaeology Research Report 19, Ont. Min. Cit. and Cult. 1982. Toronto. 404pp.

Leighton, A.L. 1985. Wild plant use by the Woods Cree (Nihīthawak) of east-central Saskatchewan. Natn. Mus. of Man, Mercury Series. Canadian Ethnology Service Paper No. 101. Ottawa. 136 pp.

Mayr, E. 1982. The Growth of Biological Thought. Harvard University Press. Cambridge, Massachusetts. 974 pp.

Meeker, J.E., J.E. Elias, and J.A. Heim. 1993. Plants used by the Great Lakes Ojibwa, Abridged Version. Great Lakes Indian Fish and Wildlife Commission, Odanah, Wisconsin. 42 pp.

Morton, A.G. 1981. History of Botanical Science: an account of the development of botany from the ancient times to the present. Academic Press. London. 474 pp.

Morton, J.K. and J. M. Venn. 1990. A Checklist of the Flora of Ontario: Vascular Plants. Dept. Biology., Univ. of Waterloo., Waterloo, Ont. 218 pp.

Ningewance, P.M. 1993. Survival Ojibway. Mazinaate Press, Winnipeg, Manitoba. pp.297

Raven, P.H., B. Berlin, D.E. Breedlove. 1971. The origins of taxonomy. Science 174(17):1210-1214.

Rowe, J.S. 1972. Forest Regions of Canada. Can. For. Serv., Dept. Envir., Ottawa, Ontario. pp. 172.

Schultes, R.E. 1978. The heritage of folk medicine. pp.137-149 *in* Thomson, W.A.R., M.D. (ed.) 1978. Medicines From the Earth .McGraw-Hill Book Company Ltd., Maidenhead, England. 208 pp.

Schultes, R.E. and S. von Reis. 1995. Ethnobotany: Evolution of a Discipline. Dioscorides Press, Portland, Oregon. 414 pp.

Sims, R.A., W.D. Towill, K.A. Baldwin and G.M. Wickware. 1989. Forest Ecosystem Classification for Northwesern Ontario. Ont. Min. Nat. Resources, Toronto, Ontario. 161pp.

Small, E. and P.M. Catling. 1997. Poorly known economic plants of Canada- 13. Sweet Flag, *Acorus calamus* L. Can. Bot. Assoc. Bull. 30(2):24-26.

Smith, H.H. 1932. Ethnobotany of the Ojibwe Indians. Bull. Pub. Mus. City of Milwaukee 4(3):327-525.

Turner, N. J. 1973. Plant taxonmic systems and ethnobotany of three contemporary Indian groups of the Pacific Northwest. Ph. D. Thesis. Univrsity of British Columbia. 557 pp.

Turner, N.J. 1987. General plant categories in Thompson and Lillooet, two interior Salish languages of British Columbia. J. Ethnobiology 7(1):55-82.

Turner, N. J. 1988a. Ethnobotany of coniferous trees in Thompson and Lillooet Interior Salish of British Columbia. Economic Botany 42:176-94.

Turner, N. J. 1988b. "The importance of rose": evaluating the cultural significance of plants in Thompson and Lillooet Interior Salish. Amer. Anthro. 90:272-290.

Turner, N.J. 1989. "All berries have relations,"mid-range folk plant groupings in Thompson and Lillooet Interior Salish. J. Ethnobiology 9(1):69-110.

Turner, N.J. 1995. Ethnobotany today in Northwestern North America. pp. 264-283 *in* Schultes, R.E. and S. Von Reis (eds.) Ethnobotany: evolution of a discipline. 1995. Dioscorides Press. Portland, Oregon. 414 pp.

Turner, N.J., J. Thomas, B.F. Carlson, and R.T. Ogilvie. 1983. Ethnobotany of the Nitinaht Indians of Vancouver Island. B. C. Prov. Mus., Occ. Papers No. 24, Victoria, Canada.

Turner, N.J., L.C. Thompson, and M.T. Thompson. 1990. Thompson Ethnobotany: knowledge and use of plants by the Thompson Indians of British Columbia. Royal British Columbia Museum, Memoir No. 3. Victoria, British Columbia. 335 pp.

Turner, N.J., M. Boelscher Ignace, and B. D. Compton. 1992. Secwepemc (Shuswap) tree names: key to the past? Paper presented to the 27th Int. Conf. on Salish and neighbouring languages. 6-8 Aug. 1992, Kamloops, British Columbia.

APPENDICES

APPENDIX I

VOUCHER SPECIMENS COLLECTED AND PRESSED IN LAC SEUL, ONTARIO, UPPER ENGLISH RIVER REGION IN THE COLLECTION OF MARY BEA KENNY, LAC SEUL, ONTARIO

(Plant identification and nomenclature follow: Baldwin and Sims 1989; Gleason and Cronquist 1963; Johnson, Kershaw, MacKinnon and Pojar 1995 and; Morton and Venn 1990.)

Scientific Name	Common Name	#
Abies balsamea (L.) Mill.	Balsam Fir	0034
Acer spicatum Lam.	Mountain Maple	0016
Acorus calamus L.	Sweet Flag	0100
Alnus crispa (Ait.) Pursh	Green Alder	0042
Alnus rugosa (DuRoi) Spreng.	Speckled or River Alder	0041
Amelanchier alnifolia Nutt.	Saskatoonberry	0090
Anaphalis mararitacea (L.) Benth & Hook.	Pearly Everlasting	0076
Andromeda glaucophylla Link.	Bog Rosemary	0098
Anemone canadensis L.	Canada Anemone	0012
Apocynum androsaemifolium L.	Spreading Dogbane	0032
Aralia hispida Vent.	Bristly Sarsaparilla	0044
Aralia nudicaulis L.	Wild Sarsaparilla	0085
Aralia racemosa L.	Spikenard	0087
Arctostaphylos uva-ursi (L.) Spreng.	Bearberry, Kinnikinnik	0052
Asarum canadense L.	Wild Ginger	0009, 0065
Betula papyrifera Marsh.	White or Paper Birch	0023

Scientific Name	Common Name	#
Chamaedaphne calyculata (L.) Moench.	Leatherleaf	0096
Chimaphila umbellata (L.) Bart.	Pipsissewa	0018
Clintonia borealis (Ait.) Raf.	Blue-bead Lily	0048
Coptis trifolia (L.) Salisb.	Goldthread	0051, 0082
Cornus canadensis L.	Bunchberry	0062, 0077
Cornus stolonifera Michx.	Red Osier Dogwood	0014
Corylus cornuta Marsh.	Beaked Hazel	0088
Diervilla lonicera Mill.	Bush Honeysuckle	0040
Epigaea repens L.	Trailing Arbutus	0043
Equisetum arvense L.	Field Horsetail	0069
Equisetum sylvaticum L.	Woodland Horsetail	0079
Evernia mesomorpha Tuck.	Spruce or Northern Perfume Moss	0073
Fragaria virginiana Duchesne	Common Strawberry	0005
Fraxinus nigra Marsh.	Black Ash	0056
Galium triflorum Michx.	Three-flowered Bedstraw	0053
Gaultheria hispidula (L.) Muhl.	Creeping Snowberry	0081
Gaultheria procumbens L.	Wintergreen	0017
Geranium bicknellii Britt.	Bicknell's Geranium	0013
Goodyera repens (L.) R. Brown	Dwarf Rattlesnake Plantain	0029
Impatiens capensis Mearb.	Spotted Touch-Me-Not	0039
Inonotus obliquus (Fr.)Pil.	Clinker or Cinder Conk	0101
Juniperis communis L.	Common Juniper	0075
Kalmia polifolia Wang.	Bog Laurel	0097

Scientific Name	Common Name	#
Larix laricina (DuRoi) K. Koch	Tamarack	0036
Ledum groenlandicum Oeder	Labrador Tea	0030
Linnaea borealis L.	Twinflower	0060
Lonicera dioica L.	Twining Honeysuckle	0021
Lycopodium annotinum L.	Stiff Clubmoss	0066
Lycopodium clavatum L.	Running Clubmoss	0061
Lycopodium complanatum L.	Ground Cedar	0020
Lycopodium obscurum L.	Ground Pine	0067
Lycopus asper E. Greene	Western Water Horehound	0080
Maianthemum canadense Desf.	Canada Mayflower	0049
Mentha arvensis L.	Wild Mint	0070
Mertensia paniculata (Ait.) G. Don	Northern Bluebell	0063
Mitella nuda L.	Bishop's Cap	0022
Monotropa uniflora L.	Indian Pipe	0050
Myrica gale L.	Sweet Gale	0025
Petasites palmatus (Ait.) A. Gray	Sweet Coltsfoot	0015
Picea glauca (Moench.) A. Voss	White Spruce	0089
Picea mariana (Mill.) BSP.	Black Spruce	0033
Pinus banksiana Lamb.	Jack Pine	0035
Pinus resinosa Ait.	Red or Norway Pine	0059
Pinus strobus L.	White Pine	0055
Polypodium vulgare L.	Common Polypody	0071
Populus balsamifera L.	Balsam Poplar	0037
Populus tremuloides Michx.	Trembling Aspen	0038

Scientific Name	Common Name	#
Potentilla fruticosa L.	Shrubby Cinquefoil	0091
Potentilla palustris (L.) Scop.	Marsh Marigold	0078
Potentilla tridentata Sol.	Three-toothed Cinquefoil	0019
Primula stricta Hornem.	Erect Primrose	0001
Prunus pensylvanica L. fil	Pin Cherry	0028
Prunus virginiana L.	Choke Cherry	0064
Pyrola elliptica Nutt.	Shinleaf	0084
Ribes americanum Mill.	Wild Black Currant	0092
Ribes glandulosa Grauer	Skunk Currant	0004
Ribes hirtellum Michx.	Smooth Gooseberry	0058
Ribes hudsonianum Richards.	Northern Black Currant	0057
Ribes triste Pall.	Wild Red Currant	0093
Rosa acicularis Lindl.	Prickly Wild Rose	0007
Rubus idaeus L. var. *strigosus* (Michx.) Maxim.	Wild Red Raspberry	0083
Rubus pubescens Raf.	Dwarf Raspberry	0086
Sicyos angulatus L.	Bur Cucumber	0031
Smilacina stellata (L.) Desf.	Star-flowered False Solomon's Seal	0008
Solidago graminifolia (L.) Salisb.	Flat-topped Goldenrod	0068
Sorbus decora (Sarg.) Schneid.	Showy Mountain Ash	0045
Sphagnum spp.	Sphagnum Moss spp.	0074
Spirea alba DuRoi	Narrow-leaved Meadowsweet	0024
Taxus canadensis Marsh.	Ground Yew	0026
Thuja occidentalis L.	Eastern White Cedar	0027
Trillium cernum L.	Nodding Trillium	0011

Scientific Name	Common Name	#
Usnea cavernosa Tuck.	Old Man's Beard	0072
Vaccinium augustifolium Ait.	Low Sweet Blueberry	0047
Vaccinium myrtilloides Michx.	Velvet Leaf Blueberry	0046
Vaccinium oxycoccus L. syn. *Oxycoccus microcarpus* Turcz.	Small Cranberry	0099
Viburnum edule (Michx.) Raf.	Squashberry	0054
Viburnum trilobum Marsh.	High Bush Cranberry	0006
Viola blanda Willd.	Sweet White Violet	0003
Viola eriocarpa Schwein	Smooth Yellow Violet	0010
Viola palustris L.	Northern Marsh Violet	0002

APPENDIX II

A SUMMARY OF BERLIN'S TWELVE GENERAL PRINCIPLES OF ETHNOBIOLOGICAL CLASSIFICATION (Berlin 1992:31-35)

I. Categorization

1. In ethnobiological systems of classification, conceptual recognition will be given to a subset of existing flora and fauna. This subset will be compromised of the biologically most distinctive species in the local habitat.
2. Ethnobiological systems of classification are based primarily on the affinities that humans observed among the taxa themselves, quite independent of the actual or potential cultural significance of these taxa.
3. Ethnobiological systems of classification are organized conceptually into shallow hierarchic structure.
4. Recognized taxa will be distributed among four to six mutually exclusive ethnobiological ranks, with taxa of each rank sharing similar degrees of internal variation and separated from each other by comparably sized perceptual gaps. The six universal ranks are the kingdom, life form, intermediate, generic, specific and varietal. There is some evidence that foraging societies have poorly developed or lack entirely, taxa of specific rank. No foraging society will exhibit taxa of varietal rank.
5. Across systems of ethnobiological classification, taxa of each rank show marked similarities as to their relative numbers and biological ranges.
   a. Taxa of generic rank are most numerous (average 500 classes in each kingdom), are usually monotypic (80%), and are included in life-form rank taxa.
   b. Life-form taxa average 10-15, are broadly polytypic, include most taxa of lesser rank, and are often based on gross morphology.
   c. Taxa of Intermediate rank group genera based on overall morphology (and behaviour) and are included in life-form rank taxa.
   d. Specific taxa subdivide generic taxa. Folk varietals subdivide specific rank taxa and are rare. Subgeneric taxa in ethnobotanical classification systems are recognized as a result of cultural considerations (e.g. economically important or domesticated).
   e. Taxon marking the rank of kingdom in all ethnobiological systems is comprised of a single member.
6. Ethnobiological taxa of generic and specific rank exhibit prototypical a taxon for their category while other members are less typical.
7. The majority of ethnobiological taxa will correspond with Western botanical

and zoological taxa. Highest correspondence will be with genera. Intermediate rank taxa will often correspond with biological family rank. Life-form and subgeneric rank taxa have the lowest correspondence with recognized biological taxa.

II. Nomenclature

1. Kingdom and intermediate rank taxa are generally not named. Some covert life-form taxa may also be found. Labelled life-form taxa often show polysemous (more than one meaning)relations with subordinate taxa.
2. Names for plants and animals are primary (e.g. fish [simple], catfish [productive], and silverfish [unproductive]) and secondary (e.g. red maple, silver maple). Secondary names occur in contrast sets.
3. Life-form and genera are usually named by primary names; subgenera are usually labelled with secondary names.
4. Subgenera may be labelled with primary names under certain circumstances: 1) the name of a prototypical subgenus is polysemous with its superordinate genus and is labelled as "real" and 2) nonprototypical subgenera refer to subgeneric taxa of greater cultural importance.
5. Ethnobiological nomenclature of plants and animals often metaphorically allude to morphological, behavioural, or ecological features that are nonarbitrarily associated with their biological referents (e.g. ***moozpaagoon*** "hanging moose thing", green alder; ***miskaabemig***, "being red it is visible", red osier dogwood, and ***wiimbashkwaatig***, "bursts off the stem (the bark) wood", red elderberry.