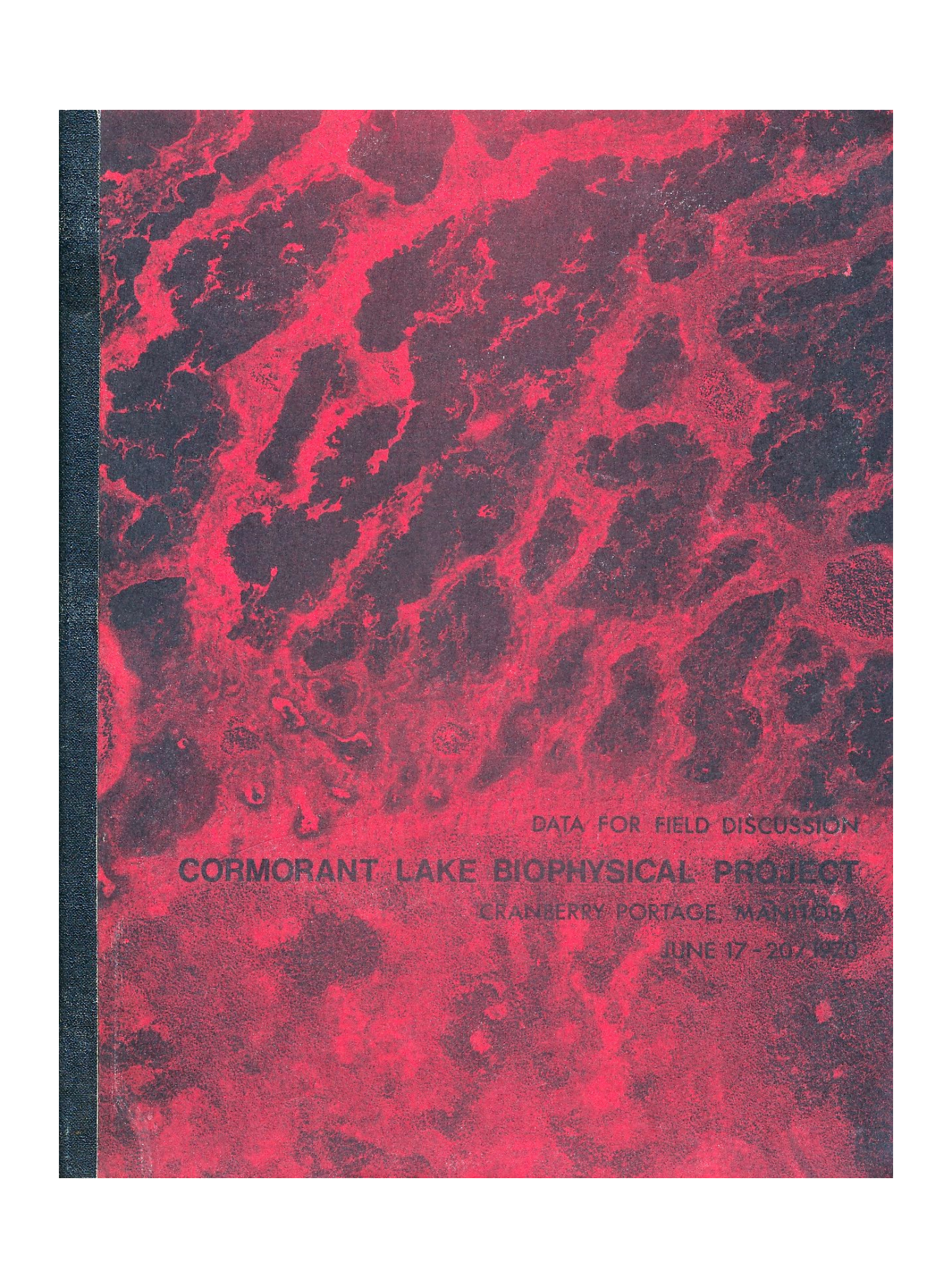




DATA FOR FIELD DISCUSSION

CORMORANT LAKE BIOPHYSICAL PROJECT

CRANBERRY PORTAGE, MANITOBA

JUNE 17 - 20 / 1970

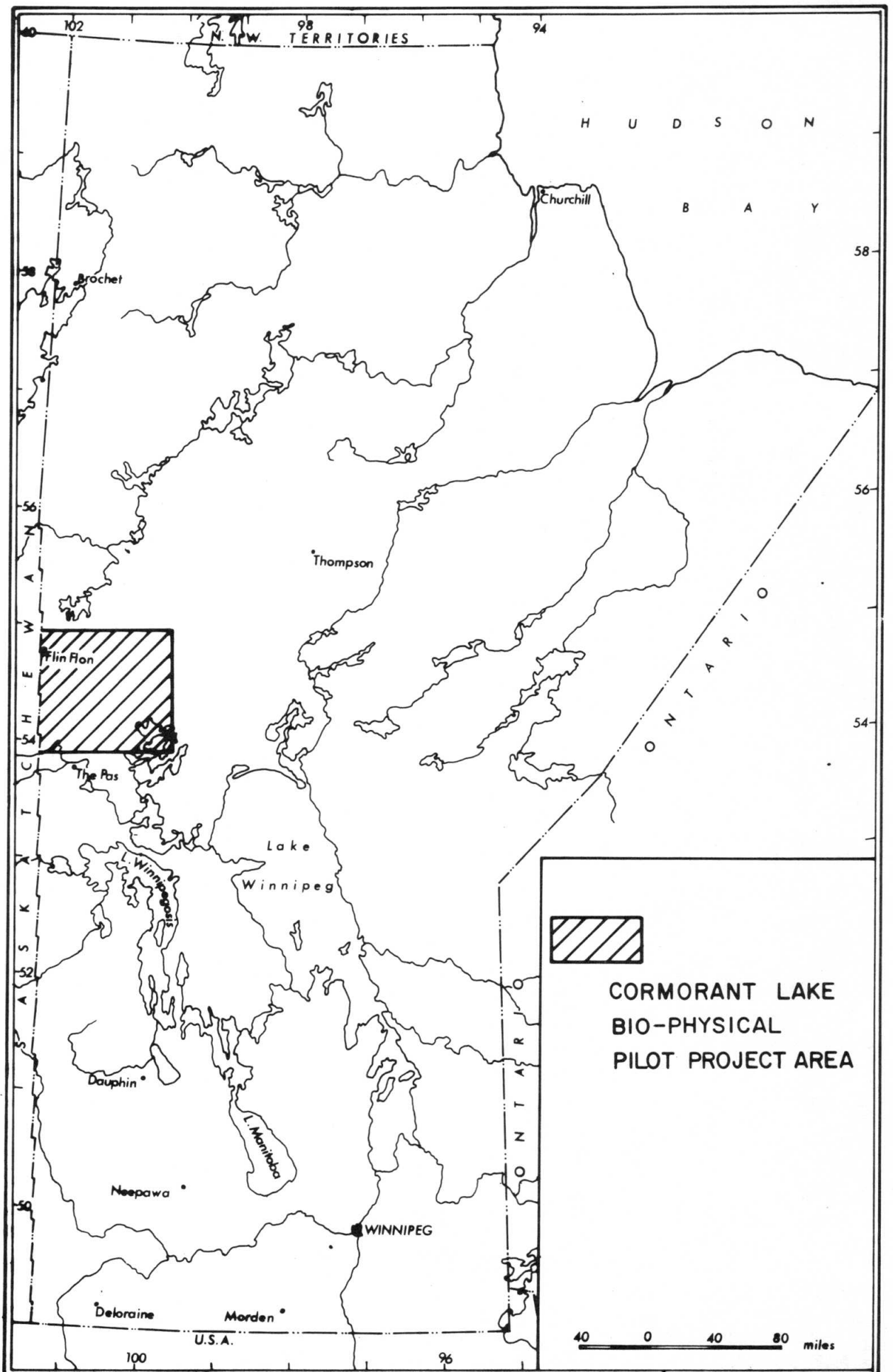
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Edited and produced by
J. Thie Canada Land Inventory Project for Manitoba

DATA FOR FIELD DISCUSSION
CROMORANT LAKE BIOPHYSICAL PROJECT
CRANVERRY PORTAGE, MANITOBA
JUNE 17-20/ 1970

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INTRODUCTION

The Cormorant Lake mapsheet lies north of the 54⁰ parallel, at the same latitude as Hamilton Inlet in Labrador, Cape Henrietta Maria in Ontario and northern Queen Charlotte Islands in British Columbia. The climate is cold continental, characterized by relatively short, cool growing season and moderate precipitation. Permafrost may be found in some peatlands throughout the mapsheet.

Physiographically the area is divided into two almost equal portions. The southern half is vastly different from the northern half. In the south the land is quite flat, interrupted only by some low Ordovician dolomite plateaus and drumlins. The northern half is on the Precambrian Shield and is dominated by broken, locally rugged bedrock topography and numerous bedrock outcrops. Lakes are very numerous, especially in the north, where they tend to be relatively deep. Many of the lakes in the southern half are very shallow.

Vegetation throughout the area is composed of boreal forests, with black spruce as the dominant species. Jack pine forests are induced by fires on the drier sites. Trembling aspen-white spruce forests occur mainly in the southwestern part of the map area and along the contact of the two physiographic provinces. Bogs and fens cover extensive areas, especially in the south. Exploitation of the forests has been accelerated since 1968, in preparation for a forest industry complex just south of the map area.

Moose is the most abundant ungulate, but woodland caribou also occurs in the northern half of the area. Moose attract many hunters during the hunting season.

The large number of picturesque lakes lure many fishermen and tourists to the wilderness areas. Walleye, northern pike and Lake trout are the main

sports fish species. The Grass River and Clearwater Lake Provincial Parks provide camping facilities for families and fishing or hunting parties.

Mining is the economic mainstay of the area. Flin Flon and Snow Lake are important mining and refining centres. A large base metal deposit was recently discovered beneath Lake Athapapuskow.

The purpose of the field trip is to acquaint visitors with the area by pointing out the features which make this area unlike any other. During discussions this information can be drawn together within the Bio-Physical Land Classification System, and related to other parts of the country. Throughout the field trip the needs of users of this information will be emphasized.



Stereotriple A. A13879:-99-101, fall 1953. Scale $\pm 1/68,000$. T.65, R.28W.

STOP #1

ATHAPAPUSKOW Landscape Unit (293 sq. mi.)

Stereotriplet A

Moderately to weakly broken area of shallow sandy till over volcanic bedrock in northern part, and deep to shallow loamy till over dolomitic bedrock in the southern part, with lacustrine clay in some depressions.

Lakes occupy 38% of the area. Lakes of various size classes cover the following proportions of the landscape unit:

Large lakes:	34%
Relatively small lakes:	1%
Small lakes:	3%

The lakes are moderately deep to deep with irregular to very irregular shorelines in the north, but only somewhat irregular shorelines in the south. The shore material is mainly bedrock or bouldery till, but broad sandy beaches do occur along the southern shore of Lake Athapapuskow. The lakes are drained by rivers or small creeks. Some small lakes in the south drain through bogs.

Land Unit CS-62b

Moderately broken area of shallow silty sand till over volcanic bedrock (55%) with bare volcanic bedrock exposures (25%). Minor areas of deep, low base silty sand in some valleys; deep fibric peat in some valleys; shallow to deep moderately calcareous lacustrine clay in some valleys.

PLOT #1 Land Upper slope on a crag-and-tail structure, consisting
Stereotriplet A+B of deep low base silty sand till. Moisture regime
is fresh (2), or well drained.

Soil Fay Lake Series

The Fay Lake series consists of well drained Degraded Dystric Brunisol soils developed on non-calcareous

sandy loam to loamy sand till derived from Pre-cambrian granitic and basaltic rocks.

- L-F - 3 to 0 inches, very dark grey (10YR 3/1, moist), forest litter of needles and small branches; extremely acid; abrupt, smooth boundary.
- Ae - 0 to 4 inches, greyish brown (10YR 5/2, moist), loamy sand; single grained; loose when moist, loose when dry; non-sticky, non-plastic; strongly acid; clear, wavy boundary.
- Bm - 4 to 12 inches, yellowish brown (10YR 5/6, moist), loamy sand; single grained; loose when moist, loose when dry; non-sticky, non-plastic; medium acid; clear, wavy boundary.
- BC - 12 to 24 inches, light brownish grey (10YR 6/2, moist), loamy sand; single grained; loose when moist, loose when dry; non-sticky, non-plastic; medium acid; clear, smooth boundary.
- C - 24 to 29 inches, light grey (10YR 7/2, moist), loamy sand; single grained; loose when moist, loose when dry; non-sticky, non-plastic; slightly acid.

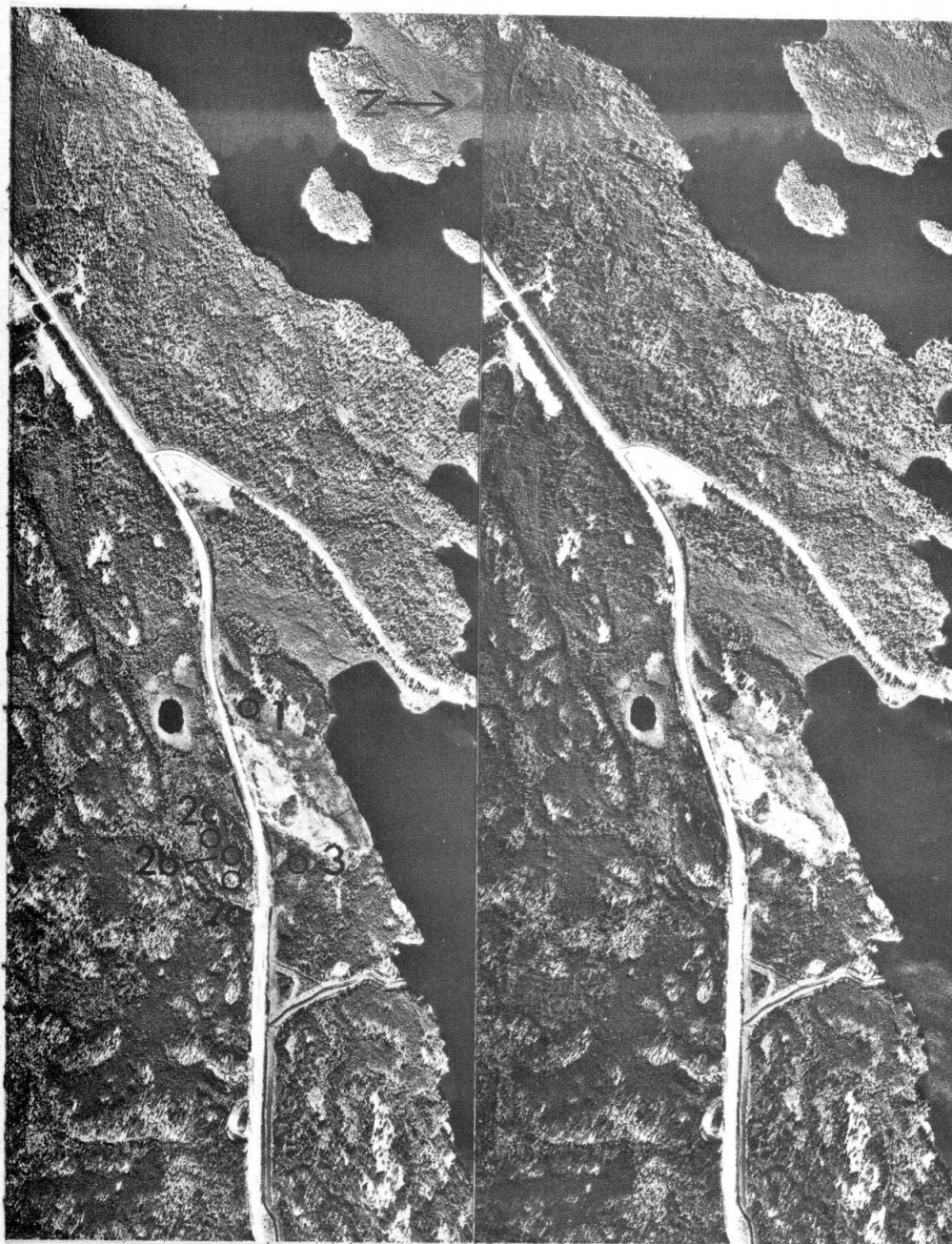
Analytical data in Table 1, Appendix I.

Forest Black spruce - jack pine, M.A.I. = 36 cu.ft./ac./yr.

	<u>bS</u>	<u>jP</u>
Diameter	8.2 in.	9.0 in.
Height	60 ft.	55 ft.
Age	115 yrs.	105 yrs.
Basal area	120 sq. ft.	60 sq. ft.

Vegetation

Trees - *Pinus banksiana*
Picea mariana
Betula papyrifera



STOP 1

Plots 1,2,3

Stereopair B. A20040:132-133, 1967. Scale $\pm 1/16,000$.
T.65, R.28W. Area covered by this Stereopair indicated
on Stereotriplet A.

Forbs - *Aralia hispida*
Epilobium angustifolium
Linnea borealis
Pyrola secunda
Rubus idaeus

Bryophytes & lichens -
 (Open, sandy) *Ceratodon purpureus*
 (Litter) *Oncophorus polycarpus* var. *strumiferus*
Pohlia nutans
Ptilidium ciliare

Capability Classification

Forestry: 5^F
 Agriculture: 6_F^P
 Wildlife: 4_M^F
 Recreation: 6^{OQE}

PLOT #2a Land Top of low base (volcanic) bedrock outcrop. Moisture
 Stereotriplet A+B regime: very dry (Ø) or rapidly drained.

Soil Rock Outcrop
 The Rock Outcrop consists of 0 to 4 inches of rapidly
 drained surface deposits over Precambrian bedrock.

L-H - 1 to 0 inches, very dark greyish brown (10YR 3/2,
 moist), forest litter; strongly acid; abrupt,
 smooth boundary.

R - 0+ inches, basaltic bedrock.

Analytical data in Table 2, Appendix I.

Forest Open, scattered black spruce - jack pine.

Vegetation

- Trees - *Pinus banksiana*
Picea mariana
Betula papyrifera
- Tall shrubs - *Alnus crispa*
Juniperus communis
- Low shrubs - *Arctostaphylos uva-ursi*
Vaccinium angustifolium
- Forbs - *Anemone patens*
Fragaria virginiana
Heracleum lanatum
Potentilla tridentata
Saxifraga tricuspidata
- Bryophytes & lichens - *Cladonia* spp.
- (Litter) *Pohlia*, cf. *bulbifera*
P. nutans
Ceratodon purpureus
Drepanocladus uncinatus
- (Rock crevices) *Oncophorus polycarpus* var. *strumiferus*
O. virens
Mnium spinulosum
Ptilidium ciliare
- (Under rock ledges) *Distichum capillaceum*
Pohlia sp.
- (On rocks) *Cratoneuron falcatum*
Oncophorus polycarpus var. *strumiferus*
Pohlia nutans
Drepanocladus fluitans
Mnium spinulosum
Ptilidium ciliare
Lophozia ventricosa

Capability Classification

Forestry: 7^R_M

Agriculture: 7^R

Wildlife: 3^G_C 6^R_{M M}

Recreation: 6^{OEQ}

PLOT #2b Land Depression in bedrock filled by shallow low base
Stereotriplet A+B till. Moisture regime is very moist (5), or
imperfectly drained.

Soil Athapap Series

The Athapap series consists of imperfectly drained
Gleyed Lithic Dystric Brunisol soils developed on
non-calcareous sandy loam to loamy sand till derived
from Precambrian granitic and basaltic rocks, with a
lithic contact between 4 to 20 inches of the mineral
surface.

- L-H - 1½ to 0 inches, very dark grey (10YR 3/1, moist),
forest litter of needles and small branches; extremely
acid; abrupt, smooth boundary.
- Bm - 0 to 4 inches, dark brown (10YR 4/3, moist), sandy
loam; single grained; loose when moist, loose when
dry; non-sticky, non-plastic; very strongly acid;
clear, smooth boundary.
- Cg - 6 to 14 inches, olive (5Y 5/3, moist), sandy loam;
single grained; loose when moist, loose when dry;
non-sticky, non-plastic; strongly acid; abrupt,
smooth boundary.
- R - 14+ inches, basaltic bedrock.

Analytical data in Table 3, Appendix I.

Forest Black spruce, M.A.I. = 24 cu.ft./ac./yr.

bS

Diameter	4.3 in.
Height	48 ft.
Age	115 yrs.
Basal area	140 sq. ft.

Vegetation

- Trees - *Picea mariana*
Pinus banksiana
Betula papyrifera
- Tall shrubs - *Alnus* sp.
Rosa sp.
- Low shrubs - *Ledum groenlandicum*
Vaccinium vitis-idaea
- Forbs - *Linnaea borealis*
Pyrola asarifolia
P. secunda
Trientalis borealis
- Lichens - *Cladonia* sp.

Capability Classification

Forestry: 6^w
Agriculture: 6^P_R
Wildlife: 6^R_F 4^G_C
Recreation: 6^{OEQ}

PLOT #2c Land Low plateau, shallow stony lacustrine clay over
Stereotriplet A+B bedrock. Moisture regime: moist (4), or imperfectly
drained.

Soil Herb Lake Series

The Herb Lake series consists of imperfectly drained
Gleyed Lithic Grey Luvisol soils developed on strongly
calcareous lacustrine clay, with a lithic contact
between 4 to 20 inches of the mineral surface.

L-H - 3 to 0 inches, very dark brown (10YR 2/2, moist),
forest litter of needles and small branches;
extremely acid; abrupt, smooth boundary.

- Ae - 0 to 3 inches, grey (10YR 5/1, moist), clay loam; moderate, medium platy; friable when moist, hard when dry; slightly sticky and plastic; very strongly acid; clear, smooth boundary.
- ABg - 3 to 5 inches, greyish brown (10YR 5/2, moist), clay; weak, medium, coarse columnar, breaking to strong, coarse subangular blocky; firm when moist, very hard when dry; sticky and plastic; strongly acid; clear, wavy boundary.
- Btg - 5 to 10 inches, dark brown (10YR 4/3, moist), clay; moderate, medium subangular blocky; firm when moist, very hard when dry; sticky and plastic; strongly acid; abrupt, smooth boundary.
- R - 10+ inches, basaltic bedrock.

Analytical data in Table 4, Appendix I.

Forest Black spruce, M.A.I. = 26 cu.ft./ac./yr.

	<u>bS</u>
Diameter	4.4 in.
Height	44 ft.
Age	119 yrs.
Basal area	150 sq. ft.

Vegetation

- Trees - *Picea mariana*
Pinus banksiana
Betula papyrifera
- Tall shrubs - *Alnus* sp.
Rosa sp.
- Low shrubs - *Ledum groenlandicum*
Vaccinium vitis-idaea
- Forbs - *Linnaea borealis*
Pyrola asarifolia
P. secunda
Trientalis borealis
- Lichens - *Cladonia* sp.

Capability Classification

Forestry: 5^W

Agriculture: 5^R

Wildlife: 5^R 4^G
 ^M ^C

Recreation: 6^{OEG}

PLOT #3 Land Peat plateau: perennially frozen fibric to mesic
Stereotriplet A+B peat, with collapse scars. Moisture regime: moist (4),
 or imperfectly drained.

Soil Batty Lake Series

The Batty Lake series consists of imperfectly drained Cryic Mesic Fibrisol soils developed on forest peat.

- Of - 0 to 37 inches, very dark grey (10YR 3/1, moist), slightly woody, fibrous feathermoss peat; very strongly acid; fiber content approximately 73 percent.
- Omz - 37 to 170 inches, black (10YR 2/1, moist), frozen, moderately decomposed, mixed feathermoss and woody peat with segregated ice crystals and ice lenses; strongly acid; fiber content approximately 57 percent.
- Om - 170+ inches, black (10YR 2/1, moist), moderately well decomposed, mixed feathermoss and woody peat.

Analytical data in Table 5, Appendix I.

Forest Black spruce, M.A.I. = 9 cu.ft./ac./yr.

bS

Diameter	3.7 in.
Height	25 ft.
Age	118 yrs.
Basal area	100 sq. ft.

Vegetation

- Trees - *Picea mariana*
- Low shrubs - *Ledum groenlandicum*
Vaccinium vitis-idaea
- Forbs - *Drosera rotundifolia*
Maianthemum canadense
Oxycoccus microcarpus
Rubus chamaemorus
- Bryophytes & lichens - *Cladonia* spp.
- (On litter) *Pleurozium schreberi*
Sphagnum fuscum
Sphagnum warnstorffianum
Tetraplodon angustatus
Meesia uliginosa

Capability Classification

Forestry: 7^K_W

Agriculture: 0

Wildlife: 6^M_F 3^G_C

Recreation: 6^O_EQ

STOP #2

SIMONHOUSE Landscape Unit (124 sq. mi.)

Stereotriplet C

Weakly to very weakly broken area of deep loamy till, with some plateaus of shallow loamy till over bedrock, and lacustrine clay till in some valleys. In the northern, Canadian Shield area shallow sandy till over bedrock and bare bedrock ridges dominate.

Lakes cover 44% of the area. Lakes of various size classes occupy the following proportion of the landscape unit:

Large lakes:	41%
Relatively small lakes:	2%
Small lakes:	1%

The larger lakes have irregular shorelines with many islands in the Precambrian portion of their basin. These lakes are moderately deep and are drained by small creeks or through straits. The smaller lakes in the south have regular shorelines and are shallow, often without open outlets. The shore material is generally bouldery till or, locally, organic matter. Broad sandy beaches occur on Simonhouse Lake.

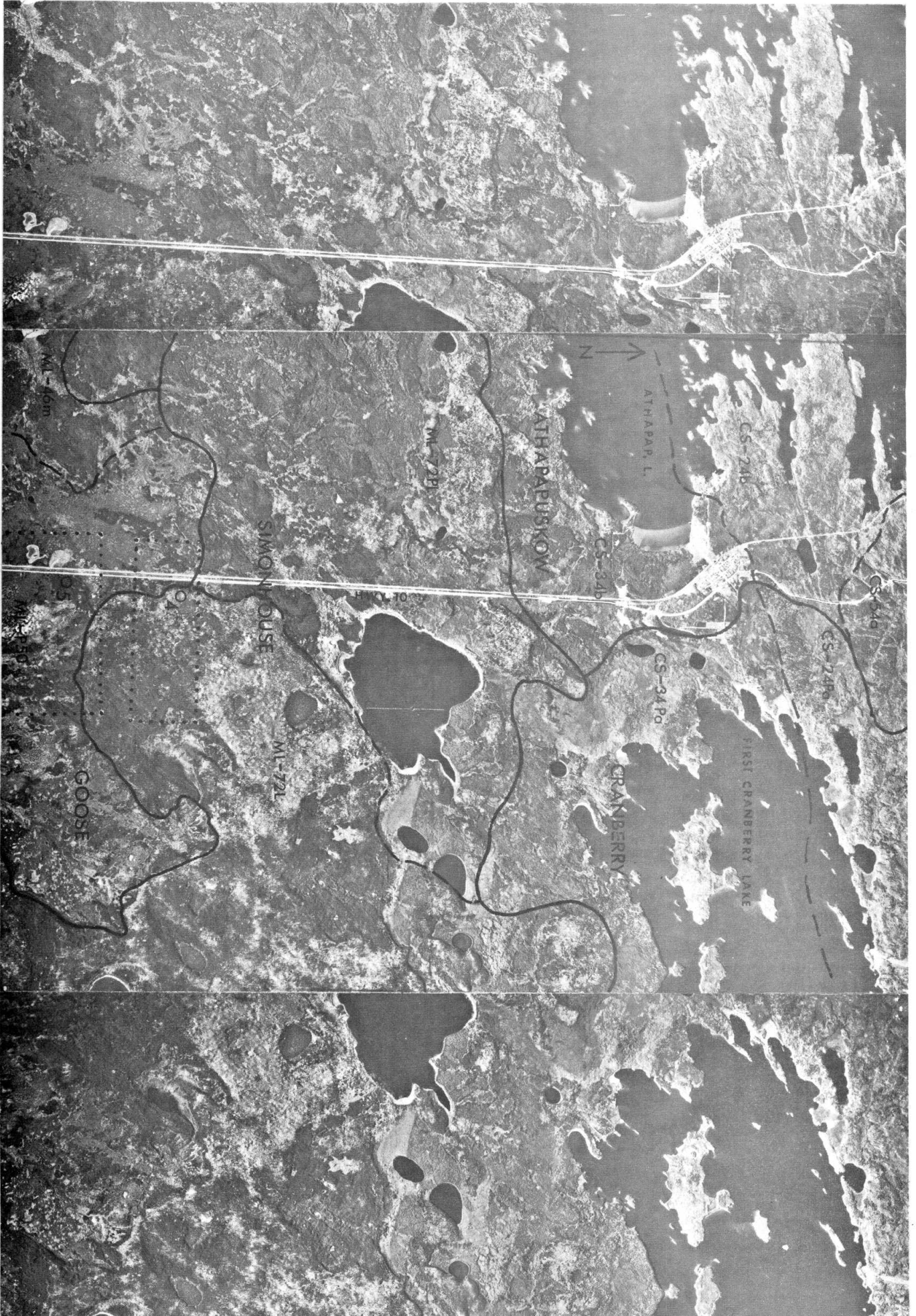
Land Unit ML-72L

Weakly broken area of slopes and flats of deep somewhat calcareous sandy loam (70%) with plateaus of shallow highly calcareous loam over dolomitic bedrock (20%). Minor areas of deep to shallow mesic or fibric peat in some depressions.

PLOT #4	<u>Land</u>	Middle slope on a low drumlin, weakly calcareous
<i>Stereotriplet C</i>		loamy till. Moisture regime: fresh (2), or well
<i>Stereopair E</i>		drained.

STOPS 2,3

Plots 4,5



Stereotriple C. A13904:67-69, fall 1953. Scale $\pm 1/68,000$. T.64, R.26. For detail see Stereopairs D and E.

Soil Egg Lake Series

The Egg Lake series consists of well drained Orthic Grey Luvisol soils developed on moderately to very strongly calcareous, sandy loam to loamy till.

- L-H - 1½ to 0 inches, very dark grey (10YR 3/1, dry), black (10YR 2/1, moist), forest litter; medium acid; abrupt, smooth boundary.
- Ae - 0 to 8 inches, light grey (2.5Y 7/2, dry), dark greyish brown (10YR 4/2, moist), sandy loam; moderate, fine platy; friable when moist, slightly hard when dry; non-sticky, non-plastic; medium acid; abrupt, smooth boundary.
- Bt - 8 to 14 inches, yellowish brown (10YR 5/4, dry), dark brown (7.5YR 3/2, moist), sandy loam; moderate, medium subangular blocky; firm when moist, very hard when dry; slightly sticky and slightly plastic; mildly alkaline; clear, smooth boundary.
- BC - 14 to 19 inches, light grey (10YR 7/1, dry), yellowish brown (10YR 5/4, moist) sandy loam; moderate, medium subangular blocky; firm when moist, very hard when dry; slightly sticky and slightly plastic; mildly alkaline; moderately calcareous; gradual, wavy boundary.
- Cca - 19 to 34 inches, light grey (10YR 7/1, dry), light brownish grey (10YR 6/2, moist), sandy loam; moderate, fine subangular blocky; firm when moist, very hard when dry; slightly sticky and slightly plastic; mildly alkaline; strongly calcareous; clear, smooth boundary.
- C - 34+ inches, light grey (10YR 7/1, dry), light brownish grey (10YR 6/2, moist), sandy loam; moderate, fine subangular blocky; firm when moist, very hard when dry; mildly alkaline; moderately calcareous.

Forest Aspen-white spruce, M.A.I. = 53 cu.ft./ac./yr.

	<u>tA</u>	<u>wS</u>
Diameter	6.7 in.	6.4 in.
Height	48 ft.	32 ft.
Age	55 yrs.	48 yrs.
Basal area	120 sq. ft.	50 sq. ft.

Vegetation

- Trees - *Picea glauca*
 Picea mariana
 Populus tremuloides
- Tall shrubs - *Alnus crispa*
 Rosa spp.
- Low shrubs - *Arctostaphylos uva-ursi*
 Symphoricarpos sp.
 Vaccinium vitis-idaea
 Viburnum edule
- Forbs - *Aralia nudicaulis*
 Epilobium angustifolium
 Fragaria virginiana
 Linnaea borealis
 Maianthemum canadense
 Pyrola secunda
 Rubus pubescens
- Bryophytes & lichens -
- (On granitic rock) *Drepanocladus uncinatus*
 Plagiothecium turfaceum
 Brachythecium flexicaule
 Mnium cuspidatum
- (On base of aspen) *Pylaisia polyantha*
 Brachythecium salebrosum
- (On rotten stump) *Pohlia bulbifera*

Capability Classification

Forestry: 4

Agriculture: 5^F

Wildlife: 2^G_M

Recreation: 5^O

STOP #3

GOOSE Landscape Unit (196 sq. mi.)

Stereotriplet C

Weakly to very weakly broken area of deep loamy till with some shallow till over bedrock, and deep lacustrine clay and clay till in low-lying areas. Peat occurs in most depressions.

Lakes cover 34% of the area. Lakes of various size classes occupy the following proportion of the landscape unit:

Large lakes:	26%
Relatively small lakes:	6%
Small lakes:	2%

The lakes are moderately deep, with large shallow bays. The shorelines are relatively regular, with only a few islands. The shore material is mainly bouldery till or bedrock, but locally organic matter may form the shores. The larger lakes all have outlets, but the small lakes are without open drainage.

Land Unit ML-P50

Weakly broken area of deep mesic peat (60%), with low knolls and flats of deep highly calcareous clay (15%) and loam (15%). Minor areas of shallow fibric peat over clay or loam in some depressions.

PLOT #5 Land Palsa: perennially frozen fibric to mesic peat,
Stereotriplet C with unfrozen fens in depressions. Moisture regime:
Stereopair D moist (4), or imperfectly drained.

Soil Batty Lake Series

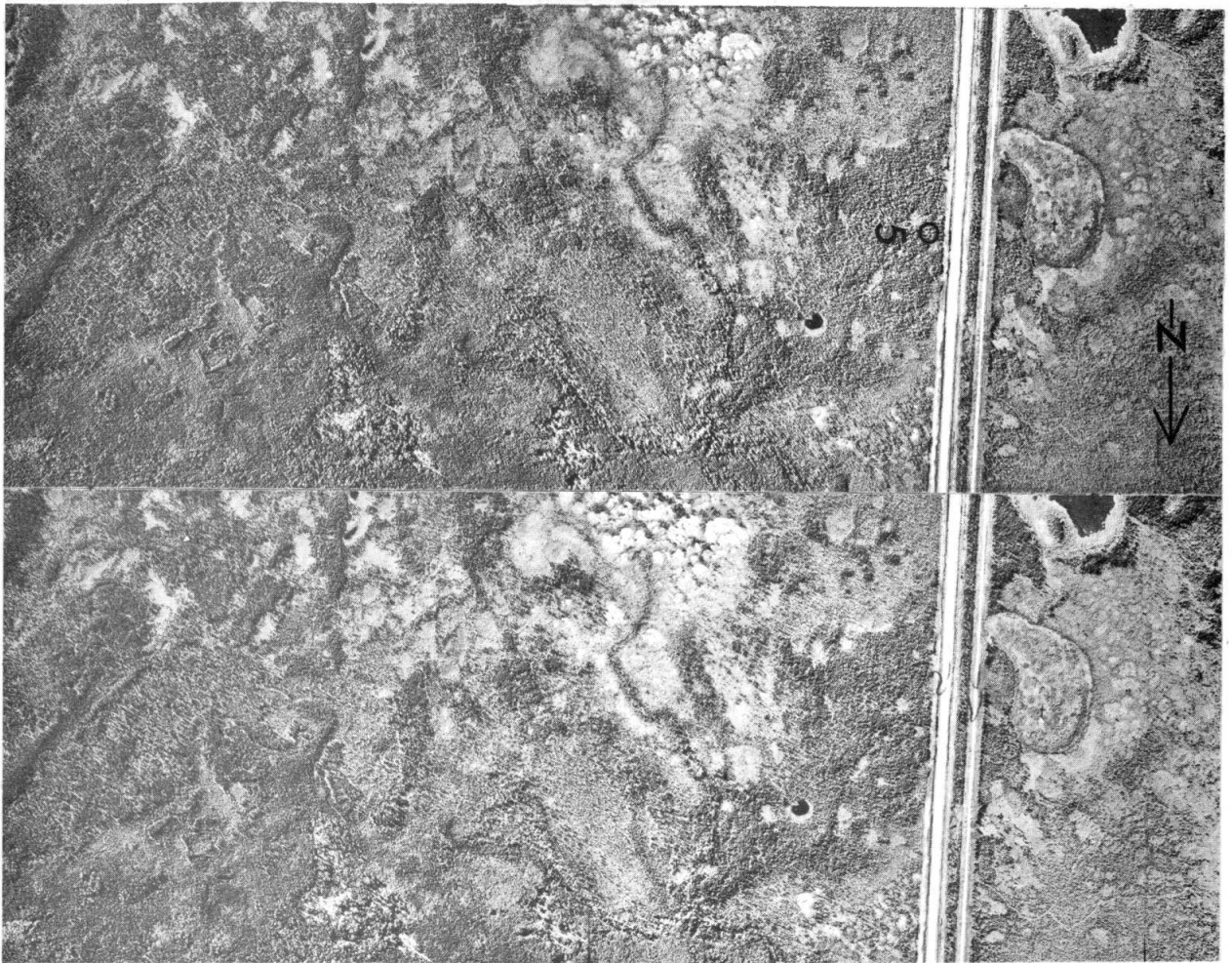
The Batty Lake series consists of imperfectly drained Cryic Mesic Fibrisol soils developed on forest peat.

STOP 2

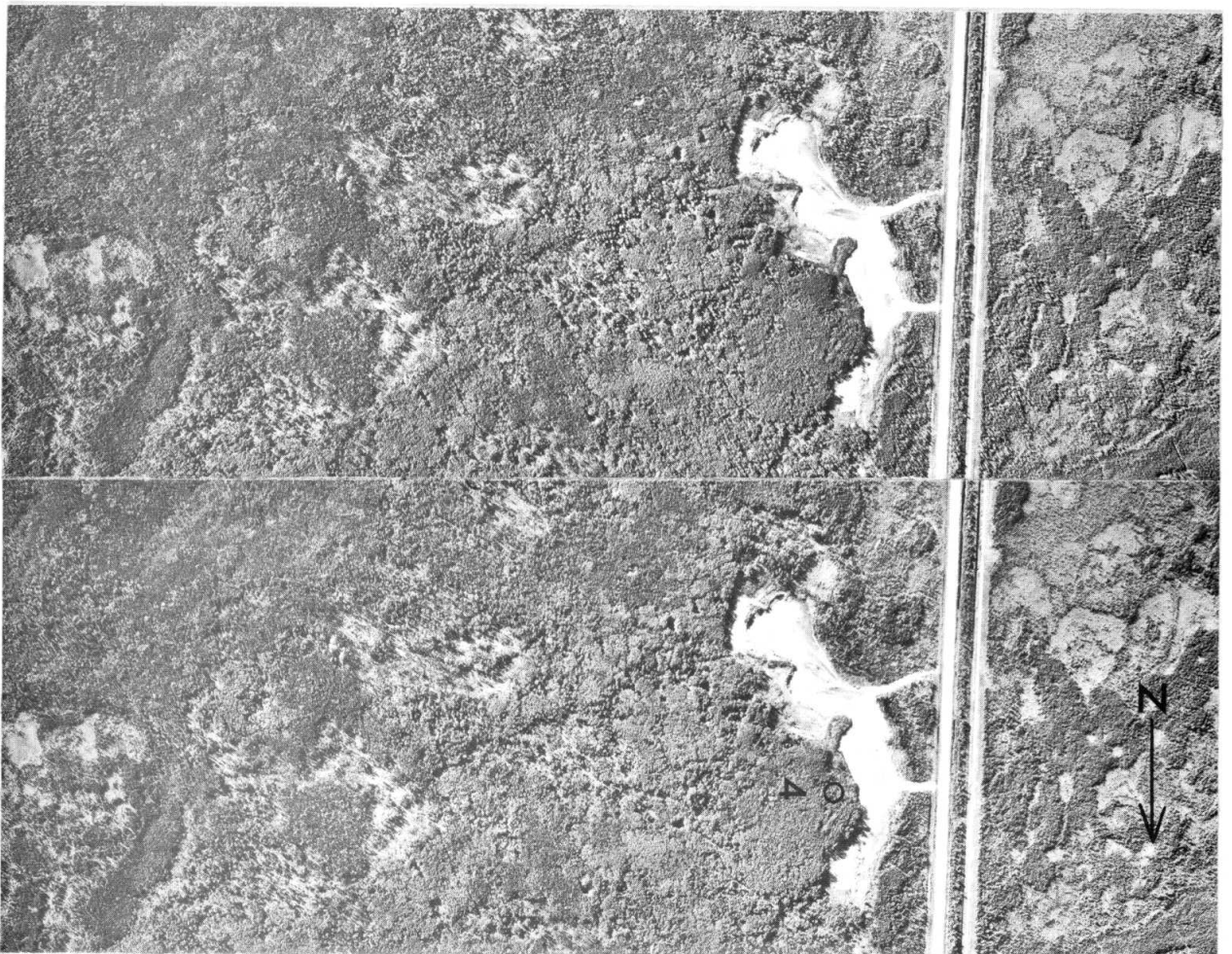
Plot 4

STOP 3

Plot 5



Stereopair D. A19710:102-103, 1967. Scale $\pm 1/16,000$.
Palsa - Detail of Stereotriplet C. T.64, R.26W.



Stereopair E. A19710:100-101, 1967. Scale $\pm 1/16,000$.
Detail of Stereotriplet C. T.64, R.26W.

- Of1 - 0 to 7 inches, very dark greyish brown (10YR 3/2, moist), slightly woody, fibrous feathermoss peat; layer of charcoal and ash; slightly acid; fiber content approximately 82 percent.
- Of2 - 7 to 34 inches, very dark grey (10YR 3/1, moist), slightly woody, fibrous feathermoss peat with thin layer of Sphagnum peat; neutral; fiber content approximately 81 percent.
- Omz - 34 to 96 inches, black (10YR 2/1, moist), frozen, moderately decomposed, mixed forest and fen peat; alternating layers of marl in the lower portion of this layer; neutral; fiber content approximately 42 percent.
- IICgz - 96 to 163 inches, greenish grey (5GY 5/1, moist), frozen clay; ice lenses 0.5 to 4 inches thick.
- IICg - 163 to 167 inches, greenish grey (5GY 5/1, moist), unfrozen, varved clay.

Analytical data in Table 7, Appendix I.

Forest Black spruce, M.A.I. = 9 cu.ft./ac./yr.

bS

Diameter	3.2 in.
Height	23 ft.
Age	83 yrs.
Basal area	70 sq. ft.

Vegetation

Trees	- <i>Picea mariana</i> <i>Betula papyrifera</i>
Tall shrubs	- <i>Betula glandulosa</i> <i>Salix bebbiana</i>
Low shrubs	- <i>Andromeda polifolia</i> <i>Chamaedaphne calyculata</i> <i>Ledum groenlandicum</i>

Vaccinium vitis-idaea

Oxycoccus microcarpus

Empetrum nigrum

Rubus chamaemorus

Forbs - *Drosera rotundifolia*

Equisetum spp.

Bryophytes & lichens -

(On litter)

Bryum inclinatum

Ceratodon purpureus

Dicranum bergeri

Bryoerythrophyllum recurvirostrum

(On tops of
hummocks)

Ptilium crista-castrensis

Dicranum rugosum

Pleurozium schreberi

Cladonia rangiferina

C. mitis

C. alpestris

Dicranum bonjeani

Sphagnum fuscum

(On sides of
hummocks)

Sphagnum fuscum

Pleurozium schreberi

Aulacomnium plaustre

Tomenthypnum nitens

Thuidium microphyllum

Pohlia nutans

(In standing
water)

Sphagnum fallax

S. rubellum

S. wulfianum

Calliergon giganteum

Aulacomnium palustre

Capability Classification

Forestry: 7^K_W

Agriculture: 0

Wildlife: 6^M_F 2^G_C

Recreation: 6^{OE}_M

STOP #4

WANLESS Landscape Unit (93 sq. mi.)

Stereotriplet F

Weakly to very weakly broken area of lacustrine clay, with low hills of deep loamy and clay till, and peat plains in depressions. A lake modified till escarpment occurs on the eastern margin.

Lakes occupy 2% of the area. Lakes of various size classes cover the following proportion of the landscape unit:

Relatively small lakes:	1%
Small lakes:	1%

The lakes are shallow and their shorelines are regular. The shores are formed by organic matter or by loam, in which case they are stony or bouldery. None of the lakes has an open outlet.

Land Unit ML-49h

Weakly broken area of deep highly calcareous clay flats and slopes (95%). Minor areas of deep to shallow mesic and fibric peat in depressions.

PLOT #6 Land Level highly calcareous lacustrine clay. Moisture
Stereotriplet F regime: moist (3), or well drained.

Soil Wabowden Series

The Wabowden series consists of well drained Solodic Grey Luvisol soils developed on moderately to strongly calcareous lacustrine clay.

L-H - 2 to 0 inches, very dark grey (10YR 3/1, moist),
 forest litter; very strongly acid; abrupt, smooth
 boundary.

STOP 4

Plot 6



Stereopairlet F. A13870:57-59, fall 1953. Scale $\pm 1/68,000$. T.60,61, R.26W. For detail see Stereopair G.

- Ae - 0 to 4½ inches, light grey (10YR 6/1, moist), clay; moderately coarse platy; friable when moist, hard when dry; slightly sticky and plastic; very strongly acid; clear, smooth boundary.
- AB - 4½ to 9½ inches, light brownish grey (10YR 6/2, moist), clay; strong, coarse columnar; firm when moist, very hard when dry; sticky and plastic; strongly acid; gradual, wavy boundary.
- Bt - 9½ to 18½ inches, greyish brown (2.5Y 5/2, moist), clay; strong, medium subangular blocky; firm when moist, hard when dry; sticky and plastic; slightly acid; gradual, wavy boundary.
- BC - 18½ to 22½ inches, dark grey (10YR 4/1, moist), clay; strong medium subangular blocky; firm when moist, hard when dry; sticky and plastic; neutral; gradual, wavy boundary.
- C1 - 22½ to 30 inches, dark grey (10YR 4/1, moist), clay; moderate, medium subangular blocky; firm when moist, hard when dry; sticky and plastic; mildly alkaline; gradual, wavy boundary.
- C2 - 30 to 39 inches, grey (10YR 5/1, moist), clay; moderate, fine to medium subangular blocky; firm when moist, hard when dry; sticky and plastic; mildly alkaline.

Analytical data in Table 8, Appendix I.

Forest Jack pine-black spruce, M.A.I. = 62 cu.ft./ac./yr.

	<u>jP</u>	<u>bS</u>
Diameter	8.4 in.	8.5 in.
Height	65 ft.	65 ft.
Age	76 yrs.	70 yrs.
Basal area	100 sq. ft.	80 sq. ft.

Vegetation

- | | |
|----------------------|--|
| Trees | - <i>Pinus banksiana</i>
<i>Picea mariana</i>
<i>Populus tremuloides</i> |
| Tall shrubs | - <i>Rosa</i> sp. |
| Low shrubs | - <i>Vaccinium angustifolium</i>
<i>Viburnum edule</i> |
| Forbs | - <i>Aralia nudicaulis</i>
<i>Cornus canadensis</i>
<i>Epilobium angustifolium</i>
<i>Linnea borealis</i>
<i>Maianthemum canadense</i>
<i>Mitella nuda</i>
<i>Rubus idaeus</i> |
| Bryophytes & lichens | - |
| (On old birch stump) | <i>Bryum pendulum</i>
<i>Brachythecium oxycladon</i> |
| (On litter) | <i>Pleurozium schreberi</i>
<i>Ptilium crista-castrensis</i> |

Capability Classification

Forestry: 4
Agriculture: 4^D
Wildlife: 2^G
Recreation: 5^MOE

STOP 5

Plot 7 + "Waterfowl" Stop



Stereotriple H. A13870:115-112, fall 1953. Scale $\pm 1/68,000$. T.58,59, R.26W.

CLEARWATER Landscape Unit (232 sq. mi.)*Stereotriplet H*

Weakly broken area of deep loamy till, with plateaus of shallow loamy till over bedrock and bare bedrock. Peat plains and lacustrine clay occupy many depressions.

Lakes occupy 45% of the area. Lakes of various size classes cover the following proportion of the landscape unit:

Large lakes:	43%
Small lakes:	2%

Clearwater Lake is moderately deep with some shallow bays, having a somewhat irregular shoreline. The smaller lakes have regular shorelines and are shallow. The shores are mainly bouldery or rocky, but some sandy beaches occur between headlands. Organic matter forms the shores of some small lakes. All but some small muskeg lakes have open outlets.

Land Unit ML-P45

Weakly broken area of shallow fibric peat over loam (60%) in depressions and lower slopes, with deep very highly calcareous loam (30%) on low hills. Minor areas of deep fibric peat in depressions; very highly calcareous gravelly sand in some low ridges.

PLOT #7 Land Lower slope of gently sloping drumlinoid structure,
Stereotriplet H shallow fibric peat over very highly calcareous loamy till. Moisture regime: wet (8), or poorly drained.

Soil Dering Series Peaty Phase

The Dering series peaty phase consists of poorly drained Rego Gleysol soils developed on extremely calcareous loamy till.

- L-F - 8½ to 4½ inches, brown (10YR 5/3, moist), fibrous sphagnum peat; extremely acid; abrupt, smooth boundary.
- H - 4½ to 0 inches, very dark grey (10YR 3/1, moist), moderately well decomposed forest peat; neutral; abrupt, smooth boundary.
- Ahg - 0 to 4 inches, black (10YR 2/1, moist), fine sandy loam; weak, fine subangular blocky; friable when moist, slightly hard when dry; sticky and slightly plastic; neutral; clear, smooth boundary.
- Cg - 4 to 11 inches, light brownish grey (2.5Y 6/2, moist), silt loam; weak, fine subangular blocky; friable when moist, slightly hard when dry; sticky and slightly plastic; mildly alkaline.

Analytical data in Table 9, Appendix I.

Forest Black spruce, M.A.I. = 5 cu.ft./ac./yr.

bS

Diameter	4.3 in.
Height	25 ft.
Age	195 yrs.
Basal area	80 sq. ft.

Vegetation

- | | |
|-------------|---|
| Trees | - <i>Picea mariana</i> |
| Tall shrubs | - <i>Betula glandulosa</i>
<i>Salix bebbiana</i> |
| Low shrubs | - <i>Andromeda polifolia</i>
<i>Arctostaphylos uva-ursi</i>
<i>Chamaedaphne calyculata</i>
<i>Juniperus horizontalis</i>
<i>Ledum groenlandicum</i>
<i>Vaccinium angustifolium</i>
<i>Vaccinium vitis-idaea</i>
<i>Oxycoccus microcarpus</i> |

Forbs - *Arctostaphylos rubra*
Drosera rotundifolia
Equisetum sp.

Bryophytes & lichens -

(On litter) *Pleurozium schreberi*
Dicranum dummondii
Sphagnum nemoreum

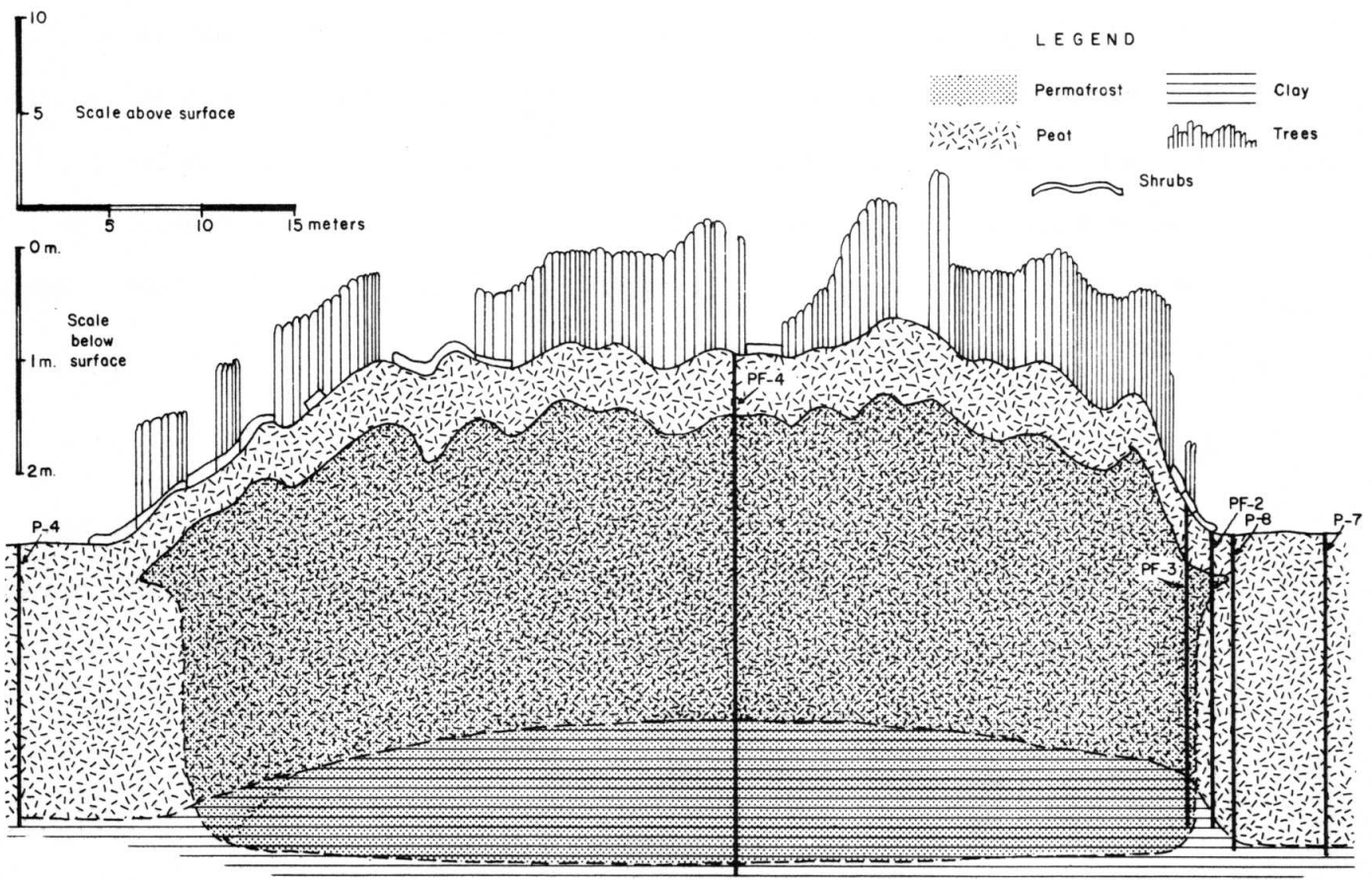
Capability Classification

Forestry: 7^w

Agriculture: 0

Wildlife: 6^M 3^G
 M^F C

Recreation: 6^{OE}



Cross section of Palsa along Line 4, showing permafrost core and the thickness of active layer related to vegetation cover. (From: Properties of a Wooded Palsa in Northern Manitoba by S.C. Zoltai and C. Tarnocai, in manuscript.

SIMONHOUSE Landscape Unit (124 sq. mi.)*Stereopair M*

Weakly to very weakly broken area of deep loamy till, with some plateaus of shallow loamy till over bedrock, and lacustrine clay till in some valleys. In the northern, Canadian Shield area shallow sandy till over bedrock and bare bedrock ridges dominate.

Lakes cover 44% of the area. Lakes of various size classes occupy the following proportion of the landscape unit:

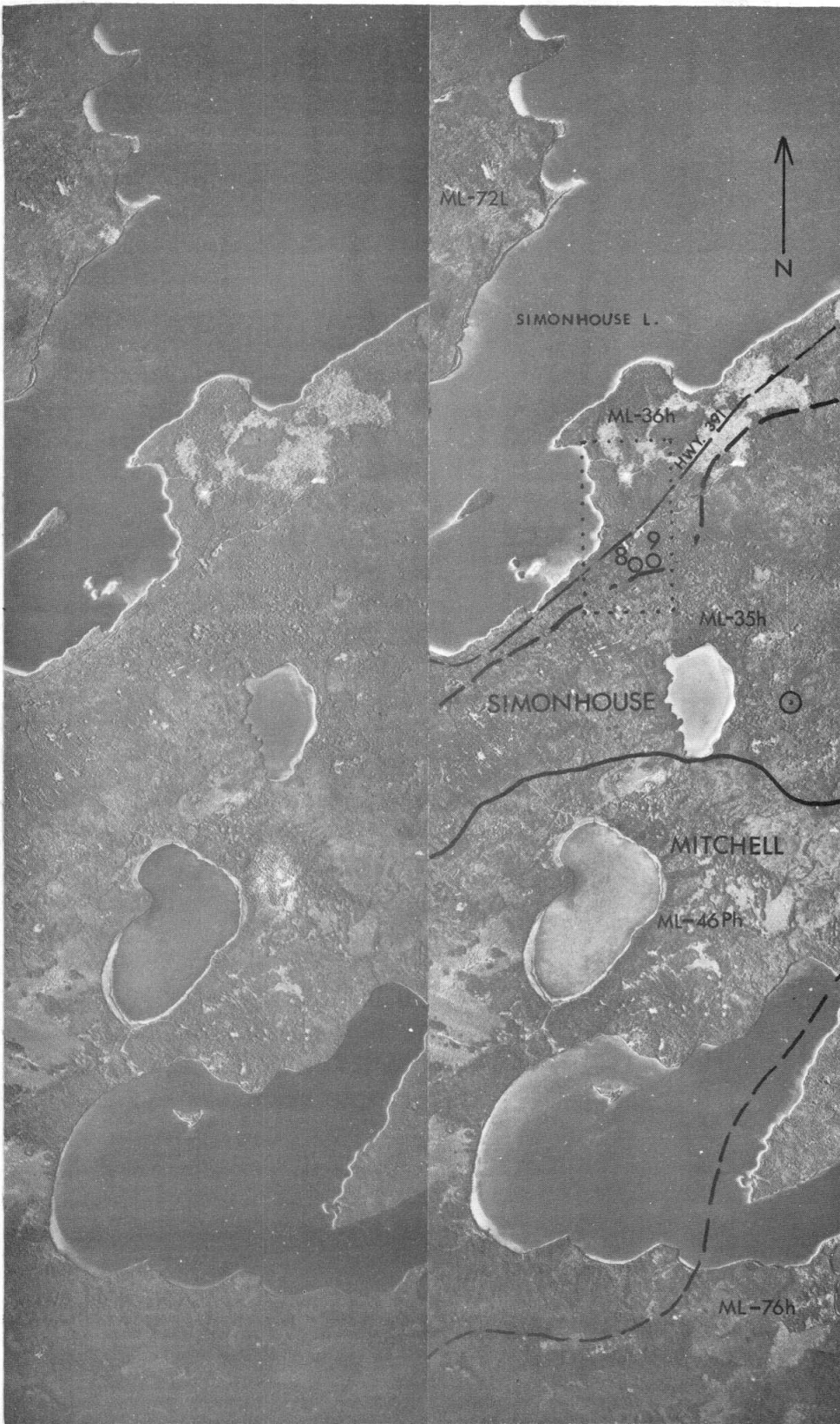
Large lakes	41%
Relatively small lakes:	2%
Small lakes:	1%

The larger lakes have irregular shorelines with many islands in the Precambrian portion of their basin. These lakes are moderately deep and are drained by small creeks or through straits. The smaller lakes in the south have regular shorelines and are shallow, often without open outlets. The shore material is generally bouldery till or, locally, organic matter. Broad sandy beaches occur on Simonhouse Lake.

Land Unit ML-36h

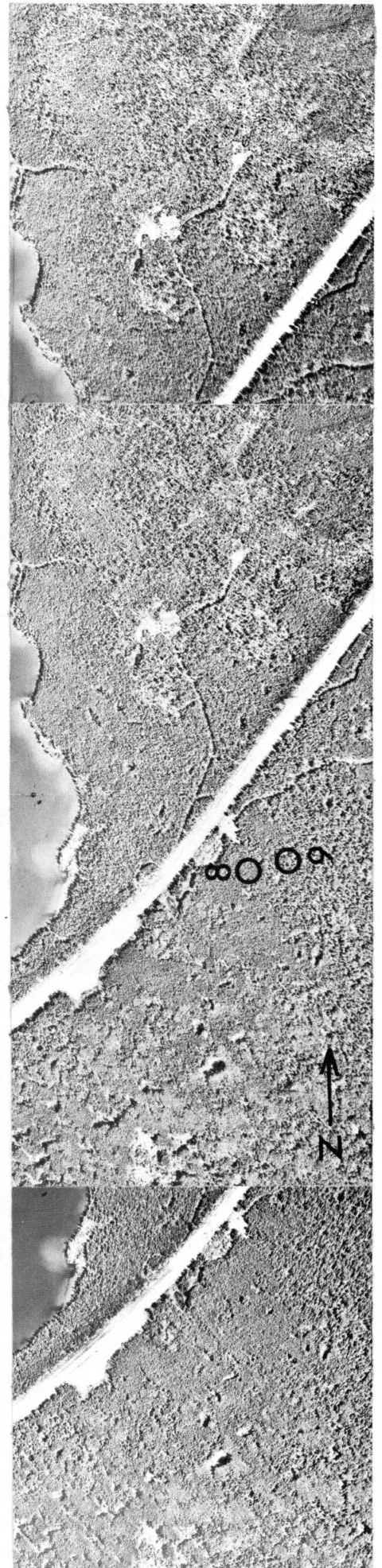
Weakly broken area of deep highly calcareous loam (60%) on slopes and flats, shallow loam over dolomitic bedrock (10%), with deep highly calcareous clay in depressions (10%). Minor areas of highly calcareous gravelly sand in some low ridges; shallow fibric peat over loam or clay in some depressions; deep mesic peat in some depressions.

PLOT #8	<u>Land</u>	Gently sloping toe of beach ridge, moderately calcareous medium sand. Moisture regime: somewhat fresh (1), or well drained.
<i>Stereotriplet L</i>		
<i>Stereopair M</i>		



Stereopair M. A13789:202-203,
1953. Scale $\pm 1/68,000$. T.63,
R.25W.

Stereotriplet L.
A20040:209-211, 1967.
Scale $\pm 1/16,000$. T.63,
R.25. Detail of Sp.M.



Soil Clarke Series

The Clarke series consists of well drained Degraded Dystric Brunisol soils developed on glacio-fluvial sand deposits.

- L-H - 2 to 0 inches, black (10YR 2/1, moist), forest litter of jack pine needles; very strongly acid; abrupt, smooth boundary.
- Ae - 0 to 6 inches, light grey (10YR 7/1, moist), sand; single grained; loose when moist, loose when dry; non-sticky, non-plastic; strongly acid; abrupt, smooth boundary.
- Bm - 6 to 14 inches, yellowish brown (10YR 5/6, moist), sand; single grained; loose when moist, loose when dry; non-sticky, non-plastic; strongly acid; clear, smooth boundary.
- BC1 - 14 to 23 inches, light yellowish brown (10YR 6/4, moist), sand; single grained; loose when moist, loose when dry; non-sticky, non-plastic; medium acid; gradual, wavy boundary.
- BC2 - 23 to 38 inches, light yellowish brown (10YR 6/4, moist), sand; single grained; loose when moist, loose when dry; non-sticky, non-plastic; medium acid; gradual, wavy boundary.
- C - 38 to 48 inches, very pale brown (10YR 7/3, moist), sand; single grained; loose when moist, loose when dry; non-sticky, non-plastic; medium acid.

Analytical data in Table 10, Appendix I.

Forest Jack pine, M.A.I. = 26 cu.ft./ac./yr.

jP

Diameter	8.2 in.
Height	60 ft.
Age	130 yrs.
Basal area	140 sq. ft.

Vegetation

- | | |
|-------------|---|
| Trees | - <i>Pinus banksiana</i>
<i>Picea mariana</i>
<i>Betula papyrifera</i> |
| Tall shrubs | - <i>Rosa</i> sp.
<i>Shepherdia canadensis</i> |
| Low shrubs | - <i>Arctostaphylos uva-ursi</i>
<i>Vaccinium angustifolium</i>
<i>V. vitis-idaea</i> |
| Forbs | - <i>Anemone patens</i>
<i>Apocynum androsaemifolium</i>
<i>Aralia nudicaulis</i>
<i>Cornus canadensis</i>
<i>Geocaulon lividum</i>
<i>Linnaea borealis</i>
<i>Lycopodium</i> spp.
<i>Maianthemum canadense</i>
<i>Pyrola asarifolia</i>
<i>P. secunda</i> |

Capability Classification

Forestry: **5_M^F**
 Agriculture: **6_M^F**
 Wildlife: **5_M^F**
 Recreation: **6_{OEQ}**

PLOT #9
 Stereotriplet L
 Stereopair M

<u>Land</u>	Beach ridge on upper slope; gravelly calcareous sand. Moisture regime: fresh (2), or well drained.
<u>Soil</u>	Woodridge Complex The Woodridge Complex consists of rapidly to well drained Orthic Grey Luvisol, Orthic Eutric Brunisol

soils developed on stratified calcareous sand and gravel outwash and beach deposits.

- L-H - 1½ to 0 inches, black (10YR 2/1, moist), forest litter; very strongly acid; abrupt, smooth boundary.
- Ae - 0 to 1 inches, dark greyish brown (10YR 4/2, moist), loamy sand; single grained; loose when moist, loose when dry; non-sticky, non-plastic; medium acid; clear, smooth boundary.
- Bt - 1 to 8 inches, very dark greyish brown (10YR 3/2, moist), loamy sand; weak, medium granular; very friable when moist, slightly hard when dry; non-sticky, non-plastic; neutral; mildly alkaline; gradual, wavy boundary.
- BC - 8 to 12 inches, brown (10YR 5/3, moist), sand; single grained; loose when moist, loose when dry; non-sticky, non-plastic; mildly alkaline; clear, wavy boundary.
- C - 12 to 20 inches, pale brown (10YR 6/3, moist), sand; single grained; loose when moist, loose when dry; non-sticky, non-plastic; moderately alkaline.

Analytical data in Table 11, Appendix I.

Forest Jack pine-black spruce, M.A.I. = 34 cu.ft./ac./yr.

	<u>jP</u>	<u>bS</u>
Diameter	8.2 in.	8.3 in.
Height	63 ft.	55 ft.
Age	92 yrs.	103 yrs.
Basal area	110 sq. ft.	30 sq. ft.

Vegetation

Trees - *Pinus banksiana*
Picea mariana

- Tall shrubs - *Alnus crispa*
Rosa sp.
- Low shrubs - *Arctostaphylos uva-ursi*
Ledum groenlandicum
Symphoricarpos sp.
Vaccinium vitis-idaea
Viburnum edule
- Forbs - *Cornus canadense*
Lycopodium spp.
Petasites palmatus
- Bryophytes & lichens -
- (On litter) *Dicranum rugosum*
D. drummondii
Pleurozium schreberi
Hylocomium splendens
Brachythecium sp.
- (In open area) *Ceratodon purpureus*
- (On rocks) *Hypnum reptile*

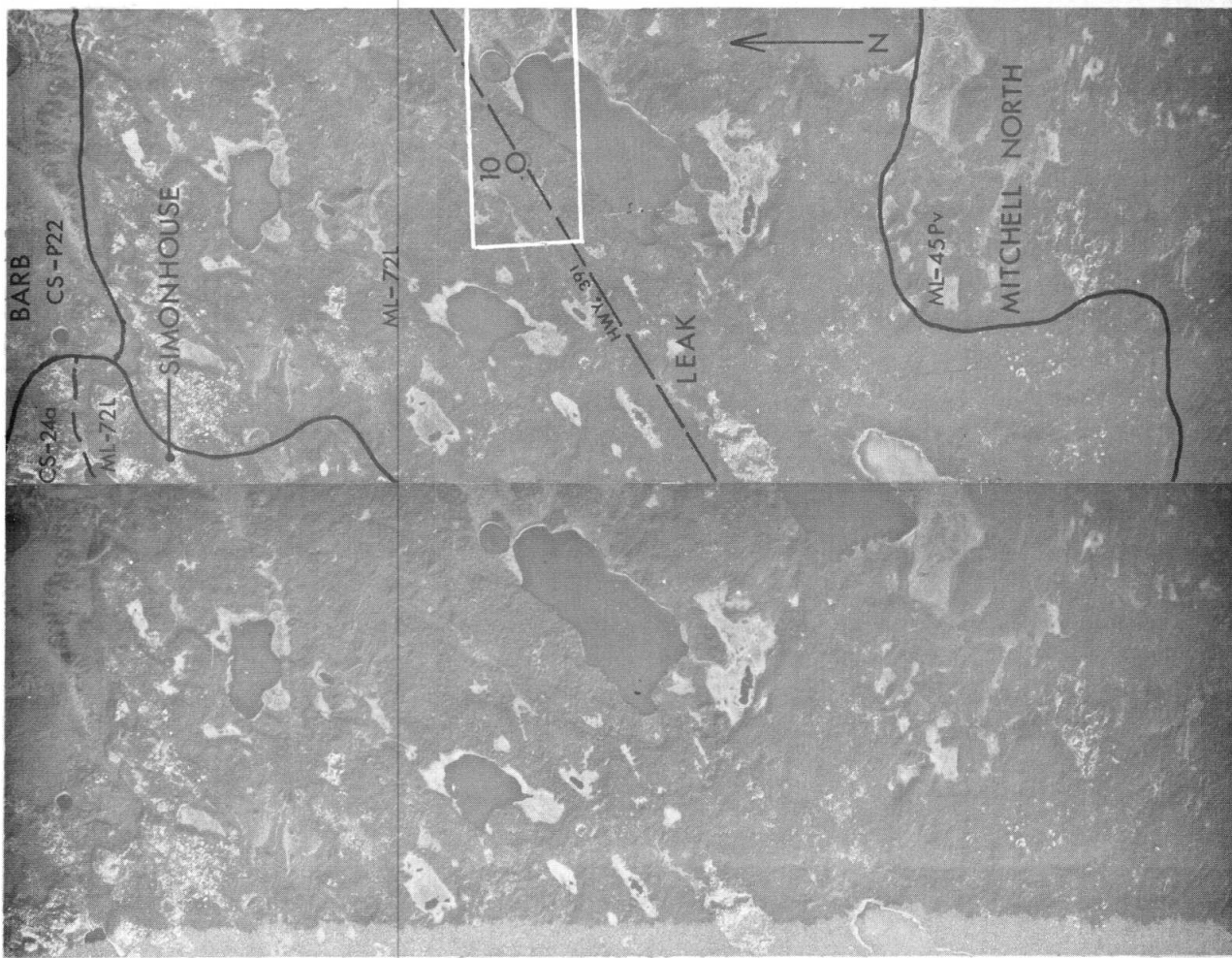
Capability Classification

Forestry: 5^M

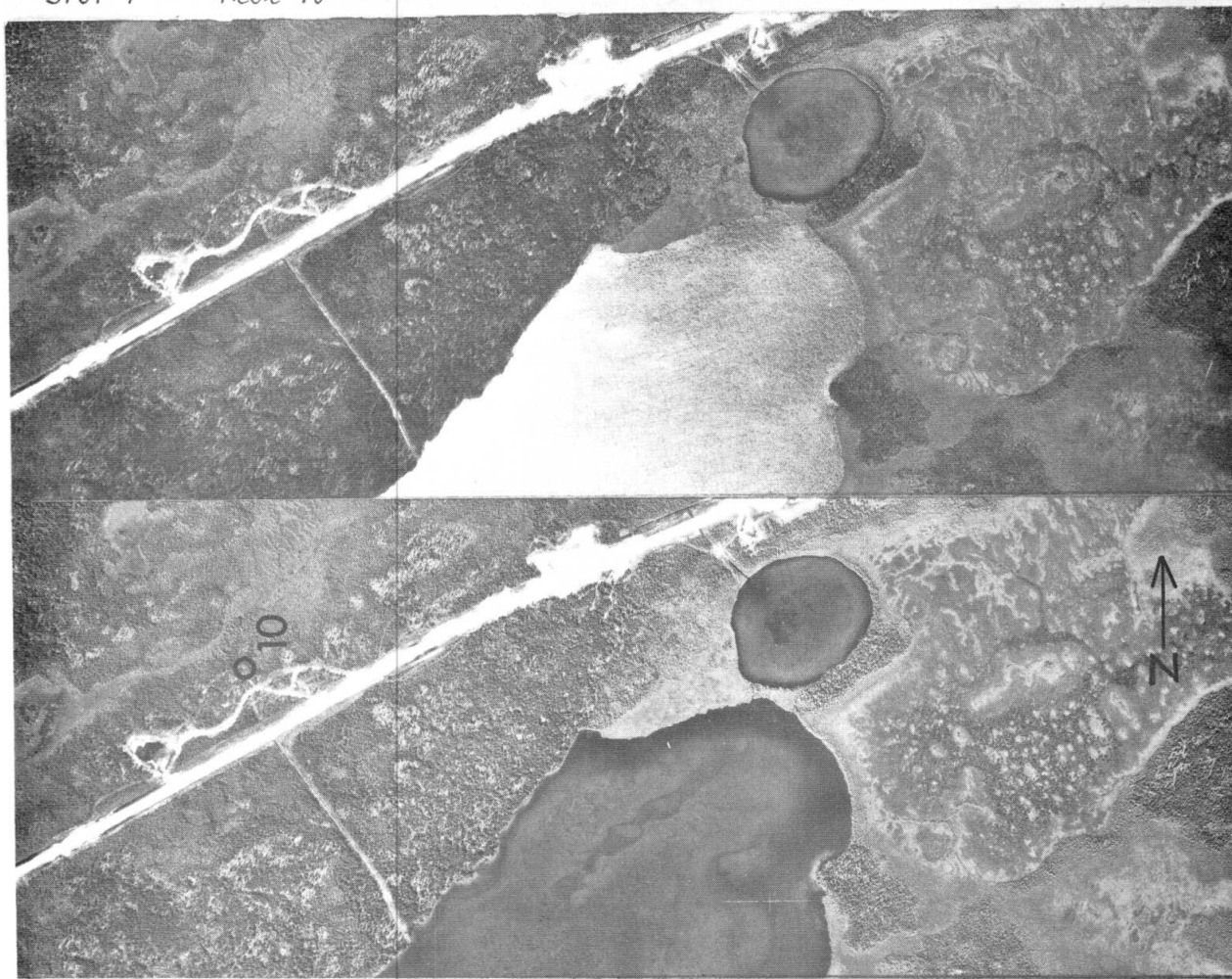
Agriculture: 6^M_P

Wildlife: 5^F_M

Recreation: 6^{OEQ}



Stereopair N. A13893:5-6, fall 1953. Scale $\pm 1/68,000$.



Stereopair O. A19705:144-145, 1967. Scale $\pm 1/16,000$.
T.64, R.24W. Detail of Stereopair N.

LEAK Landscape Unit (92 sq. mi.)*Stereotriplet*

Weakly broken area of deep sandy till and shallow loamy till over dolomitic bedrock, with peat plains in depressions.

Lakes cover 8% of the area. Lakes of various size classes occupy the following proportion of the landscape unit:

Relatively small lakes:	3%
Small lakes:	5%

The lakes are generally shallow and have somewhat irregular shorelines. The shore material is mainly bouldery till or, locally, organic matter. Most lakes have no open outlets and drain through bogs.

Land Unit ML-72L

Weakly broken area of knolls, slopes and flats of deep somewhat calcareous silty sand (70%), with plateaus of shallow highly calcareous loam over dolomitic bedrock (20%). Minor areas of deep mesic to fibric peat in depressions.

PLOT #10 Land Shallow fibric peat over dolomitic limestone.
Stereopair H&O Moisture regime: wet (7), or poorly drained.

Soil Flux Lake Series

The Flux Lake series consists of poorly to very poorly drained Lithic Fibric Mesisol soils developed on shallow (16 to 36 inches) forest peat or thin (< 24 inches) sphagnum peat overlying forest peat.

Of - 0 to 16 inches, dark greyish brown (10YR 4/2, moist), non-woody, fibrous sphagnum peat; very strongly acid; fiber content approximately 100 percent.

Om - 16 to 23 inches, black (10YR 2/1, moist),
moderately decomposed forest peat; neutral; fiber
content approximately 54 percent.

R - 23+ inches, limestone bedrock.

Analytical data in Table 12, Appendix I.

Forest Black spruce, M.A.I. = 6 cu.ft./ac./yr.

bS

Diameter	4.7 in.
Height	25 ft.
Age	121 yrs.
Basal area	60 sq. ft.

Vegetation

Trees - *Picea mariana*
Larix laricina

Tall shrubs - *Potentilla fruticosa*
Salix bebbiana
Shepherdia canadensis

Low shrubs - *Andromeda polifolia*
Chamaedaphne calyculata
Ledum groenlandicum
Vaccinium vitis-idaea

Forbs - *Arctostaphylos rubra*
Calla palustris
Equisetum sp.
Geocaulon lividum
Oxycoccus microcarpus

Bryophytes & lichens -

(On litter) *Meesia uliginosa*
Pleurozium schreberi
Tomenthypnum nitens
Aulacomnium palustre
Bryum pallens
Leptobryum pyriforme
Sphagnum nemoreum

Capability Classification

Forestry: 7^W_R

Agriculture: 7^W0

Wildlife: 6^M_R 3^G_C

Recreation: 6^{OER}

LEAK Landscape Unit (92 sq. mi.)*Stereopair R*

Weakly broken area of deep sandy till and shallow loamy till over dolomitic bedrock, with peat plains in depressions.

Lakes cover 8% of the area. Lakes of various size classes occupy the following proportion of the landscape unit:

Relatively small lakes:	3%
Small lakes:	5%

The lakes are generally shallow and have somewhat irregular shorelines. The shore material is mainly bouldery till or, locally, organic matter. Most lakes have no open outlets and drain through bogs.

Land Unit ML-74PL

Weakly broken area of deep somewhat calcareous silty sand slopes and flats (60%) and plateaus of shallow highly calcareous loam over dolomitic bedrock (20%). Deep mesic to fibric peat occurs in many depressions (20%).

PLOT #11 Land Level dolomite plateau, bare to very shallow over bedrock. Moisture regime: dry (0), or rapidly drained.

*Stereotriplet Q*Soil Rock Outcrop

The Rock outcrop consists of 0 to 4 inches of rapidly drained surface deposits over limestone bedrock.

L-H - 0 to 2½ inches, very dark grey (10YR 3/1, moist), forest litter; slightly acid; abrupt, smooth boundary.

R - 0+ inches, limestone bedrock.

Analytical data in Table 13, Appendix I.

Stereotriple 2. A19731:99-101, 1967. Scale $\pm 1/16,000$. T.65, R.23W. Detail of Stereopair 0.



Forest Jack pine-black spruce, M.A.I. = 12 cu.ft./ac./yr.

	<u>jP</u>	<u>tA</u>	<u>bS</u>
Diameter	6.7 in.	8.0 in.	8.5 in.
Height	40 ft.	43 ft.	45 ft.
Age	140 yrs.	105 yrs.	110 yrs.
Basal area	30 sq. ft.	30 sq. ft.	10 sq. ft.

Vegetation

Trees - *Pinus banksiana*
Picea glauca
Picea mariana
Populus tremuloides
Betula papyrifera

Tall shrubs - *Juniperus communis*
Lonicera sp.
Prunus virginiana
Rosa sp.
Shepherdia canadensis

Low shrubs - *Arctostaphylos uva-ursi*
Juniperus horizontalis
Viburnum edule

Forbs - *Campanula rotundifolia*
Galium trifidum
Linnaea borealis
Maianthemum canadense
Rubus pubescens
Viola spp.

Bryophytes & lichens -

(On dolomite
cliffs) *Myurella julacea*
Encalypta rhabdocarpa
Ditrichum boreale
Hypnum fertile
Platygyrium repens

(On litter) *Dicranella* sp.
Cladonia spp.

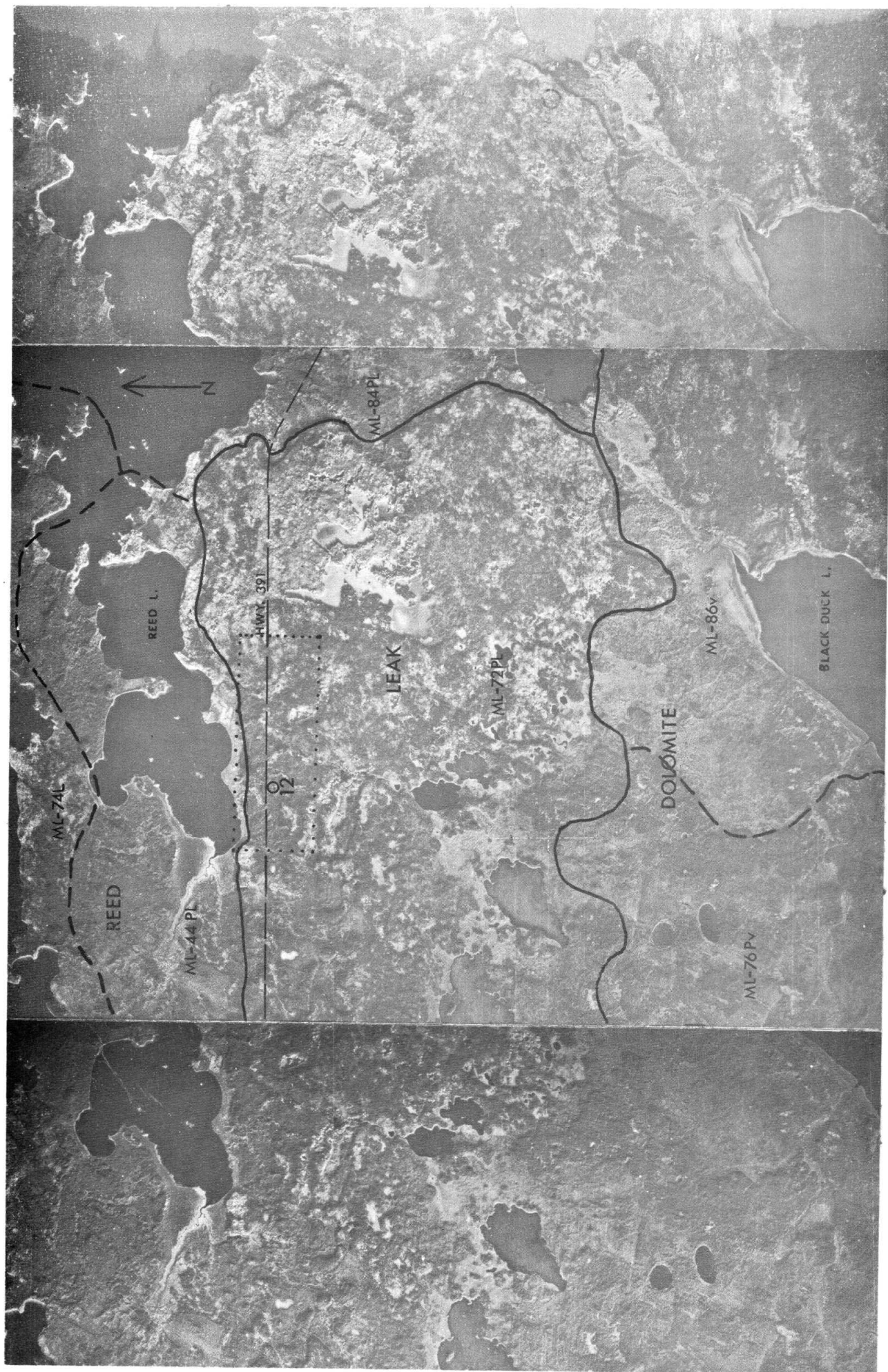
Capability Classification

Forestry: 6_M^R

Agriculture: 7^R

Wildlife: 6_M^R 3_C^G

Recreation: 6^{OE}



Stereotriple R. A13893:9-11, fall 1953. Scale $\pm 1/68,000$. T.64, R.21W.

LEAK Landscape Unit (92 sq. mi.)*Stereotriplet R*

Weakly broken area of deep sandy till and shallow loamy till over dolomitic bedrock, with peat plains in depressions.

Lakes cover 8% of the area. Lakes of various size classes occupy the following proportion of the landscape unit:

Relatively small lakes:	3%
Small lakes:	5%

The lakes are generally shallow and have somewhat irregular shorelines. The shore material is mainly bouldery till or, locally, organic matter. Most lakes have no open outlets and drain through bogs.

Land Unit ML-72PL

Weakly broken area of somewhat calcareous silty sand slopes and flats (50%) and plateaus of shallow, highly calcareous loam over dolomitic bedrock (30%). Deep mesic to fibric peat occurs in many depressions (20%).

PLOT #12 Land Deep fibric peat on 4% slope.
Stereotriplet R
Stereopair S Soil Morin Lake Series

The Morin Lake series consists of poorly to very poorly drained Mesic Fibrisol soils developed on very deep (64 inches) sphagnum peat underlain by forest and/or fen peat. Moderately coarse sediments occur below 64 inches of the surface.

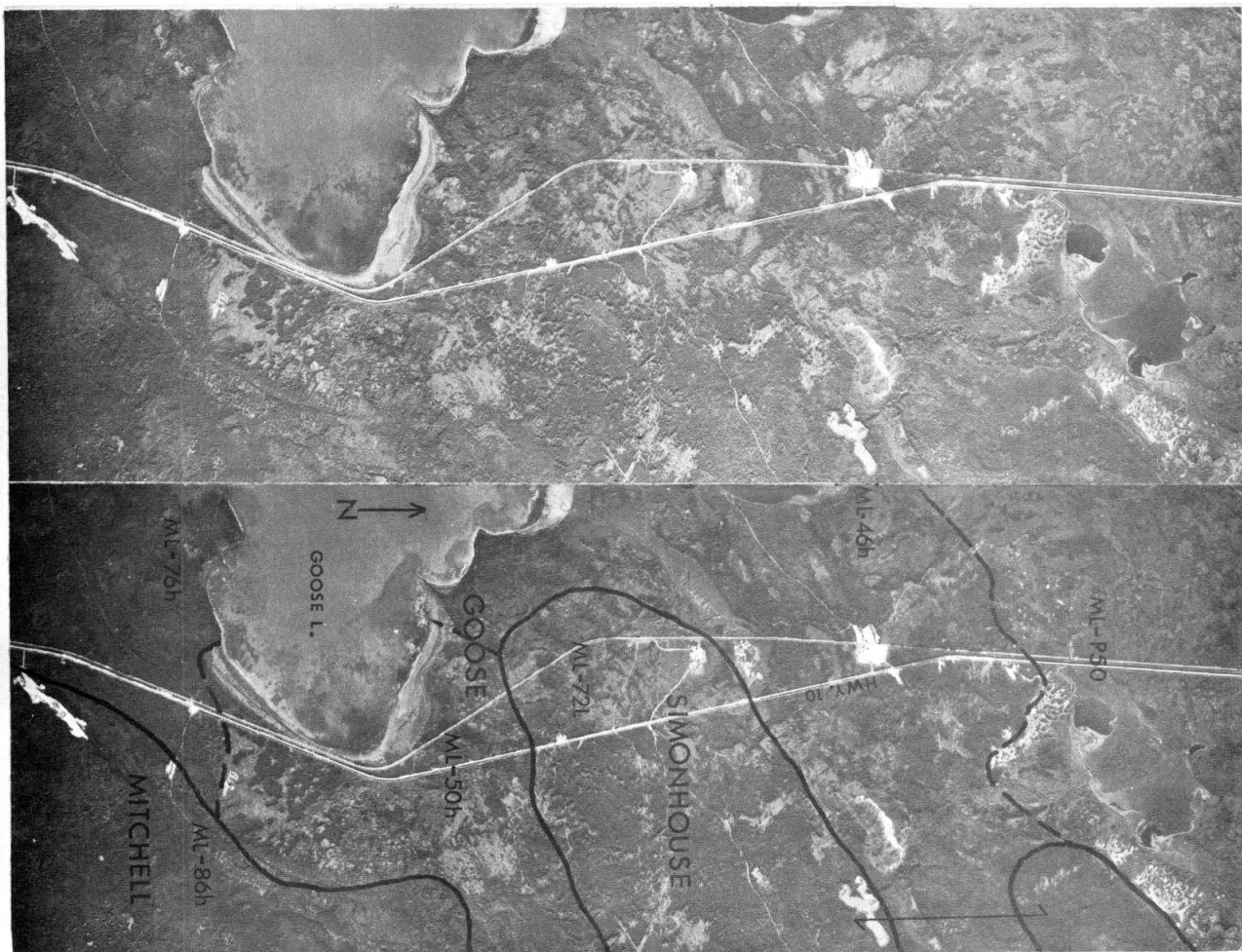
Of1 - 0 to 16 inches, black (10YR 2/1, moist), fibrous, sphagnum peat mixed with woody peat; slightly acid; fiber content approximately 72 percent.

- Of2 - 16 to 46 inches, black (10YR 2/1, moist), fibrous, sphagnum peat, neutral; fiber content approximately 81 percent.
- Om - 46 to 71 inches, black (10YR 2/1, moist), moderately decomposed forest peat; neutral; fiber content approximately 60 percent.
- IIAhg - 71+ inches, very dark greyish brown (10YR 3/2, moist), sand; single grained; mildly alkaline.

Analytical data in Table 14, Appendix I.



Stereopair S. A20044:161-162, 1967. Scale $\pm 1/16,000$.
 Reed Lake - T.64, R.24W.



Stereopair T. A13789:201-202. Scale $\pm 1/16,000$.
 T.63, R.26W.

APPENDIX I

Mechanical and Chemical Analysis of Soils

Table 1.
Analysis of Fay Lake loamy sand

Chemical Characteristics

Hor.	Depth inches	pH	CaCO ₃ Equiv.	%	Calcite	%	Dolomite	%	Org. C.	%	Total N	C/N Ratio	C.E.C. m.e.	Exchangeable Cations m.e./100 gms.				
														Ca ²⁺	Mg ²⁺	K ⁺	Na ⁺	H ⁺
L-F	3-0	4.35	-	-	-	-	54.90	0.89	62	81.90	20.50	5.15	1.67	1.12	46.60			
Ae	0-4	5.30	-	-	-	-	1.12	0.03	37	6.60	2.56	0.93	0.15	0.76	2.30			
Bm	4-12	5.70	-	-	-	-	0.39	0.04	10	3.98	1.46	0.34	0.15	1.01	1.14			
BC	12-24	5.70	-	-	-	-	0.21	0.02	11	2.72	1.02	0.23	0.06	0.77	0.74			
C	24-29	6.35	-	-	-	-	-	-	-	2.36	1.26	0.43	0.06	0.52	0.76			

Particle Size Characteristics

Hor.	Depth inches	Stones Dominant Size	Sand Fraction %					Total Sand %	Silt %	Clay %	Textural Class
			V.C.S.	C.S.	A.S.	F.S.	V.F.S.				
L-F	3-0	-	-	-	-	-	-	-	-	-	-
Ae	0-4	1/4-1/2"	20.54	14.62	13.76	15.31	14.36	78.59	17.34	4.07	L.S.
Bm	4-12	1/4-1/3"	5.05	13.72	16.37	22.13	18.21	75.47	19.72	4.81	L.S.
BC	12-24	1/4-1/2"	8.94	16.14	17.41	21.62	15.56	79.67	17.09	3.24	L.S.
C	24-29	1/4-3"	7.80	15.18	18.71	20.38	17.03	79.10	17.66	3.24	L.S.

Table 2.
Analysis of Rock Outcrop (Precambrian)

Hor.	Depth inches	pH	Cond. mmhos/ cm	%	CaCO ₃ Equiv.	%	Cal- cite	%	Dolo- mite	%	Org. C	%	Total N	C/N Ratio	C.E.C. m.e.	Exchangeable Cations m.e./100 gms.			
																Ca ²⁺	Mg ²⁺	K ⁺	Na ⁺ H ⁺
L-H	0-1	5.20	0.55	-	-	-	-	-	-	22.83	0.90	25	56.00	20.95	7.25	0.83	0.35	19.15	

R

Table 3.

Analysis of Athapap sandy loam

Chemical Characteristics

Hor.	Depth inches	pH	CaCO ₃	%	Equiv.	Calcite	%	Dolomite	%	Org. C.	%	Total N	Ratio	C/N	C.E.C. m.e.	Exchangeable Cations m.e./100 gms.					Cond. mmhos cm
																Ca ²⁺	Mg ²⁺	K ⁺	Na ⁺	H ⁺	
L-H	1½-0	4.35	-	-	-	-	-	-	-	56.3	1.32	43	80.70	20.25	6.70	1.92	0.33	43.01	0.55		
Bm	0-4	4.40	-	-	-	-	-	-	-	1.66	0.07	24	15.20	1.80	1.45	0.13	0.28	9.55	0.27		
BCg	4-6	4.80	-	-	-	-	-	-	-	0.58	0.03	19	6.10	1.25	0.65	0.10	0.21	2.46	0.16		
Cg	6-14	5.25	-	-	-	-	-	-	-	-	-	-	4.95	1.70	0.25	0.11	0.22	0.79	0.18		

Particle Size Characteristics

Hor.	Depth inches	Stones		Sand Fraction %					Total Sand %	Silt %	Clay %	Textural Class
		Dominant	Size	Sand Fraction %								
				V.C.S.	C.S.	M.S.	F.S.	V.F.S.				
L-H	1½-0	-	-	-	-	-	-	-	-	-	-	-
Bm	0-4	1/3-1/4"	27.27	10.45	12.48	10.98	10.33	8.86	53.09	35.76	11.15	S.L.
BCg	4-6	1/2-3/4"	18.37	6.10	10.82	11.39	13.54	13.07	54.92	36.76	8.32	S.L.
Cg	6-14	1/4-1/3"	21.72	8.00	11.84	11.23	13.63	13.44	58.14	33.53	8.33	S.L.

Table 4.

Analysis of Herb Lake clay

Chemical Characteristics

Hor.	Depth inches	pH	CaCO ₃ Equiv. %	Calcite %	Dolomite %	Org. C. %	Total N %	C/N Ratio	C.E.C. m.e.	Exchangeable Cations m.e./100 gms.				Cond. mmhos/ cm
										Ca ²⁺	Mg ²⁺	K ⁺	Na ⁺	H ⁺
L-H	3-0	4.40	-	-	-	63.45	0.93	68	82.90	25.00	6.20	1.09	0.71	46.81
Ae	0-3	4.55	-	-	-	1.46	0.06	24	16.90	3.88	3.08	0.22	0.31	6.47
AB	3-5	5.15	-	-	-	1.01	0.07	14	21.00	9.75	5.75	0.31	0.23	3.45
Btg	5-10	5.30	-	-	-	0.85	0.05	17	24.80	14.00	9.55	0.40	1.89	4.28
														0.20

Particle Size Characteristics

Hor.	Depth inches	Stones		Sand Fraction %					Total Sand %	Silt %	Clay %	Textural Class
		Dominant Size	%	V.C.S.	C.S.	M.S.	F.S.	V.F.S.				
L-H	3-0	-	-	-	-	-	-	-	-	-	-	-
Ae	0-3	1/3-1/2"	14.55	2.90	6.67	6.31	6.62	6.66	29.15	37.63	33.22	C.L.
AB	3-5	1/4"	6.88	2.34	3.95	4.25	4.72	3.93	19.19	31.08	49.73	C.
Btg	5-10	1/3-1/2"	7.42	1.58	3.43	4.05	4.47	4.40	17.93	24.22	57.84	C.

Table 5.
Analysis of Batty Lake Series (Crylic Mesic Fibrisol)

Hor.	Depth inches	% Un- rubbed Fiber	% Pyro- phos. Sol.	% Ash	% Org. C	% Total N	C/N Ratio	pH in KCl	C.E.C. m.e.	Exchangeable Cations m.e./100 gms.			
										Ca ²⁺	Mg ²⁺	K+	Na+ H+
Of	0- 37	72.9	0.092	7.83	56.1	1.11	50.5	4.65	107.9	60.80	20.60	0.69	0.51 41.5
Omz	37-170	56.9	0.076	-	50.0	1.65	30.3	5.30	60.1	73.32	18.76	0.25	0.61 27.8
Om	170+	-	-	-	-	-	-	-	-	-	-	-	-

Table 6.

Analysis of Egg Lake sandy loam

Chemical Characteristics

Hor.	Depth inches	pH	CaCO ₃ %	Equiv.	Calcite %	Dolomite %	Org. C. %	Total N %	C/N Ratio	C.E.C. m.e.	Exchangeable Cations m.e./100 gms.				
											Ca ²⁺	Mg ²⁺	K ⁺	Na ⁺ H ⁺	
L-H	1½-0	5.85	-	-	-	-	29.58	1.25	24	64.8	49.4	15.0	0.6	0.2	0.7
Ae	0-8	6.05	-	-	-	-	0.43	0.03	14	4.5	3.6	1.4	0.1	0.8	0.8
Bt	8-14	6.20	-	-	-	-	0.51	0.03	17	12.8	7.1	3.0	0.3	2.0	1.2
BC	14-19	7.60	13.19	-	6.20	6.44	-	-	-	-	-	-	-	-	-
Cca	19-34	7.75	20.72	-	12.18	7.87	-	-	-	-	-	-	-	-	-
C	34+	7.80	13.04	-	6.52	6.00	-	-	-	-	-	-	-	-	-

Particle Size Characteristics

Hor.	Depth inches	Stones Dominant Size	Sand Fraction %				Total Sand %	Silt %	Clay %	Textural Class
			V.C.S.	C.S.	M.S.	F.S.				
L-H	1½-0	-	-	-	-	-	-	-	-	-
Ae	0-8	-	6.15	12.45	13.75	16.43	66.29	25.35	8.35	S.L.
Bt	8-14	-	5.49	9.54	11.83	14.03	54.10	27.42	18.48	S.L.
BC	14-19	-	4.27	10.03	11.75	15.53	55.11	31.37	13.53	S.L.
Cca	19-34	-	13.21	13.05	11.18	12.21	61.47	26.10	12.42	S.L.
C	34+	-	5.98	10.78	11.70	13.10	55.54	32.45	13.02	S.L.

Table 7.
Analysis of Batty Lake Series (Crylic Mesic Fibrisol)

Hor.	Depth inches	% Un- rubbed Fiber	% Pyro- phos. Sol.	% Ash	% Org. C	% Total N	C/N Ratio	pH in KCl	C.E.C. m.e.	Exchangeable Cations m.e./100 gms.				% CaCO ₃ Equiv.	% Cal- cite	% Dolo- mite
										Ca ²⁺	Mg ²⁺	K ⁺	Na ⁺	H ⁺		
Of1	0- 7	81.80	0.592	15.59	44.7	1.12	39.9	6.12	180.2	153.11	16.36	0.71	0.23	-	-	-
Of2	7- 34	81.0	0.275	-	43.8	1.88	23.3	6.88	210.0	151.29	15.15	0.20	0.30	-	-	-
Omz	34- 96	42.1	0.201	-	52.1	1.83	28.5	7.20	194.8	157.35	23.63	0.25	0.37	-	1.81	0.0
IICgz	96-163									frozen lacustrine clay						
IICg	163-167									unfrozen lacustrine clay						

Table 8.
Analysis of Wabowden clay

Chemical Characteristics

Hor.	Depth inches	pH	CaCO ₃ Equiv. %	Calcite %	Dolomite %	Org. C. %	Total N %	C/N Ratio	C.E.C. m.e.	Exchangeable Cations m.e./100 gms.				Conc mmh cm	
										Ca ²⁺	Mg ²⁺	K ⁺	Na ⁺ H ⁺		
L-H	2 - 0	4.60	-	-	-	52.75	0.95	56	76.69	22.63	10.85	2.95	1.54	34.85	0.2
Ae	0 - 4 $\frac{1}{2}$	5.05	-	-	-	1.53	0.11	14	25.16	10.08	8.80	0.90	0.97	5.20	0.1
AB	4 $\frac{1}{2}$ - 9 $\frac{1}{2}$	5.50	-	-	-	0.92	0.08	12	29.86	17.40	12.60	1.13	1.10	3.56	0.1
Bt	9 $\frac{1}{2}$ - 18 $\frac{1}{2}$	6.45	-	-	-	0.61	0.06	10	32.39	19.44	11.72	0.97	1.28	2.62	0.1
BC	18 $\frac{1}{2}$ - 22 $\frac{1}{2}$	7.10	1.07	1.07	0.0	0.52	0.05	10	30.44	-	-	-	-	-	0.2
C1	22 $\frac{1}{2}$ - 30	7.60	5.28	1.66	3.33	-	-	-	25.75	-	-	-	-	-	0.2
C2	30 - 39	7.80	21.50	15.19	5.81	-	-	-	22.12	-	-	-	-	-	0.2

Particle Size Characteristics

Hor.	Depth inches	Stones Dominant Size	Sand Fraction %				Total Sand %	Silt %	Clay %	Textural Class
			V.C.S.	C.S.	M.S.	F.S.				
L-H	2 - 0	-	-	-	-	-	-	-	-	-
Ae	0 - 4 $\frac{1}{2}$	-	-	-	-	-	3.84	26.97	69.19	C.
AB	4 $\frac{1}{2}$ - 9 $\frac{1}{2}$	-	-	-	-	-	-	-	-	C.
Bt	9 $\frac{1}{2}$ - 18 $\frac{1}{2}$	-	-	-	-	-	-	-	-	C.
BC	18 $\frac{1}{2}$ - 22 $\frac{1}{2}$	-	-	-	-	-	1.54	19.25	79.21	C.
C1	22 $\frac{1}{2}$ - 30	-	-	-	-	-	2.48	27.66	69.86	C.
C2	30 - 39	-	-	-	-	-	2.43	33.69	63.88	C.

Table 9.

Analysis of Dering fine sandy loam

Chemical Characteristics

Hor.	Depth inches	pH	CaCO ₃ Equiv.	%	Calcite	%	Dolomite	%	Org. C.	%	Total N	C/N Ratio	C.E.C. m.e.	Exchangeable Cations m.e./100 gms.				Cond. mmhos cm	
														Ca ²⁺	Mg ²⁺	K ⁺	Na ⁺		H ⁺
L-F	8 $\frac{1}{2}$ -4 $\frac{1}{2}$	4.30	-	-	-	58.79	0.56	-	112.05	28.90	18.27	4.42	1.46	52.90	0.24				
H	4 $\frac{1}{2}$ -0	6.90	-	-	-	56.20	1.19	47	120.80	56.80	64.45	1.47	1.57	2.80	0.32				
Ahg	0-4	6.80	-	-	-	13.45	0.55	24	70.40	52.00	22.25	0.29	1.77	1.15	0.33				
Cg	4-11	7.50	39.77	15.18	22.64	-	-	-	11.44	-	-	-	-	-	0.39				

Particle Size Characteristics

Hor.	Depth inches	Stones		Sand Fraction %					Total Sand %	Silt %	Clay %	Textural Class
		Dominant	%	V.C.S.	C.S.	M.S.	F.S.	V.F.S.				
Size												
L-F	8½-4½	-	-	-	-	-	-	-	-	-	-	-
H	4½-0	-	-	-	-	-	-	-	-	-	-	-
Ahg	0-4	-	-	3.80	5.53	9.66	25.11	10.99	55.09	30.44	14.46	F.S.L.
Cg	4-11	-	-	2.68	3.33	4.51	7.33	6.91	24.74	51.74	23.52	Si.L.

Table 10

Analysis of Clarke sand

Chemical Characteristics

Hor.	Depth inches	pH	CaCO ₃ %	Equiv. %	Calcite %	Dolomite %	Org. C. %	Total N %	C/N Ratio	C.E.C. m.e.	Exchangeable Cations m.e./100 gms.				Cond. mmhos/ cm
											Ca ²⁺	Mg ²⁺	K ⁺	Na ⁺	H ⁺
L-H	2-0	5.00	-	-	-	-	27.71	0.82	34	65.80	37.93	23.28	1.60	1.33	0.85
Ae	0-6	5.20	-	-	-	-	0.53	0.02	27	2.08	0.64	0.72	0.06	0.40	0.30
Bm	6-14	5.50	-	-	-	-	0.19	0.01	19	2.22	0.94	0.03	0.05	0.75	0.70
BC1	14-23	6.05	-	-	-	-	0.18	0.01	18	1.80	1.40	0.24	0.08	0.85	0.07
BC2	23-38	6.20	-	-	-	-	0.10	0.01	10	1.60	1.10	0.38	0.06	0.57	0.11
C	38-48	7.20	6.93	0.96	5.50	-	-	-	-	1.02	-	-	-	-	0.14

Particle Size Characteristics

Hor.	Depth inches	Stones Dominant Size	Sand Fraction %				Total Sand %	Silt %	Clay %	Textural Class
			V.C.S.	C.S.	M.S.	F.S.				
L-H	2-0	-	-	-	-	-	-	-	-	-
Ae	0-6	-	-	4.46	14.37	50.80	95.09	4.10	0.81	S
Bm	6-14	-	-	0.79	11.47	56.95	95.54	4.37	0.09	S
BC1	14-23	-	-	0.69	11.51	56.44	95.84	2.00	2.16	S
BC2	23-38	-	-	1.71	35.84	47.81	98.18	0.48	1.34	S
C	38-48	-	-	1.76	28.31	52.21	96.60	3.02	0.38	S

Table 11.
Analysis of Woodridge gravelly sand

Chemical Characteristics

Hor.	Depth inches	pH	CaCO ₃ %	Equiv.	Calcite %	Dolomite %	Org. C. %	Total N %	C/N Ratio	C.E.C. m.e.	Exchangeable Cations m.e./100 gms.				Cond. mmhos cm	
											Ca ²⁺	Mg ²⁺	K+	Na+		H+
L-H	1½-0	4.85	-	-	-	-	58.54	1.23	48	87.40	25.40	20.15	1.86	1.63	33.10	0.31
Ae	0-1	4.80	-	-	-	-	4.50	-	-	14.72	4.43	3.52	0.19	0.90	5.25	0.38
Bt	1-8	7.40	45.28	0.0	41.71	0.19	3.50	0.04	18	18.60	-	-	-	-	-	0.58
BC	8-12	7.65	59.29	7.23	47.95	0.29	0.29	-	7	4.02	-	-	-	-	-	0.33
C	12-20	7.90	43.09	5.35	34.77	-	-	-	-	3.00	-	-	-	-	-	0.32

Particle Size Characteristics

Hor.	Depth inches	Stones Dominant Size	Sand Fraction %				Total Sand %	Silt %	Clay %	Textural Class
			V.C.S.	C.S.	M.S.	F.S.				
L-H	1½-0	-	-	-	-	-	-	-	-	-
Ae	0-1	1/3"	3.90	28.66	18.74	14.13	77.99	15.12	6.89	L.S.
Bt	1-8	1/2-1"	47.47	24.49	9.63	6.03	75.07	20.93	4.00	L.S.
BC	8-12	1/4-1/3"	37.46	47.45	20.68	2.77	89.98	9.73	0.29	S.
C	12-20	1/2-3/4"	55.74	38.51	27.47	10.66	94.41	5.38	0.21	S.

Table 12.
Analysis of Flux Lake Series (Lithic Fibric Mesisol)

Hor.	Depth inches	% Un- rubbed Fiber	% Pyro- phos. Sol.	% Ash	% Org. C	% Total N	C/N Ratio	pH in KCl	C.E.C. m.e.	Exchangeable Cations m.e./100 gms.			
										Ca ²⁺	Mg ²⁺	K+	Na+ H+
Of	0-16	100	0.087	7.25	38.0	0.66	58	4.85	127.5	90.96	37.08	0.08	0.03 1.15
Om	16-23	54.5	0.458	13.25	36.0	1.12	32	7.10	204.5	135.27	48.60	0.05	0.04 0.30
R	23+												

limestone bedrock

Table 13.
Analysis of Rock Outcrop (limestone)

Chemical Characteristics

Hor.	Depth inches	pH	CaCO ₃ %	Equiv.	Calcite %	Dolomite %	Org. C. %	Total N %	C/N Ratio	C.E.C. m.e.	Exchangeable Cations m.e./100 gms.					Cond. mmhos/ cm
											Ca ²⁺	Mg ²⁺	K ⁺	Na ⁺	H ⁺	
L-H	0-2½	6.10	-	-	-	-	20.69	0.55	38	61.01	33.20	14.50	0.90	1.24	8.00	0.35
R																

Limestone Bedrock

Limestone Bedrock

Table 14.
Analysis of Morin Lake Series (Mesic Fibrisol)

Hor.	Depth inches	Mechanical Analysis				% Un- rubbed Fiber	% Pyro- phos. Sol.	% Ash	% Org. C	% Total N	C/N Ratio	pH in KCl	C.E.C. m.e.	Exchangeable Cations m.e./100 gms.			
		Text. Class	% Sand	% Silt	% Clay									Ca ²⁺	Mg ²⁺	K ⁺	Na ⁺ H ⁺
df1	0-16	-	-	-	-	71.6	0.231	11.54	36.5	0.90	41	6.15	194.8	154.2	44.89	0.03	0.04
df2	16-46	-	-	-	-	80.7	0.113	9.88	36.8	0.73	50	6.90	190.50	150.30	46.84	0.02	0.05
dm	46-71	-	-	-	-	61.3	0.885	16.17	34.4	1.04	33	7.30	183.3	142.30	45.48	0.03	0.06
HAhg	71+	S.L.	44.32	47.78	7.90	-	-	-	10.8	0.64	17	7.80	21.80	120.24	9.56	0.02	0.02