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# ECOLOGICAL REPORT SERIES NORTHERN FLOOD AGREEMENT MANITOBA

Environment Canada Environnement

Ecological report series : Northern Flood Agreement Manitoba

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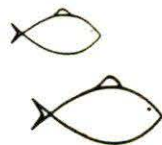
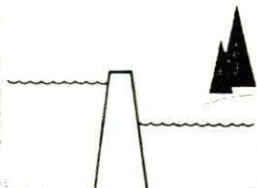
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## Remote Sensing Imagery Catalogue, with Applications to Environmental Monitoring in Northern Manitoba

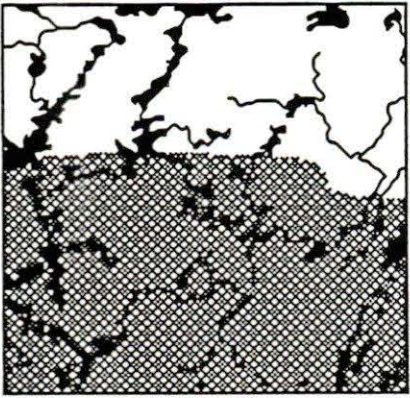
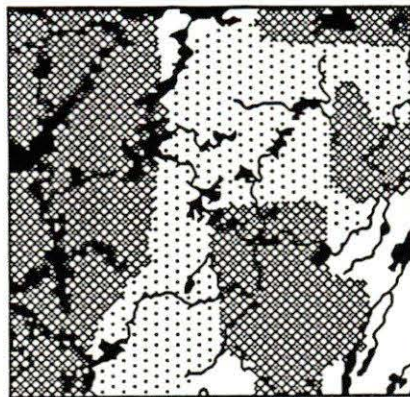
number 87-3



Canada

## Addendum:

*E.M.S.I. has produced a computerized data base of all satellite images in the text. We will be updating this data base as new satellite images are obtained. Searches can be done using any of the variables recorded in the satellite data blocks. A typical search takes only minutes to complete and once the appropriate images have been identified a printed copy of the image can be supplied. A sample printout is shown below.*

1	<p><b>PATH:</b> <input type="text" value="34"/></p> <p><b>ROW:</b> <input type="text" value="21"/></p> <p><b>LS #:</b> <input type="text" value="4"/></p> <p><b>DATE:</b> <input type="text" value="November 28, 1984"/></p> <p><b>C/C %:</b> <input type="text" value="50"/></p> <p><b>Q of MSS:</b> <input type="text" value="GGGG"/></p> <p><b>APP #:</b> <input type="text" value="548"/></p> <p><b>COMMENTS:</b> b- hazy, terrain visible, well defined</p>	<p><b>IMAGE:</b></p> 
2	<p><b>PATH:</b> <input type="text" value="34"/></p> <p><b>ROW:</b> <input type="text" value="21"/></p> <p><b>LS #:</b> <input type="text" value="4"/></p> <p><b>DATE:</b> <input type="text" value="December 14, 1984"/></p> <p><b>C/C %:</b> <input type="text" value="40"/></p> <p><b>Q of MSS:</b> <input type="text" value="GGGG"/></p> <p><b>APP #:</b> <input type="text" value="549"/></p> <p><b>COMMENTS:</b> a- thin c/c thru/out. b-hazy, some terrain visible but poorly defined</p>	<p><b>IMAGE:</b></p> 

## To the User:

we, at E.M.S.I. would appreciate your response to the following questions once you have become familiar with the catalogue. We will use this feedback to improve future products at E.M.S.I.

**DIRECTIONS:** Please answer the following questions by checking one box. Feel free to include comments.

1. The 'Using the Catalogue' section (pp. 1-3), gives sufficient information about the design of the book and how to use it.

strongly disagree    disagree    agree    strongly agree    undecided

Comments: \_\_\_\_\_  
\_\_\_\_\_

- 2a. The text sections preceding the aerial and satellite data maps are easy to read.

strongly disagree    disagree    agree    strongly agree    undecided

Comments: \_\_\_\_\_  
\_\_\_\_\_

- 2b. The text sections preceding the aerial and satellite data maps provide all necessary information for reading the data maps.

strongly disagree    disagree    agree    strongly agree    undecided

Comments: \_\_\_\_\_  
\_\_\_\_\_

- 3a. The aerial data maps are easy to read.

strongly disagree    disagree    agree    strongly agree    undecided

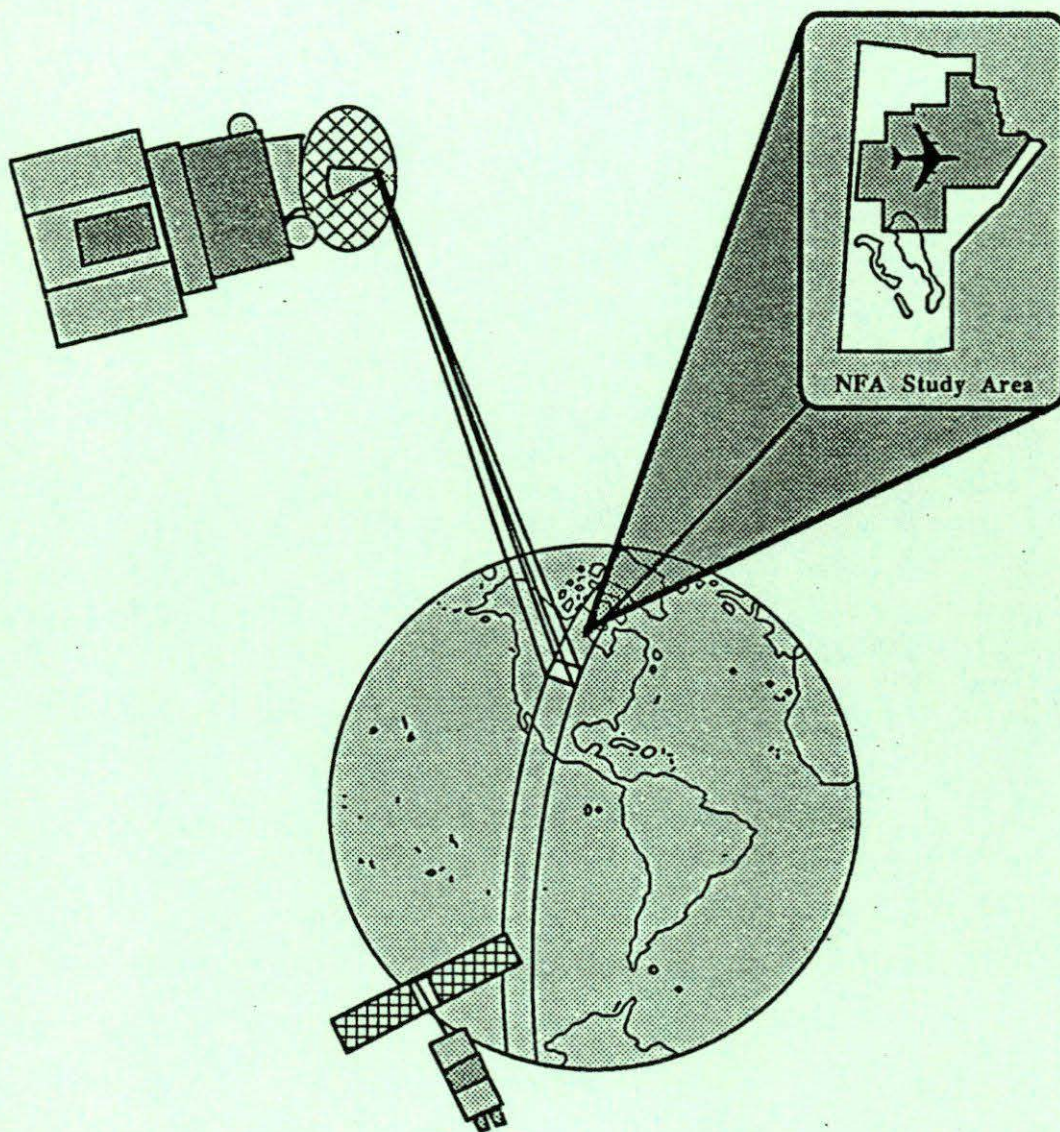
Comments: \_\_\_\_\_  
\_\_\_\_\_

- 3b. The aerial data in the appendix is easy to find.

strongly disagree    disagree    agree    strongly agree    undecided

Comments: \_\_\_\_\_  
\_\_\_\_\_

# A Remote Sensing Imagery Catalogue, with Applications to Environmental Monitoring in Northern Manitoba



This catalogue was prepared for Environment Canada  
in conjunction with the Northern Flood Agreement.

## ACKNOWLEDGEMENTS

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We would especially like to acknowledge Environment Canada, Inland Waters Directorate, for providing the funding and Dr. Robert Hecky and Mr. Greg McCullough of the Department of Fisheries and Oceans for design of the original concept and assistance throughout production. Finally, the staff of E.M.S.I., Mr. Klaus Hochheim, Ms. Valerie Chorney, Mr. Jean-Pierre Roy, and Ms. Cynthia Birdwise who contributed so much of themselves to the production of this catalogue.



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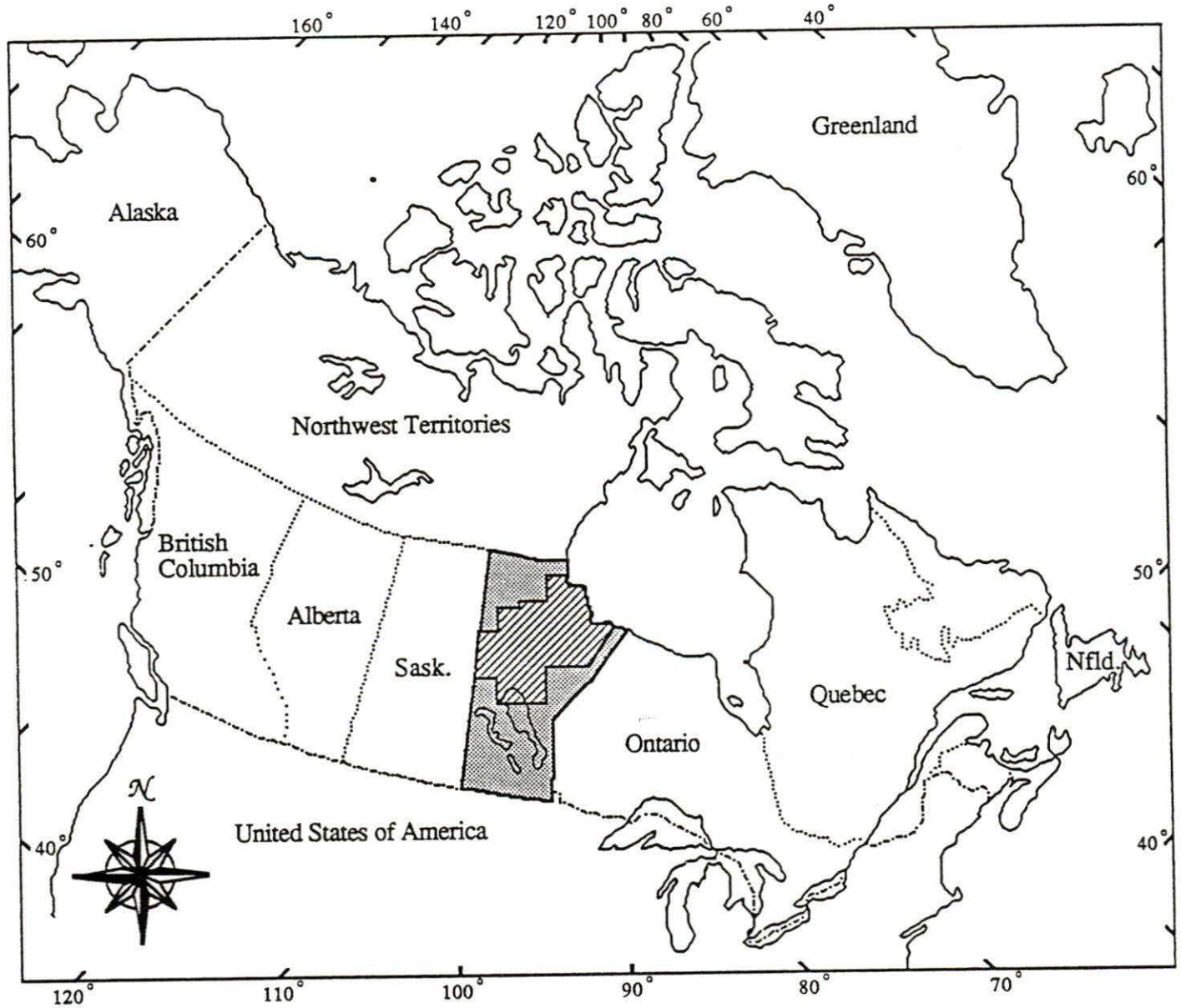
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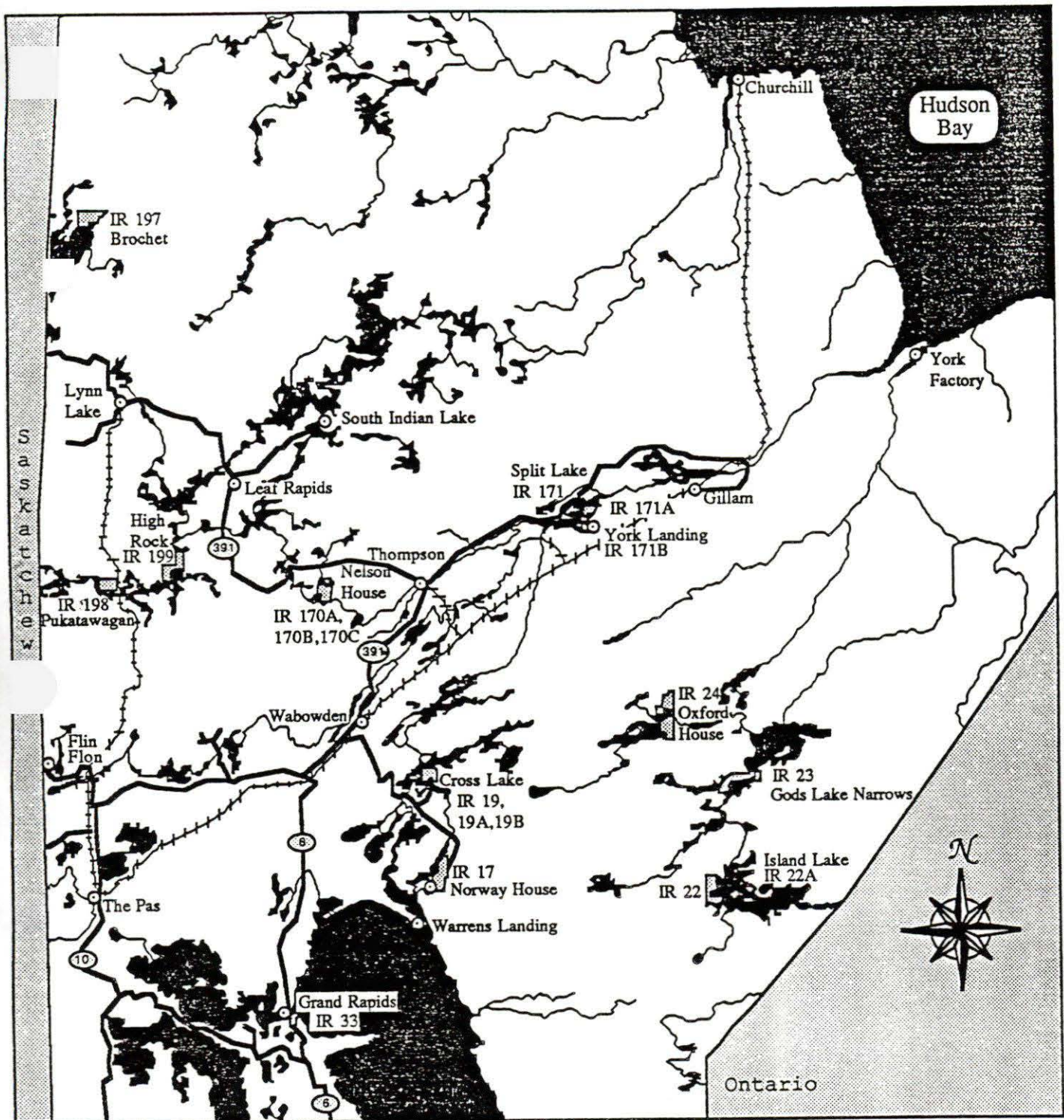
# Map of Canada





-  Province of Manitoba
-  Location of Study Area

Scale 0 800 km



# Geographical Reference Map of Manitoba



## LEGEND

-  railroads
-  roads and highways

Scale: 1 : ~ 6,500,000

-  towns
-  Indian reservations

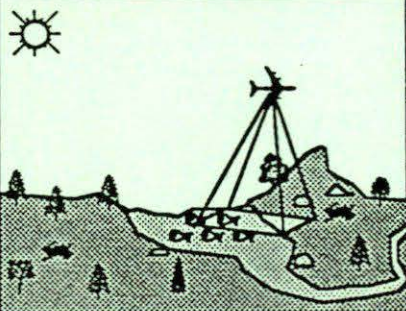


# Part I. The Data

## Contents:

### Section 1

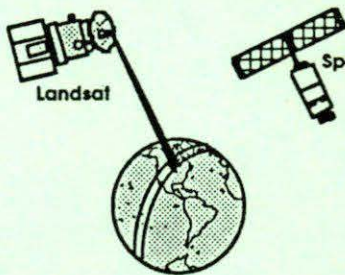
Section 1.  
**Aerial Photography**



Section 1.1 pp. 137-147  
High Resolution Remote Sensing Data

### Section 2

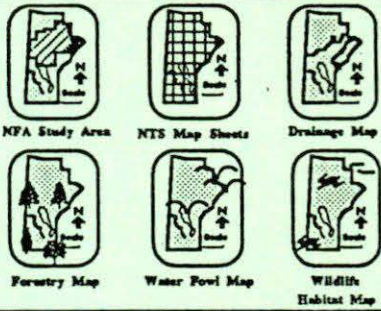
Section 2.  
**Satellite Imagery**



If you haven't already done so, now would be a good time to read "Using the Catalogue", pp. 1-3.

### Section 3

Section 3.  
**Maps A Supplementary Data Source**



If you haven't already done so, now would be a good time to read "Using the Catalogue", pp. 1-3.

Intro.....pp. 5-11  
Data.....pp.13-135

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Before you proceed to the "contents", be sure to read "Using the Catalogue".  
(IF YOU DON'T, YOU'LL WISH YOU HAD!!)

# PART I: The Data

## USING THE CATALOGUE

### The Organization

The catalogue is organized into two major parts, as shown below in Figure 1. The first part presents a database composed of three sections. The second part contains a description of *remote sensing*\* theory, and applications. Title pages separate part one, the three sections contained in part one, and part two. Title pages are printed on blue paper for easier access to particular sections.

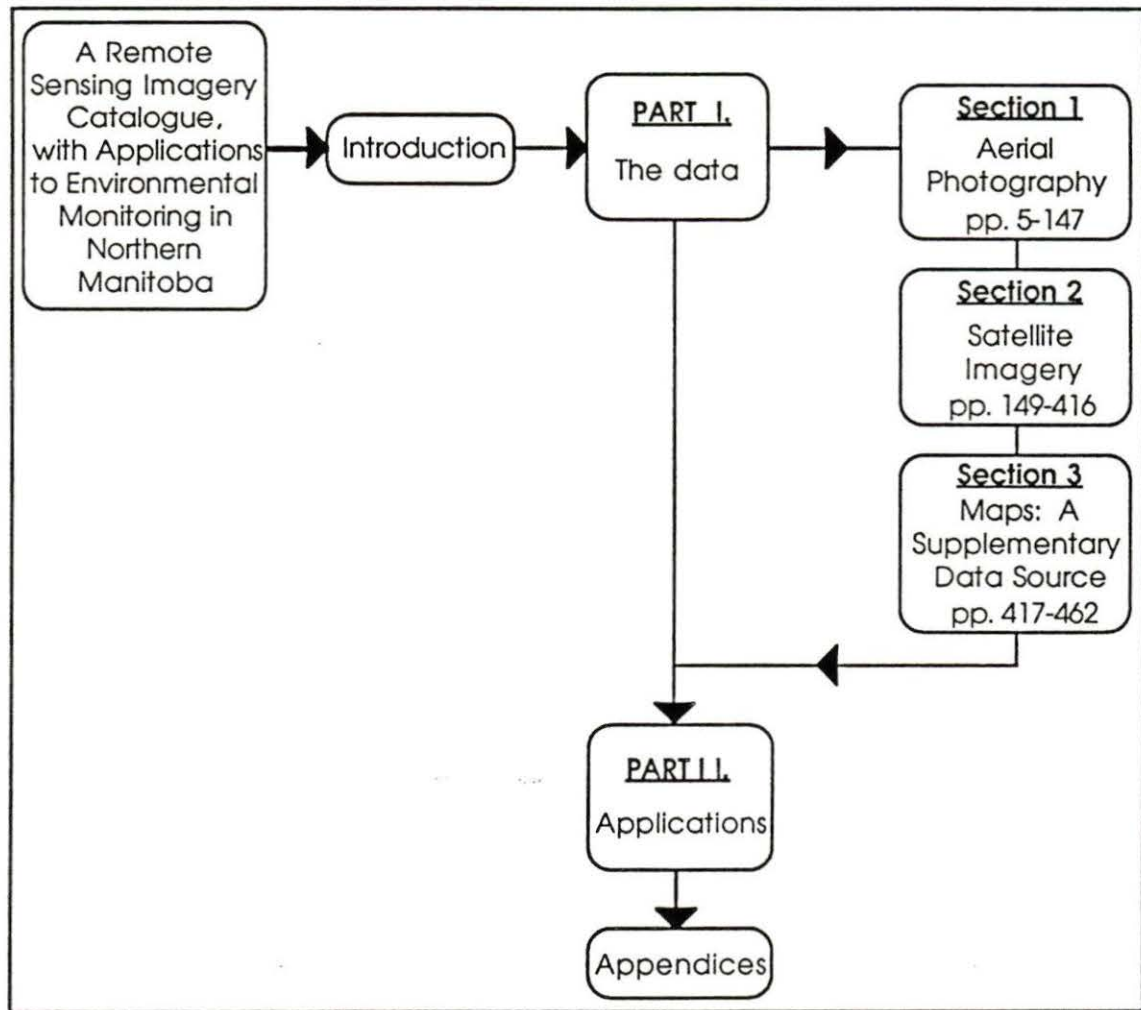


Figure 1. Flowchart depicting organization of the catalogue.

\*Technical terms, are printed in *italics* a minimum of once throughout the text, and defined in the glossary.

## Section 1

Figure 2 describes the organization of Section 1. The study area is divided into six subareas. Each subarea contains an index map highlighting the individual subarea and indicating page number references for the aerial *photography* data maps, according to year groupings. The subarea index maps are followed by geographical reference maps indicating cultural features such as towns, roads, geographic names, hydro projects, and Indian reservations. The geographical reference maps are followed by the aerial photography data maps, presented in five and ten year groupings. The footers can be used to identify the subarea and year grouping, a series of maps represent.

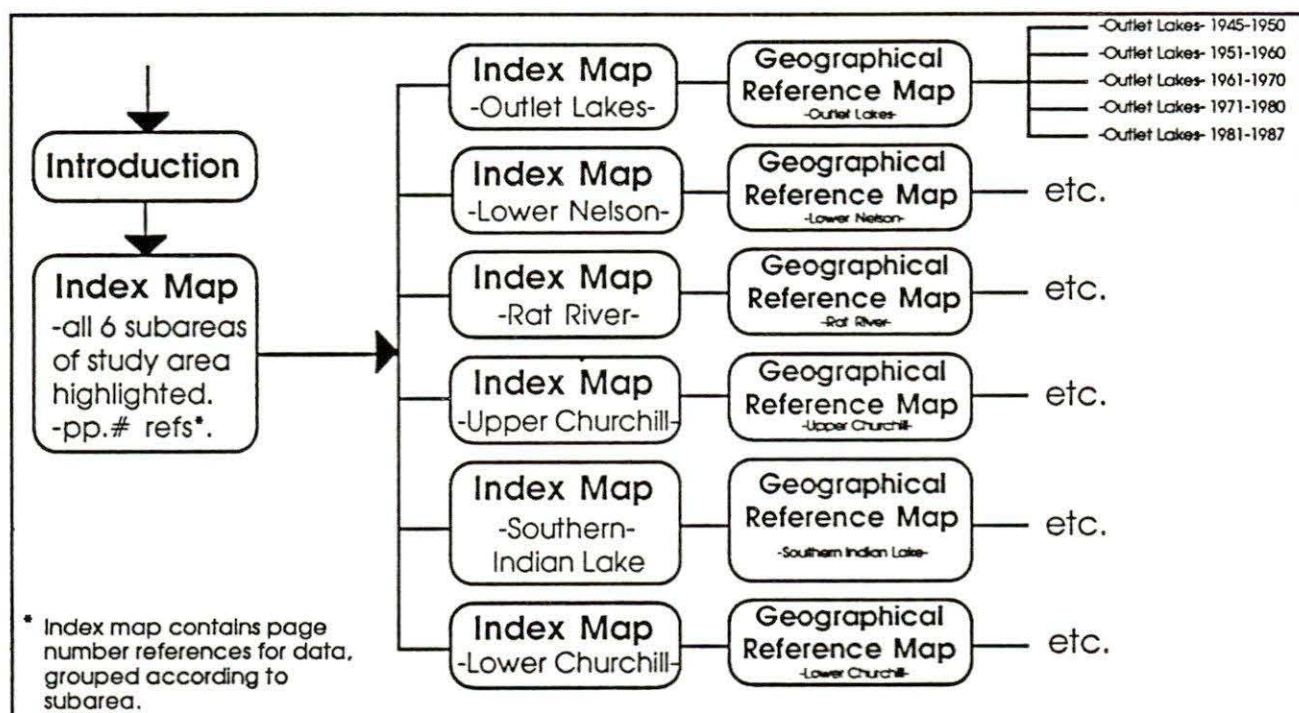


Figure 2. Diagram depicting the organization of Section 1.

## Section 2

Figure 3 describes the organization of Section 2. The Landsat index maps show the geographic location of all path and row combinations (*image* centers) included in the study area. Image centers are presented in ascending order of path and row. Landsat 4 and 5 index and microfiche maps are presented first, followed by Landsat 1, 2, and 3 (Figure 3). Footers can be used to quickly access the path, row, and date of desired Landsat imagery.

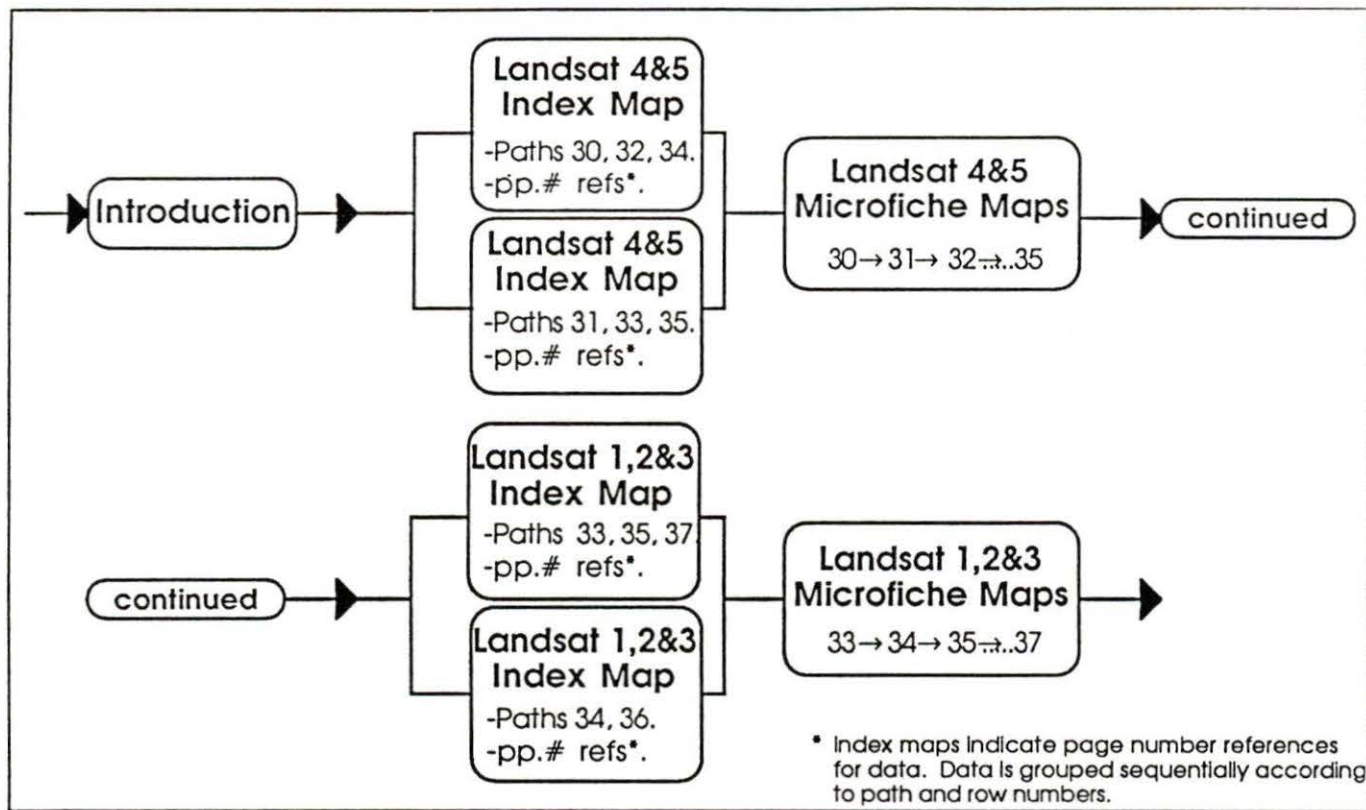


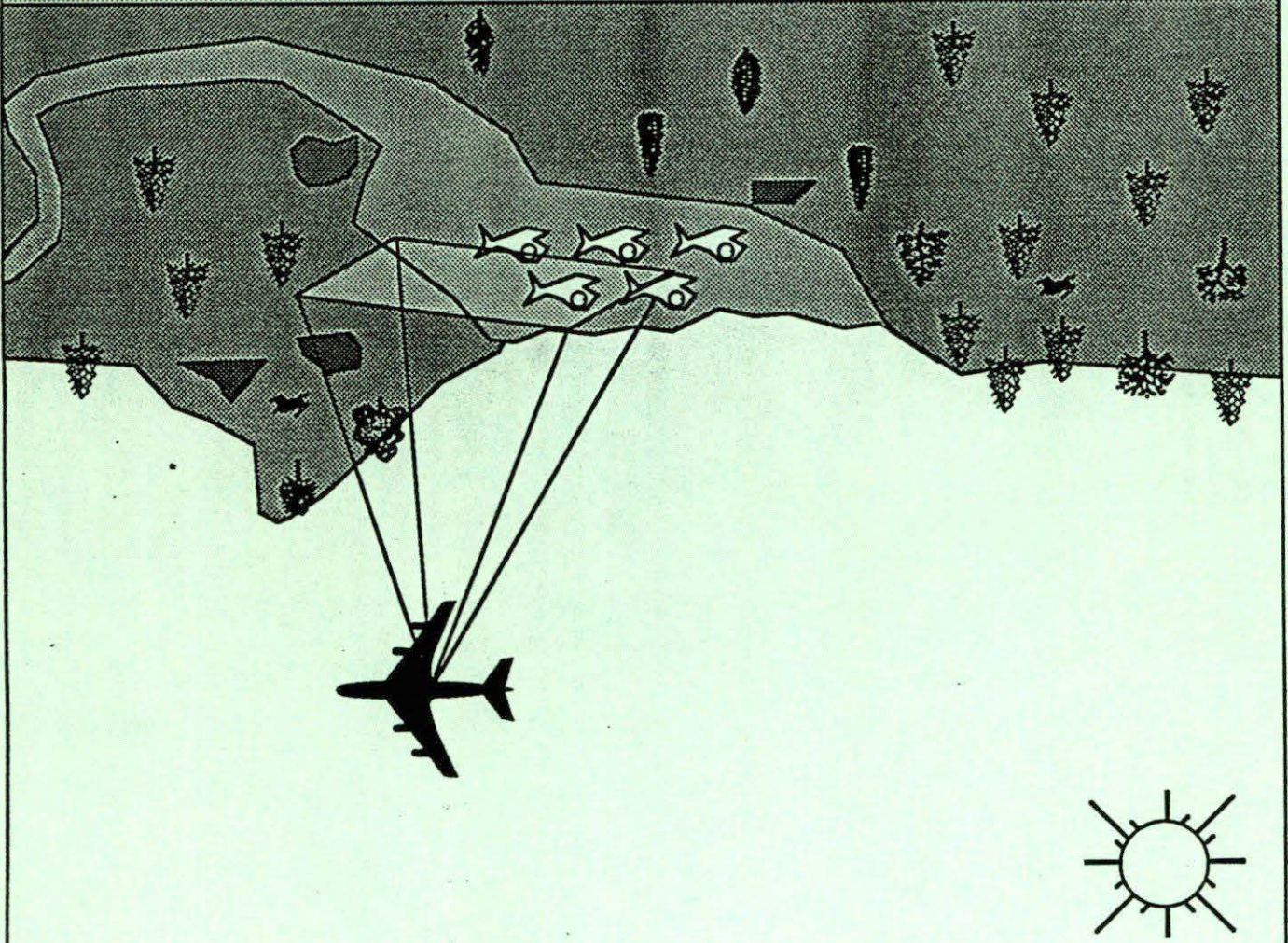
Figure 3. Diagram depicting organization of Section 2.

## Tables and Figures

When appropriate, data is presented in graphic form to facilitate access to frequently used information. Tables and figures are primarily located in the introductory comments of each section. Use the List of Tables (pp. vii - viii) and List of Figures (p. ix) to find specific information quickly.

High Resolution Remote Sensing Data

Section 1.1 pp.137-147



Aerial Photography

Section 1

---

## SECTION 1. AERIAL PHOTOGRAPHY

---

### Introduction

The aerial photography section presents researchers with an easy to use database which documents aerial photography and other specialized high resolution airborne *remote sensing* data for northern Manitoba. Aerial photography acquired between 1945 and 1987 is referenced. Numerous sources were contacted to ensure a 'complete listing' of all available aerial photography (Appendix A). The two largest sources are the Manitoba Surveys and Mapping Branch, Airphoto Library and Manitoba Hydro.

### Locating Photography

To aid the user in locating documented photography quickly, a series of index maps have been developed. The Aerial Photography Index Map (p. 11) shows the study area, comprised of six subareas. These subareas are designed to aid the user in focusing searches to more specific geographic locations and provide data base maps of suitable scale for data presentation. Six individual subarea index maps are located at the beginning of each series of data maps (Figure 2, flow diagram). Presentation of the data maps under each subarea location is separated into the following groups:

- 1) 1945 - 1950
- 2) 1951 - 1960
- 3) 1961 - 1970
- 4) 1971 - 1980
- 5) 1981 - 1987

The order of dates within each of the above groups may not be sequential.

### Presentation of Photography

Photographic surveys are depicted by polygon diagrams. Each polygon approximates the extent of aerial photo coverage. Every unique photo polygon is identified by a number. Data describing the aerial photography (type, scale, etc.) is presented in a data block, below each map (Figure 4).

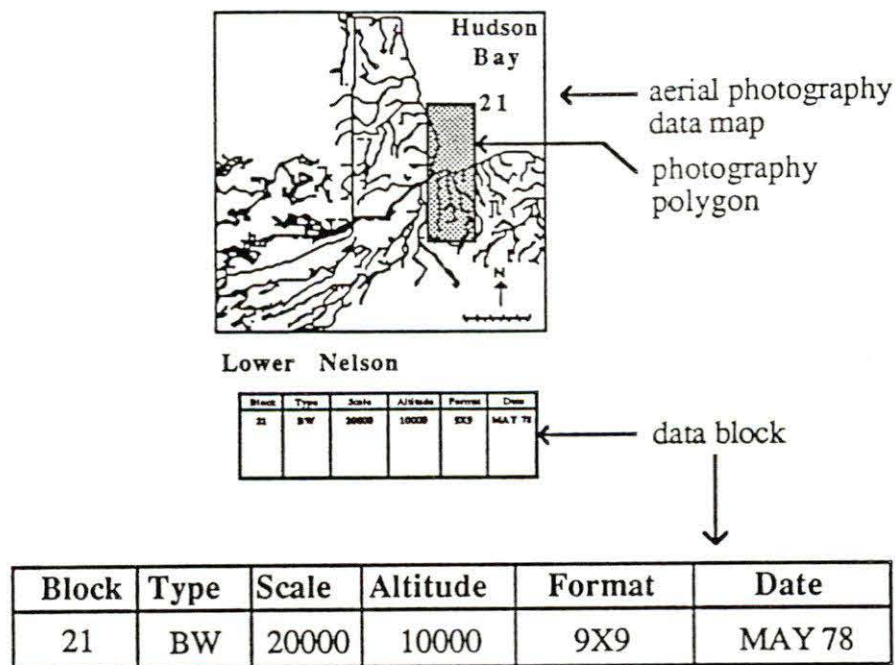


Figure 4. Aerial photography map and associated data block.

Table 1 describes the information contained in each data block. Additional information about each block of data has been included in Appendix A. A description of the appended information, pertaining to each data block, is presented at the beginning of Appendix A, (Table 30).

Table 1 . Description of data block associated with aerial photography maps.

Header	Description
Block	Identifies a unique photographic survey block.
Type	Refers to film type, black and white (BW), color (CLR), and color infrared (CLR IR).
Scale	Scale of photography, (eg. 2000' means 1: 2000).
Altitude	Altitude at which photography was acquired, normally stated as above sea level, or above ground level (AGL).
Format	Size of negative, either 9x9 inches or 70 mm.
Date	Date imagery was acquired.

### Locating Flight Line Data

Most of the flight line data, for each polygon of photography, can be viewed using the aerial photography aperture index compiled by the Manitoba Surveys and Mapping

Branch. This microfiche index can be consulted at various locations throughout Manitoba (Table 2).

Table 2. A partial listing of aerial photography aperture indices in Manitoba.

Contact Agency	Address	Contact Person
Department of Natural Resources Surveys & Mapping Branch Map Sales	1007 Century St. Winnipeg, Manitoba R3H 0W4	Ms. S. Norton
Department of Natural Resources Map Sales	2nd. Flr. 3rd. Ave. Ross St. The Pas, Manitoba R9A 1M4	Ms. Cindy Horn
Department of Natural Resources Map Sales	59 Elizabeth Rd. Thompson, Manitoba R8N 1X4	Ms. Wanda Medid
Department of Natural Resources Map Sales	3rd. Flr. 27 - 2nd Ave. S.W. Dauphin, Manitoba R7N 3E5	Mr. R. Yellowaga

The microfiche card catalogue is organized according to National Topographic System (NTS) map sheet numbers. Most of the aerial photography in this catalogue is referenced according to microfiche card numbers (see reference in Table 30, Appendix A).

The Manitoba Surveys and Mapping Branch provides the public with various support facilities to view airphoto microfiche. Having selected a polygon of aerial photography coverage from this catalogue, the user can view the appropriate microfiche card to obtain roll (flight line number) and frame number(s). Copies of each frame can be viewed on microfiche film or hard copy paper print. Most of the photography in this catalogue is referenced in the aerial photography aperture index.



## Photographic Products

Once the appropriate aerial photography has been identified, various products can be obtained (Table 3). Prices for the various products are available by contacting the Manitoba Airphoto Library.

Table 3. List of photographic products.

Product Code	Product Description	Availability
	<b>Copy Proofs</b>	
CPS	10" x 12"	24 hr. if ≤10 prints
CP2	2x enlargements (full section)	24 hr. if ≤10 prints
CP3	3x enlargements	24 hr. if ≤10 prints
CP4	4x enlargements (1/4 section)	24 hr. if ≤10 prints
	<b>Enlargements</b>	
SAP	S.A.P. (10" x 10") 70mm film enlarged 4x	3 - 5 days if ≤10 prints
TWP	township mosaics (16" x 20") 2" - mile	5 - 7 days if ≤10 prints
TME	township mosaics (30" x 30" paper) 4" - mile	5 - 10 days if ≤10 prints
TWM	township mosaics (30" x 30" matte mylar) 4" - mile	5 - 10 days if ≤10 prints
	<b>Contacts</b>	
CON	Prints	3 - 5 days if ≤10 prints
DIA	Diapositives	3 - 5 days if ≤10 prints
ACR	Acreage grids (grid used to calculate areas on photos)	immediate
	<b>Photo Enlargements (Custom)</b>	
ES10	10" x 10" part image, paper	~ 5 days
ES15	15" x 15" part image, paper	
EF15	15" x 15" full image, paper	
ES20	20" x 20" part image, paper	
EF20	20" x 20" full image, paper	
ES30	30" x 30" part image, paper	
EF30	30" x 30" full image, paper	
ESM3	30" x 30" part image, matte mylar	
EFM3	30" x 30" full image, matte mylar	
ES40	40" x 40" part image, paper	
EF40	40" x 40" full image, paper	
ESM4	40" x 40" part image, matte mylar	
EFM4	40" x 40" full image, matte mylar	
	<b>Rectified Photos *</b>	
RE1	10" x 20" corrected for tilt, etc.	?
RE2	20" x 20"	
RE3	30" x 30"	
RE4	40" x 40"	

\* Control point data needs to be supplied by the user to obtain rectified photos

## Locating Flight Line Data not in the Aerial Photography Aperture Index

Aerial photography located outside the Surveys and Mapping Branch is also referenced in this catalogue. The card number is replaced by three characters identifying the source agency (Table 4). These groups can be contacted to obtain or view flight line maps and photography.

Table 4. Three character identifiers designating contacts for photography not documented in the aerial photography aperture index.

Three Character Identifier	Contact Agency	Address	Contact Person(s)
MBH	Manitoba Hydro	Surveys and Mapping 1140 Waverley, Winnipeg, Manitoba R3C 2P4	Mr. Alf Carriere Mr. Coleman Wong
DF1	Department of Fisheries and Oceans	Regional Limnology 501 University Cres. Winnipeg, Manitoba R3T 2N6	Mr. Greg McCullough
DF2	Department of Fisheries and Oceans	Marine Mammal Management 501 University Cres. Winnipeg, Manitoba R3T 2N6	Mr. Pierre Richard
MPS	MacLaren Plansearch Inc.	5 Donald St., Suite 640 Winnipeg, Manitoba R3L 2T4	Mr. Mike McKernan

### How to Order Aerial photography

#### 1) *If an airphoto microfiche index is available -*

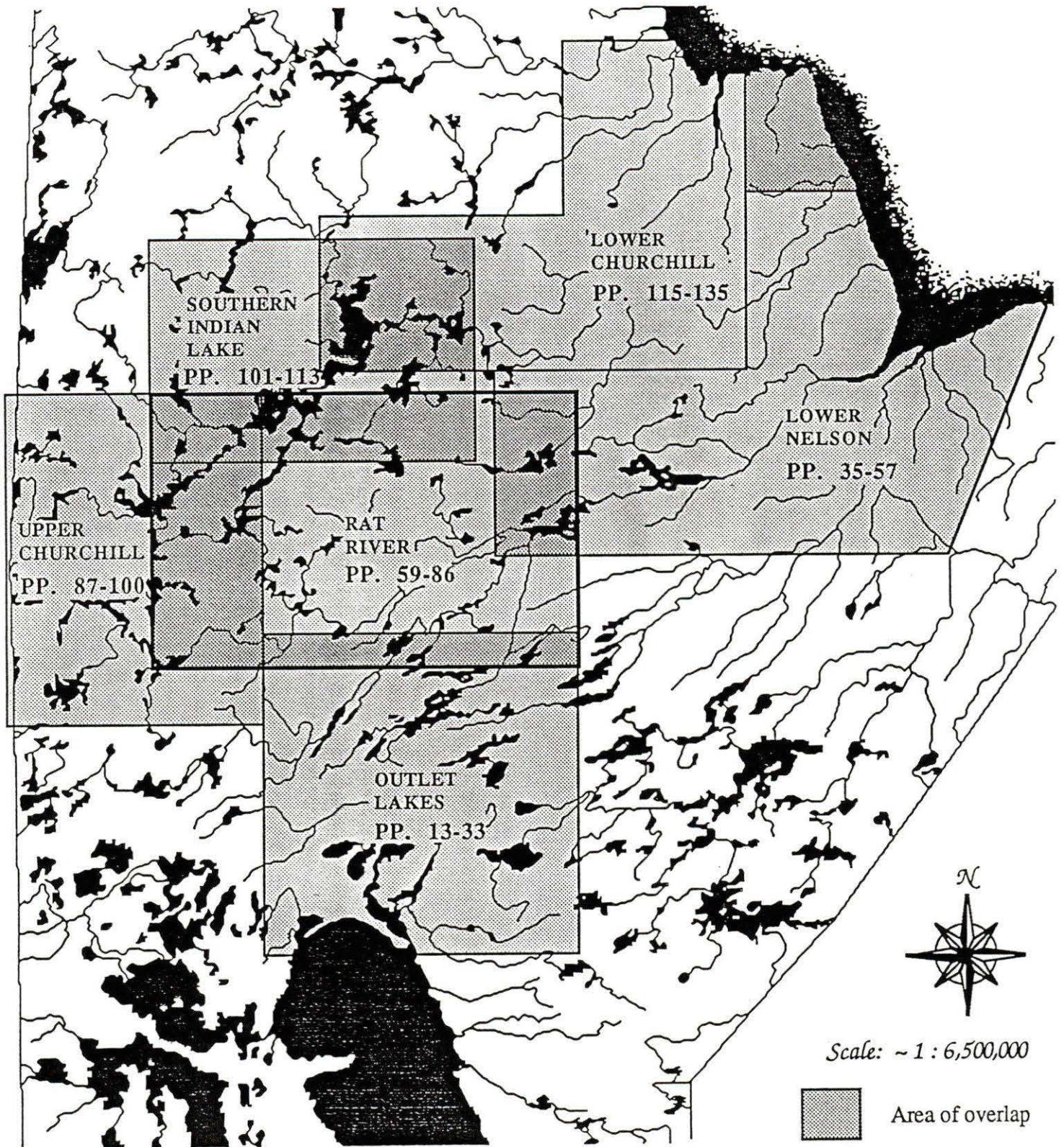
Locate the appropriate polygon of photography in the catalogue. Obtain the reference number from Appendix A and use it to access the appropriate microfiche image. Roll and frame numbers are obtained from the microfiche and submitted to the Surveys and Mapping Branch personnel for processing. For a list of photographic products see Table 3.

#### 2) *If an aerial photography microfiche index is not available -*

- a) Request that a search be conducted by the Surveys and Mapping Branch, Airphoto Library. Include as part of the request for photography the reference number (identifying the microfiche card, Appendix A) and a detailed description of the study site. Provide a legal description of the area indicating section, township, and range or include a topographic map with the study site clearly delineated.
- b) Request that a copy of the appropriate flight line index map be mailed so roll and frame numbers can be referenced and copies of appropriate prints obtained.

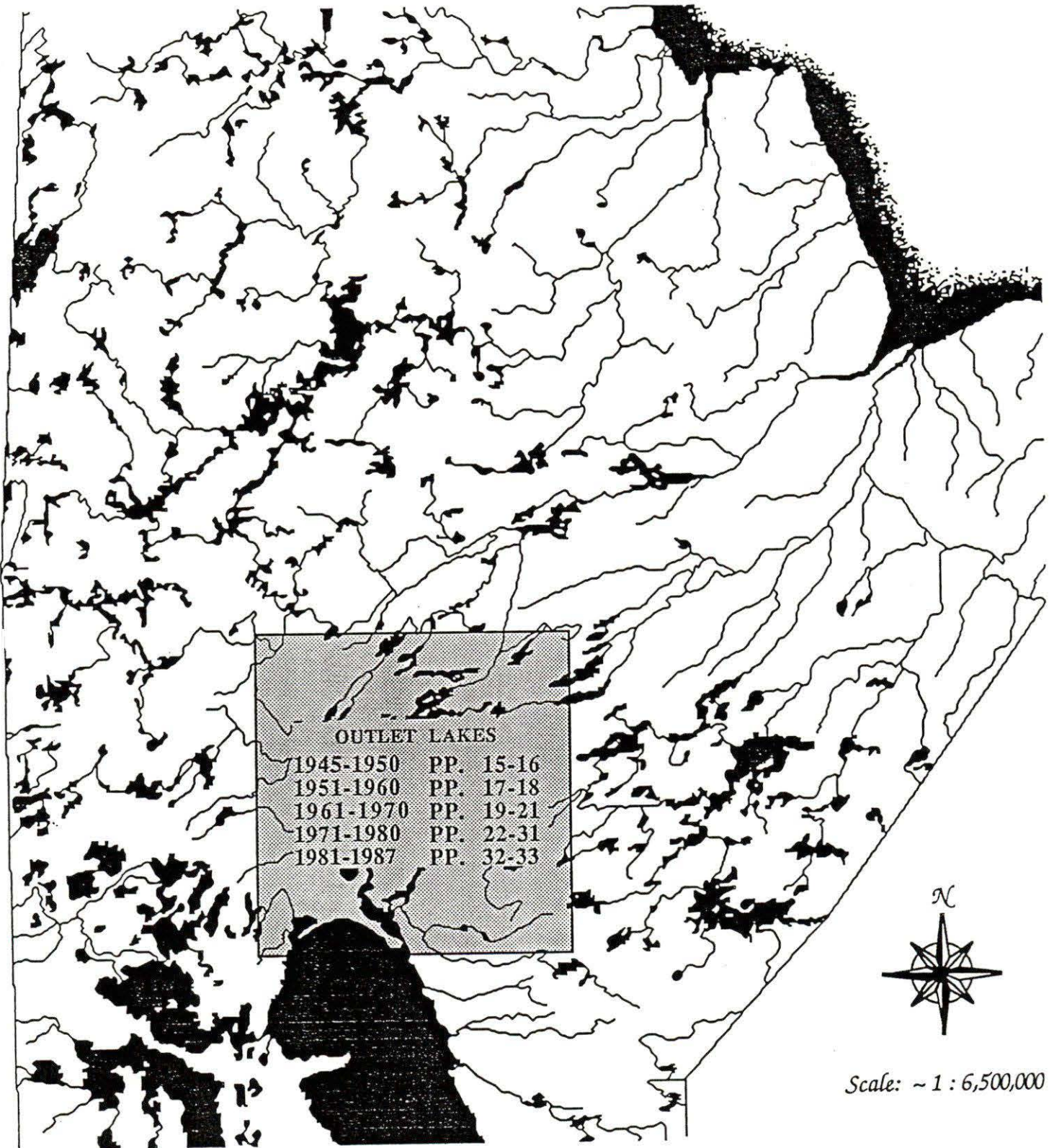
3) *If the aerial photography documented is not part of the Airphoto Index-* Flight line data would need to be requested from the agency identified in the catalogue (Table 4). Copies of the flight line index maps can be requested or an appointment can be made to view the maps in person. If you are interested in a particular polygon of photography, record the date, location, and scale of photography to aid the contact agency in locating the flight line data. Individual arrangements can be made to obtain prints.

# Aerial Photography Index Map

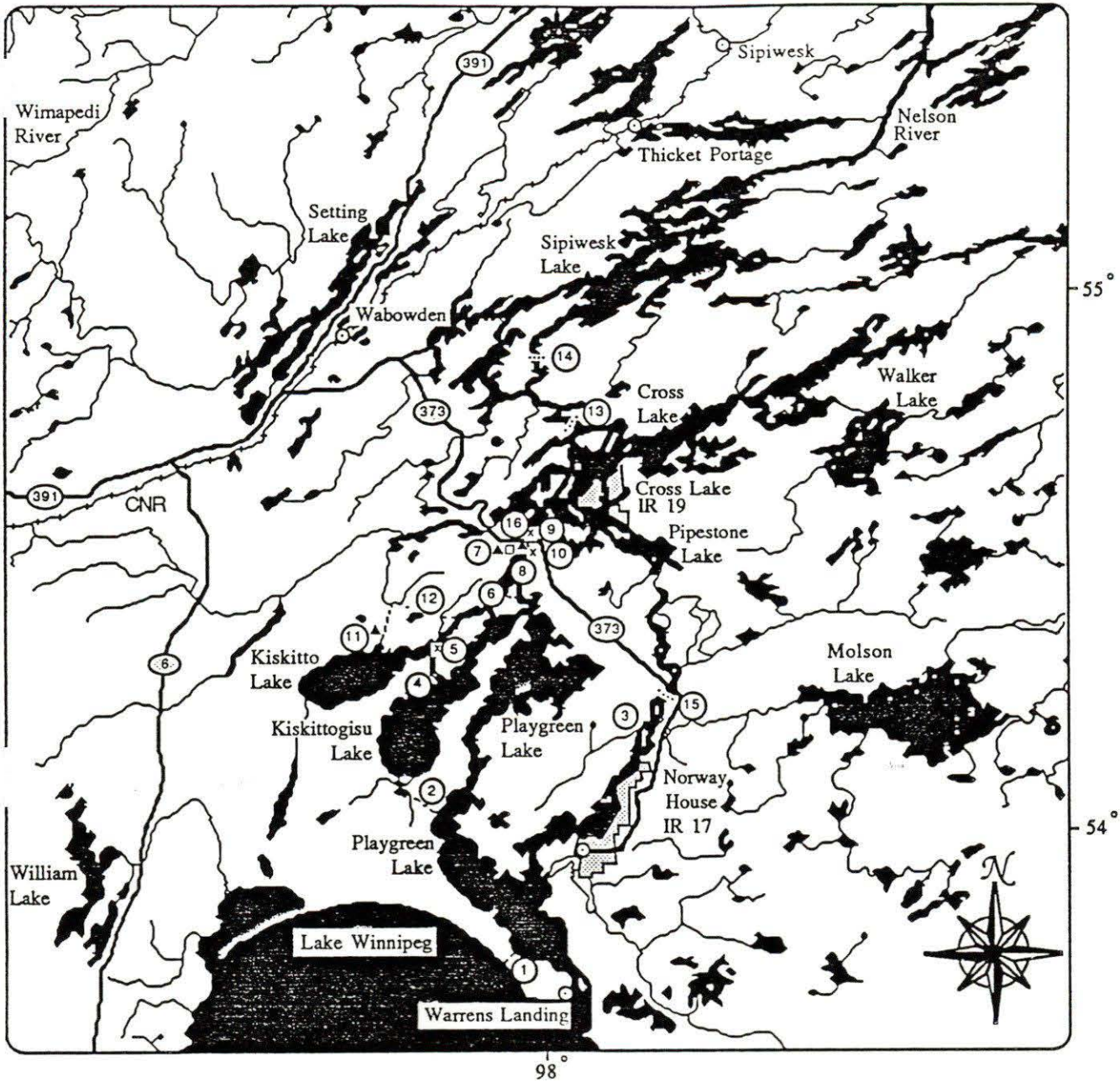




Aerial Photography Index Map:  
Outlet Lakes



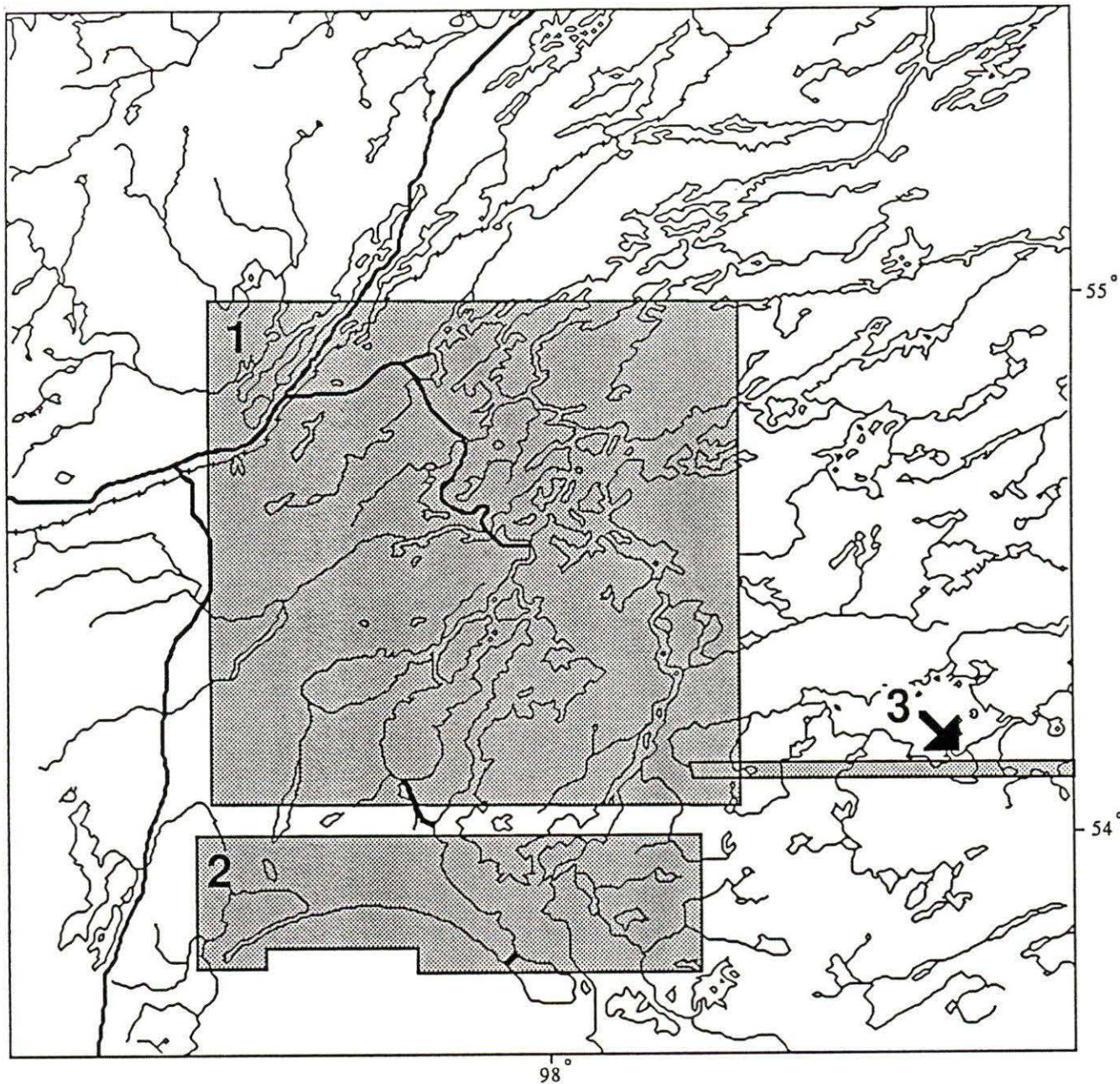
# Geographical Reference Map: Outlet Lakes



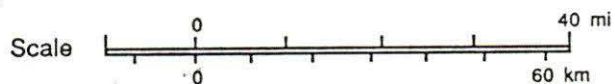
## LEGEND



- |                             |  |                     |
|-----------------------------|--|---------------------|
| ① 2 Mile Channel            | ⑨ West Dyke                                  | railroads           |
| ② 8 Mile Channel            | ⑩ East Dyke                                  | roads               |
| ③ Nelson River East Channel | ⑪ Kiskitto Black Duck Channel & Control      | towns               |
| ④ Kisipachewuk Channel      | ⑫ Stan Creek Diversion Channel               | Indian reservations |
| ⑤ Kiskitto Dam & Dykes      | ⑬ Whitemud Generating Station                | channels            |
| ⑥ Ominawin Bypass           | ⑭ Red Rock Generating Station                | dams/dykes          |
| ⑦ Jenpeg Control Structure  | ⑮ East Nelson Control                        | control structures  |
| ⑧ Jenpeg Generating Station | ⑯ Lake Winnipeg Regulation Control Structure | generating stations |
|                             |  | proposed structures |

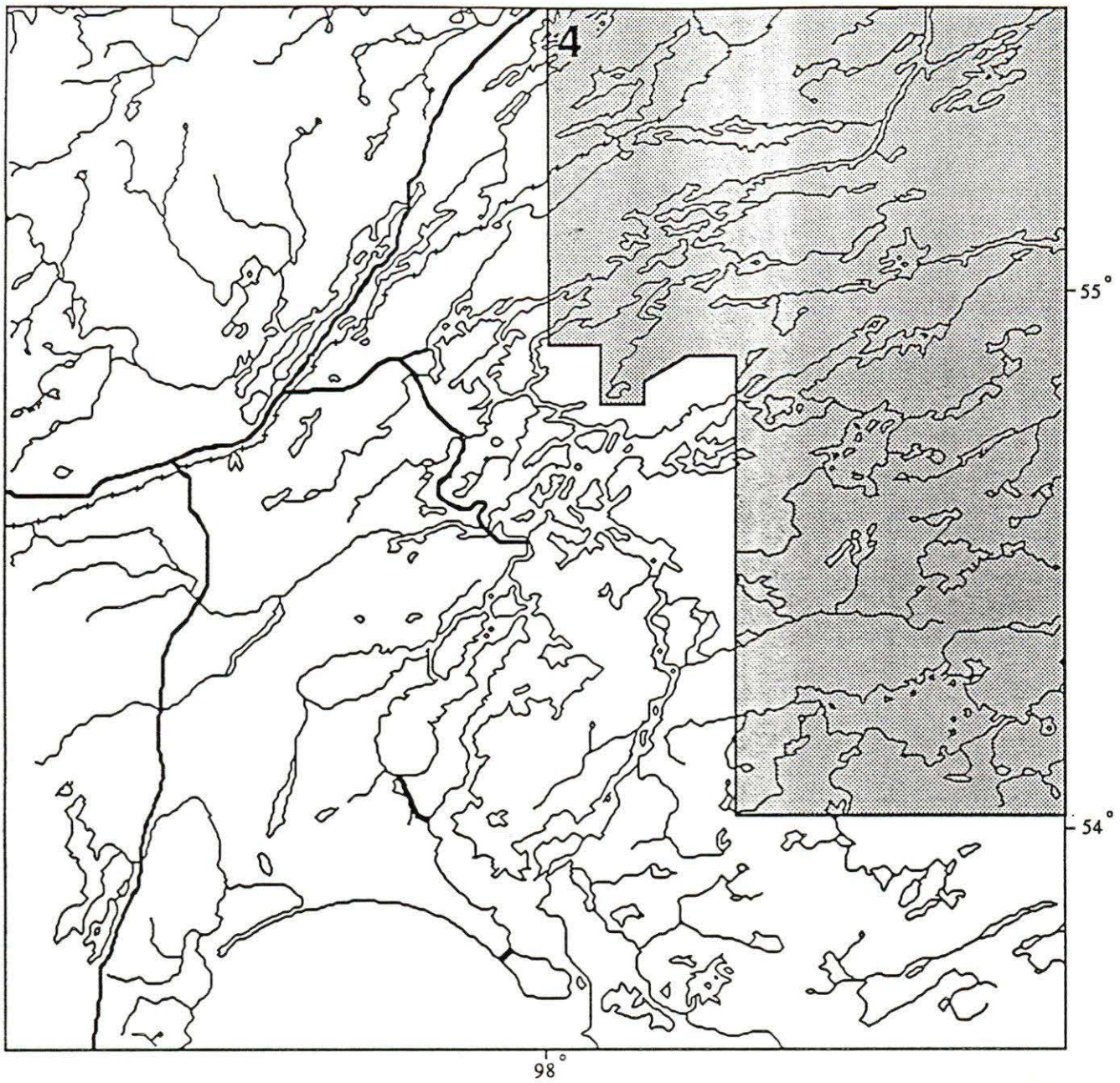


## Outlet Lakes



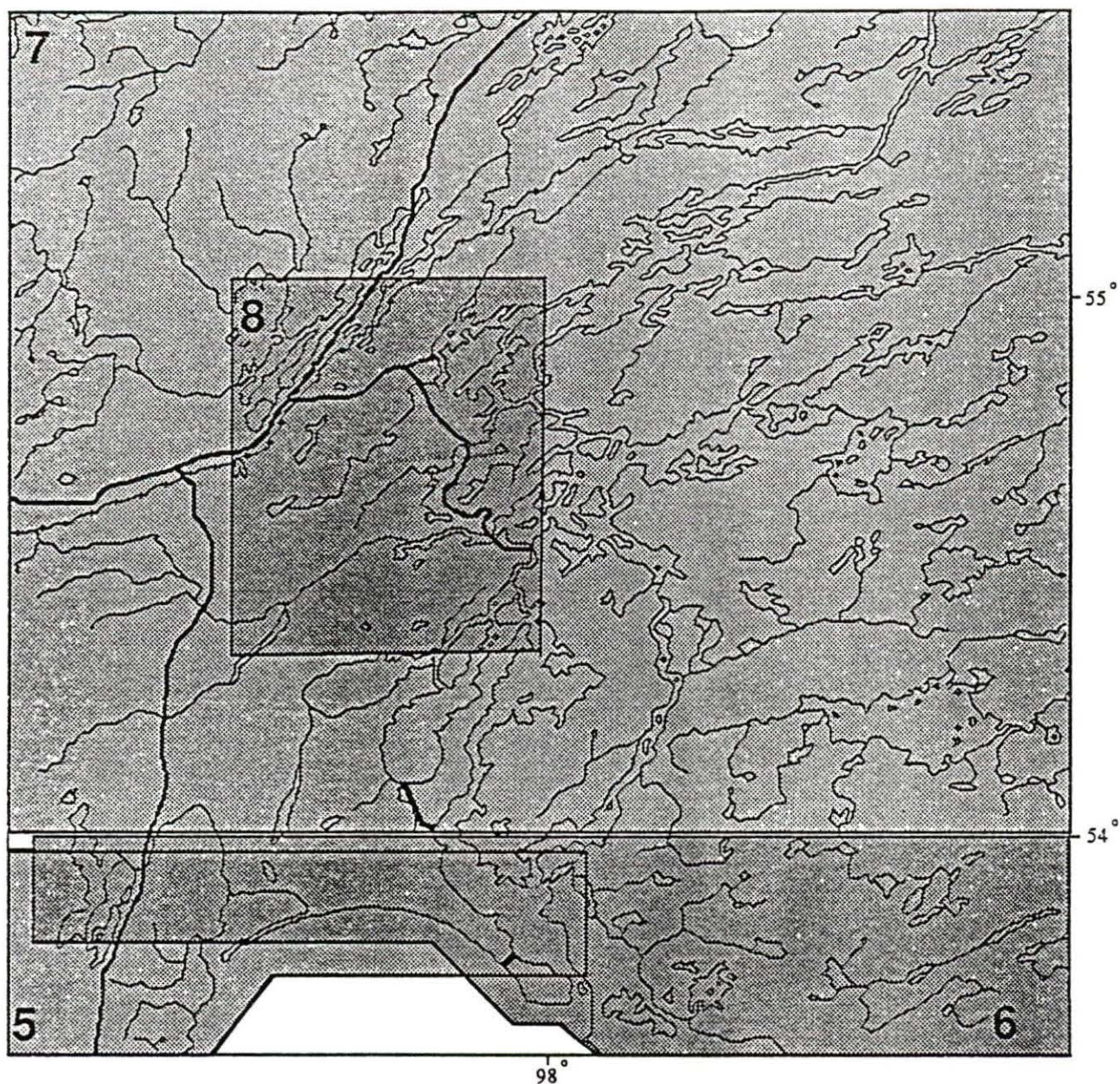
Block	Type	Scale	Altitude	Format	Date
1	BW	15840	7920 AGL	9X9	1946-47
2	BW	15840	7920 AGL	9X9	JUN 1946
3	BW	38000	20000	9X9	1950





## Outlet Lakes

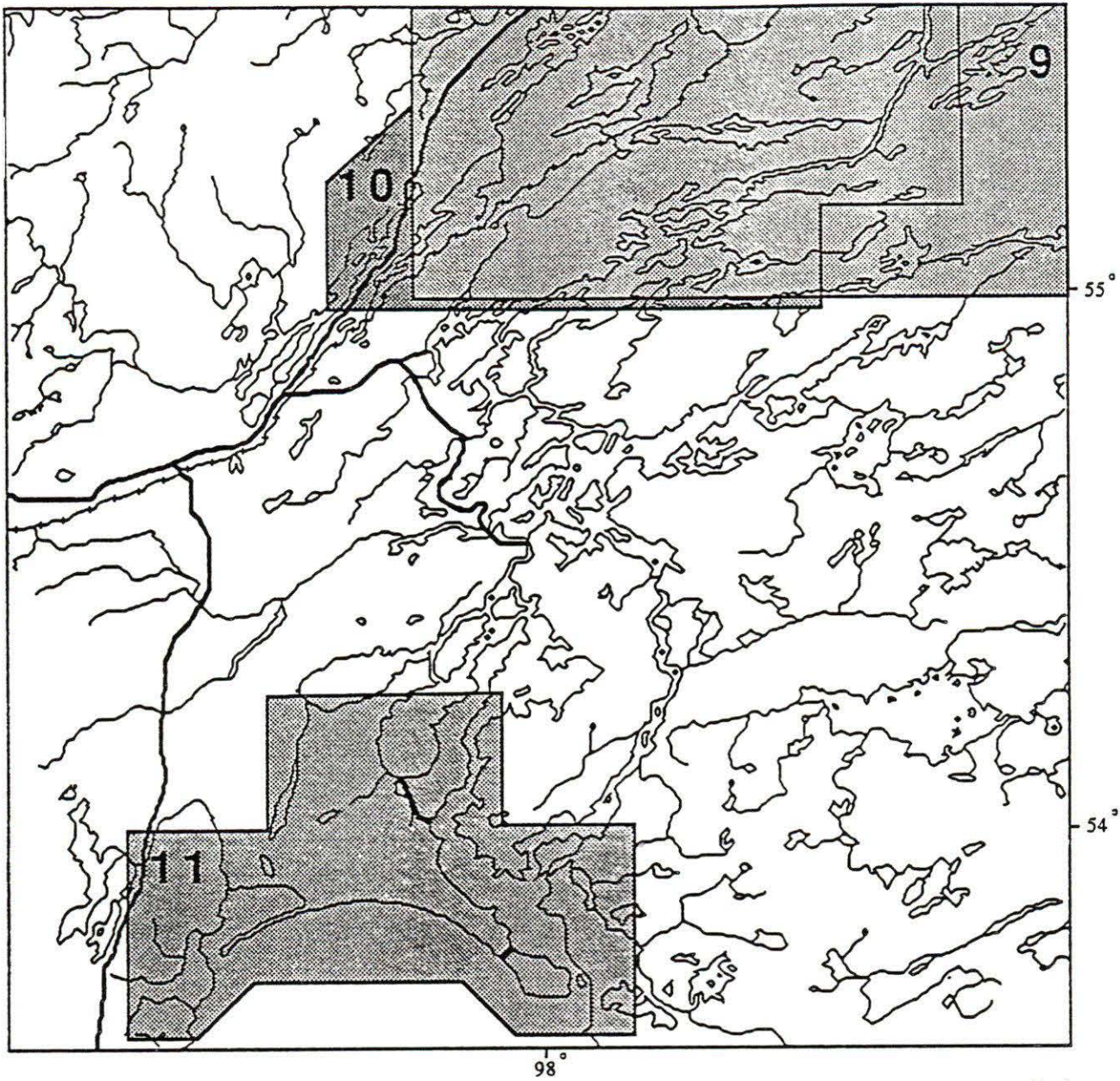
Block	Type	Scale	Altitude	Format	Date
4	BW	36000	19000	9X9	1950



## Outlet Lakes



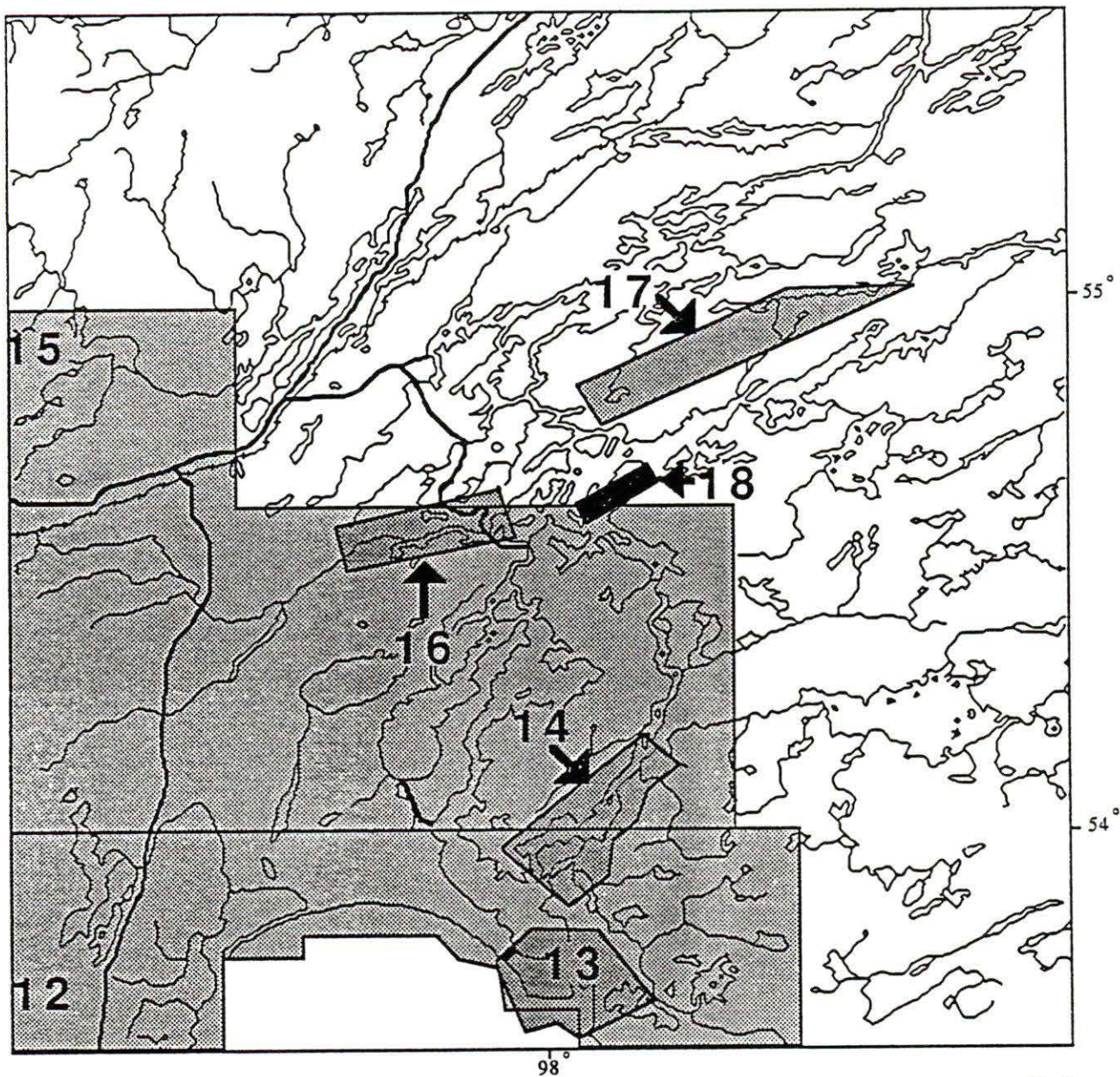
Block	Type	Scale	Altitude	Format	Date
5	BW	68600	35000	9X9	OCT 53
6	BW	58000	30000	9X9	JUN 55
7	BW	58000	30000	9X9	1955-56
8	BW	40000	20400	9X9	1954



## Outlet Lakes



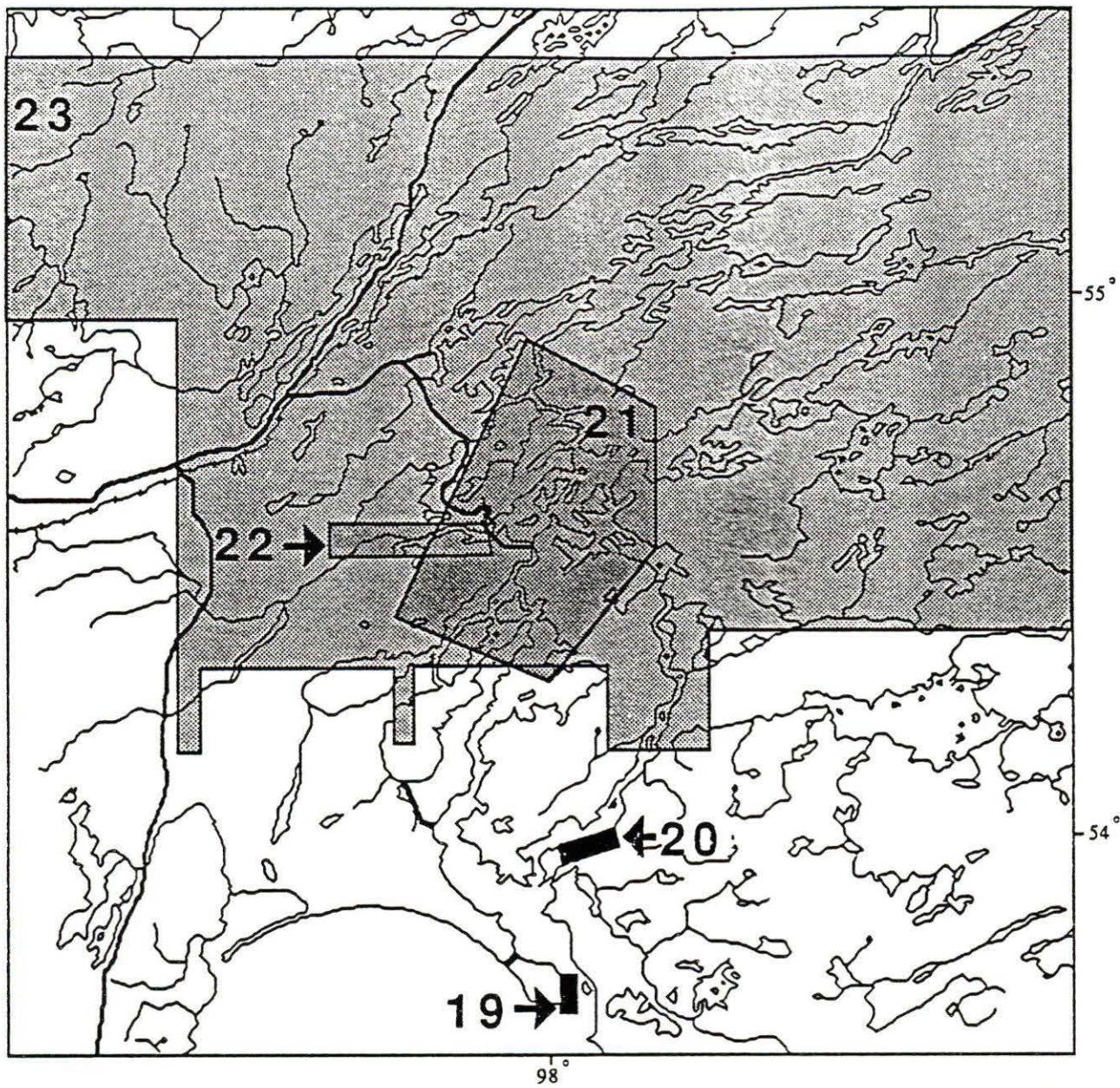
Block	Type	Scale	Altitude	Format	Date
9	BW	36000	19000	9X9	1950-51
10	BW	15840	8600	9X9	SEPT 53
11	BW	63360	NA	9X9	MAY 55



## Outlet Lakes

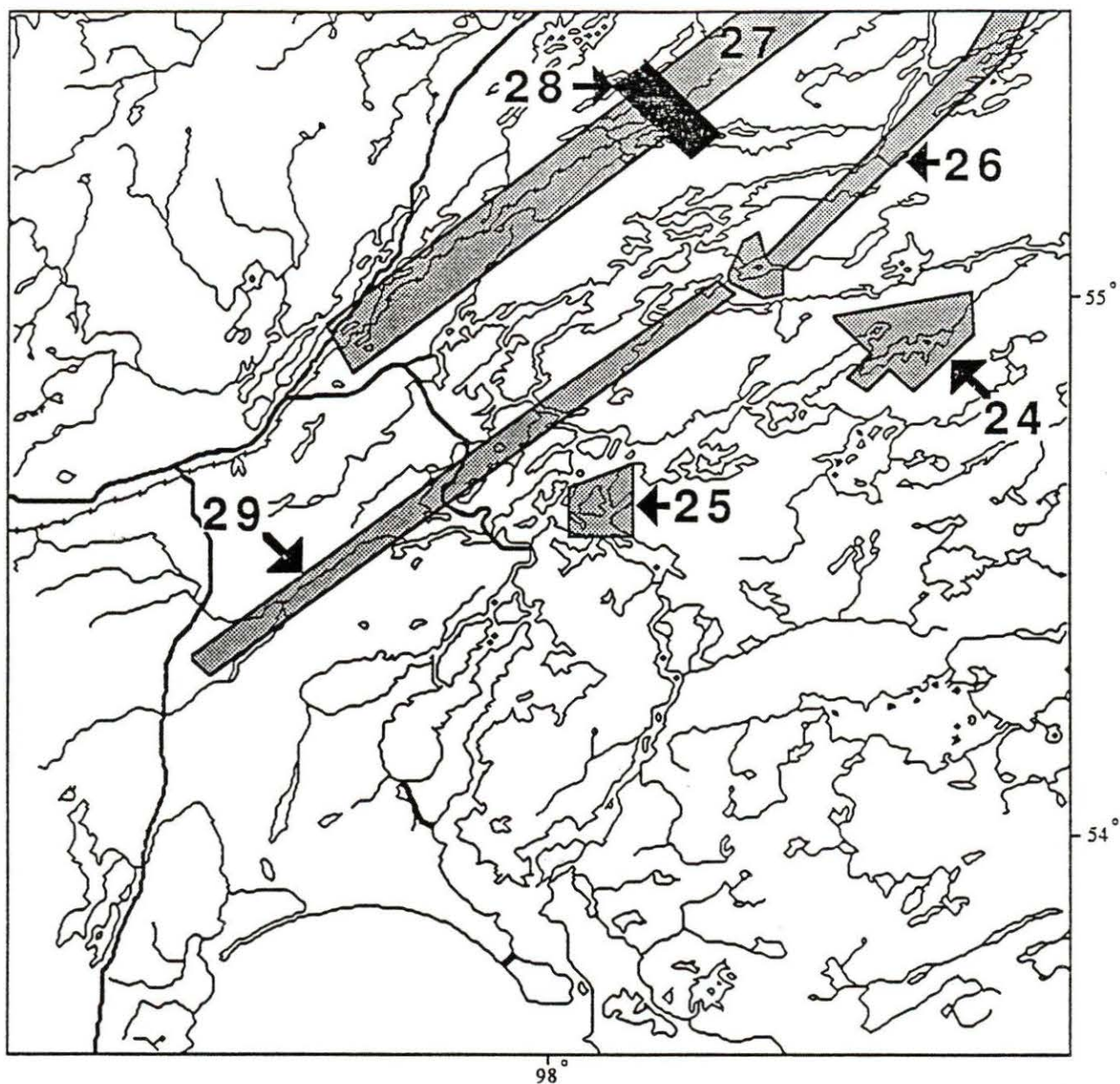


Block	Type	Scale	Altitude	Format	Date
12	BW	16000	8920	9X9	1966&68
13	BW	12000	6750	9X9	SEPT 64
14	BW	12000	6700	9X9	JUL 67
15	BW	16000	8920	9X9	1966&68
16	BW	12000	6700	9X9	JUN 65
17	BW	12000	6840	9X9	JUN 65
18	BW	6000	3700	9X9	SEPT 69



## Outlet Lakes

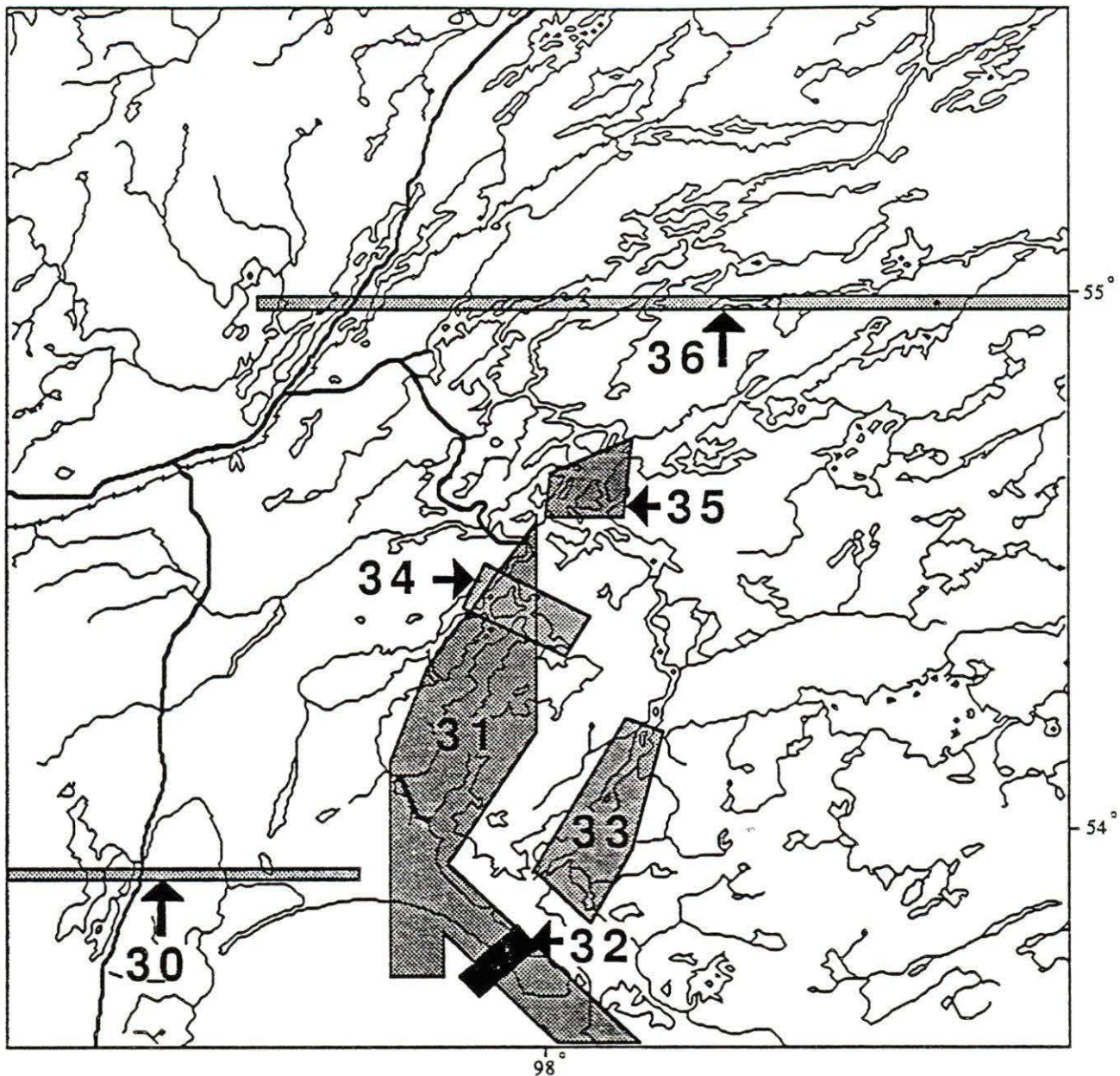
Block	Type	Scale	Altitude	Format	Date
19	BW	6000	3700	9X9	SEPT 69
20	BW	6000	3700	9X9	SEPT 69
21	BW	12000	6700	9X9	SEPT 64
22	BW	13400	12700	9X9	MAY 68
23	BW	16000	8700	9X9	1965-70



## Outlet Lakes



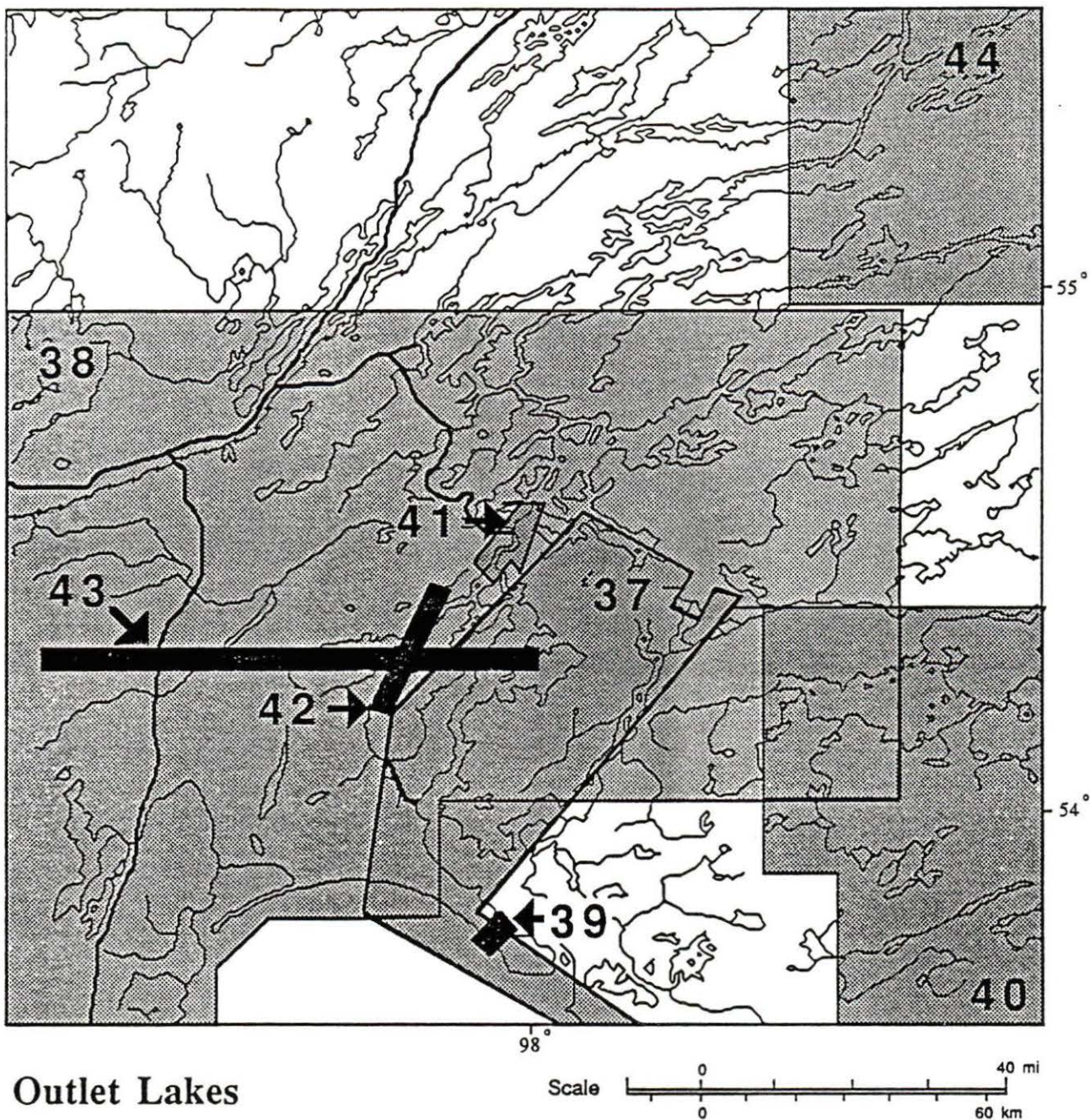
Block	Type	Scale	Altitude	Format	Date
24	BW	12000	6700	9X9	JUN 65
25	BW	12000	6623	9X9	JUL 67
26	BW	24000	12700	9X9	MAY 68
27	BW	24000	12650	9X9	JUN 67
28	BW	6000	3300	9X9	SEPT 69
29	BW	12000	6700	9X9	MAY 68



## Outlet Lakes



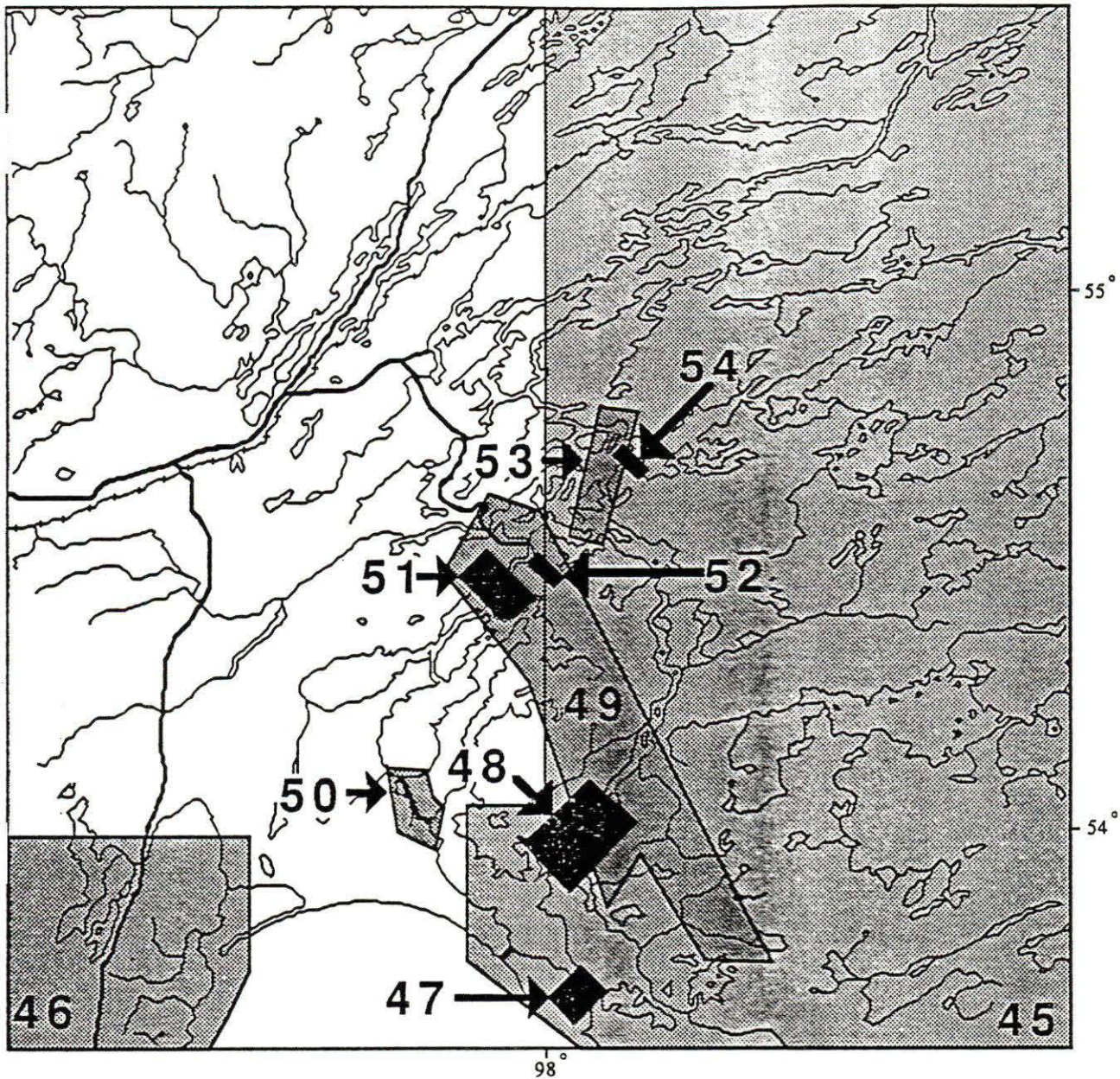
Block	Type	Scale	Altitude	Format	Date
30	BW	78420	40000	9X9	MAY 72
31	CLR	Various	5000 & 10000	9X9	OCT 72
32	CLR	12000	6720	9X9	JUL 74
33	BW	12000	6720	9X9	SEPT 71
34	BW	~15000	8400	9X9	JUN 71
35	BW	13400	6700	9X9	AUG 73
36	BW	~12000	7000	9X9	JUN 71



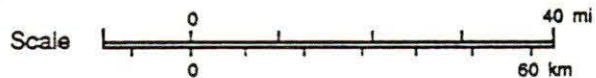
## Outlet Lakes

Block	Type	Scale	Altitude	Format	Date
37	BW	35000	18200	9X9	SEPT 71
38	BW	80000	40000	9X9	SEPT 71
39	CLR	12150	6800	9X9	JUN 73
40	BW	16000	8700	9X9	1973
41	BW	5400 & 13200	Various	70mm	JUL 71
42	BW	15840	NA	70mm	JUL 71
43	BW	80000	40000	9X9	MAY 72
44	BW	24000	12688	9X9	JUN 72

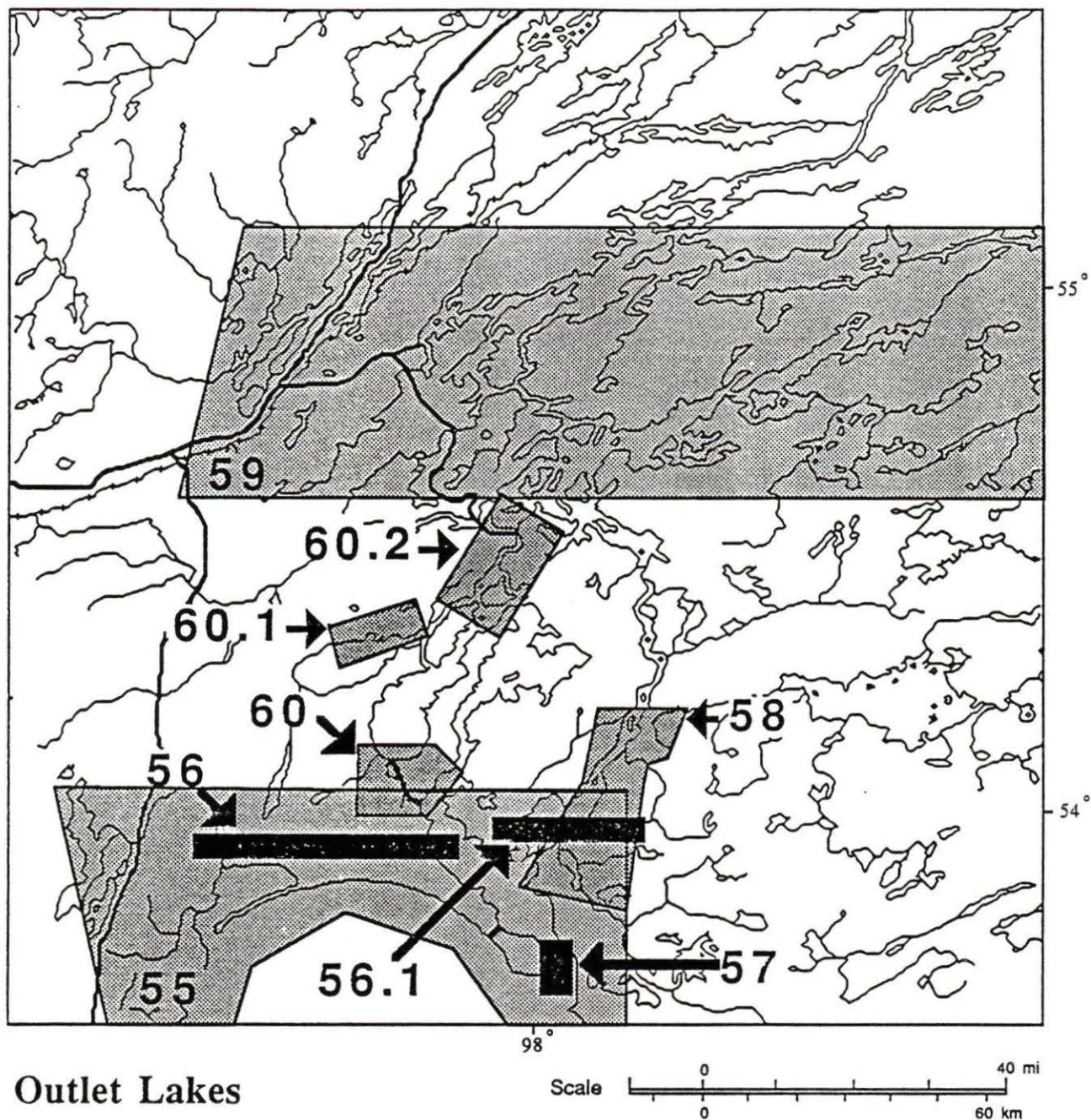




### Outlet Lakes

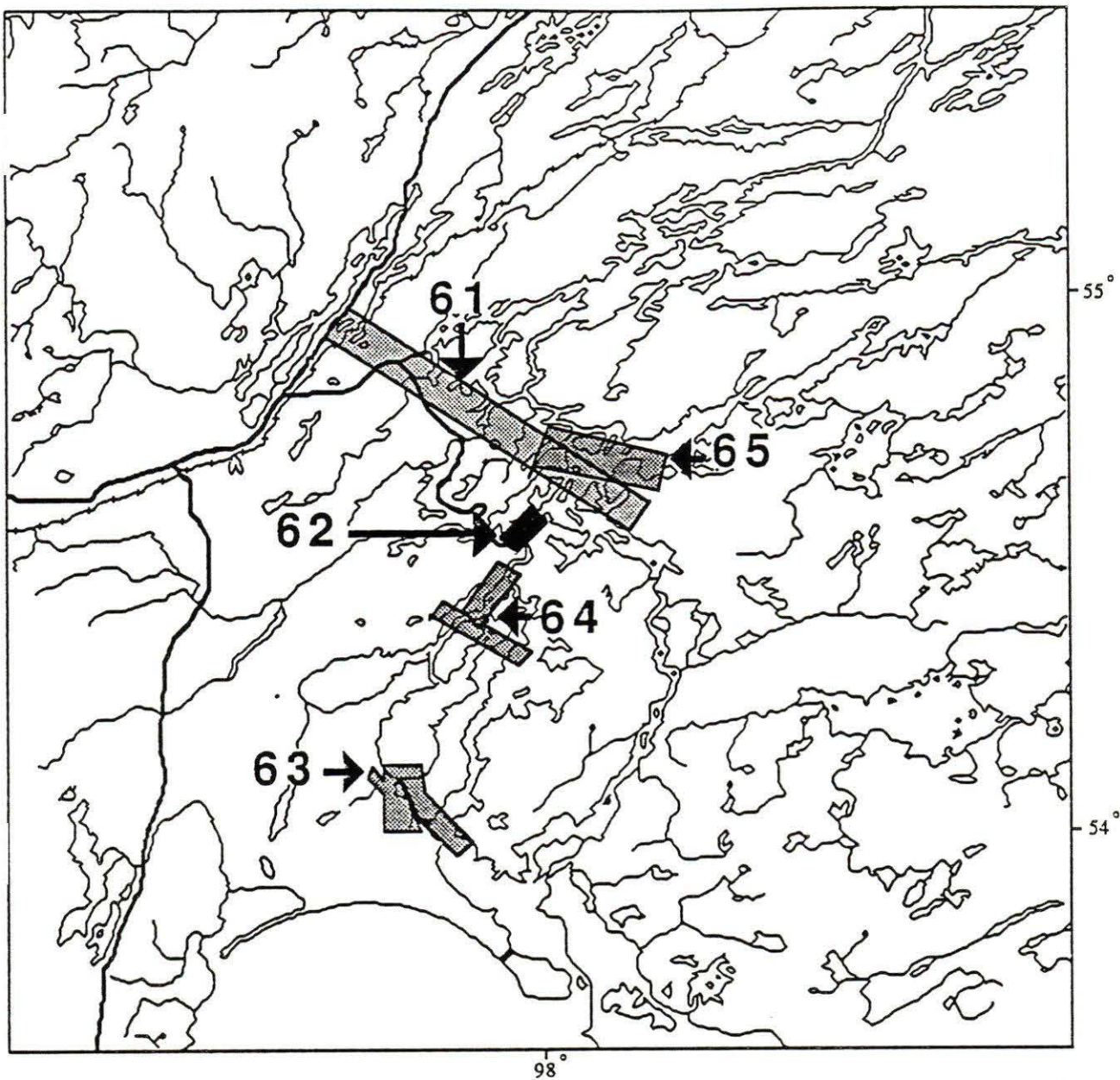


Block	Type	Scale	Altitude	Format	Date
45	BW	56000	28900	9X9	1976
46	BW	56000	29000	9X9	1976
47	BW	6000	3750	9X9	1974
48	BW	6000	3750	9X9	OCT 73
48	BW	6000	3750	9X9	AUG 75
49	BW	36000	18000 AGL	70mm	JUL 71
50	CLR	12150	6800	9X9	JUN 73
51	CLR	12150	6800	9X9	JUN 73
52	CLR	12000	6900	9X9	JUL 74
53	BW	12000	NA	9X9	SEPT 76
54	BW	6000	3000 AGL	9X9	MAY 77



## Outlet Lakes

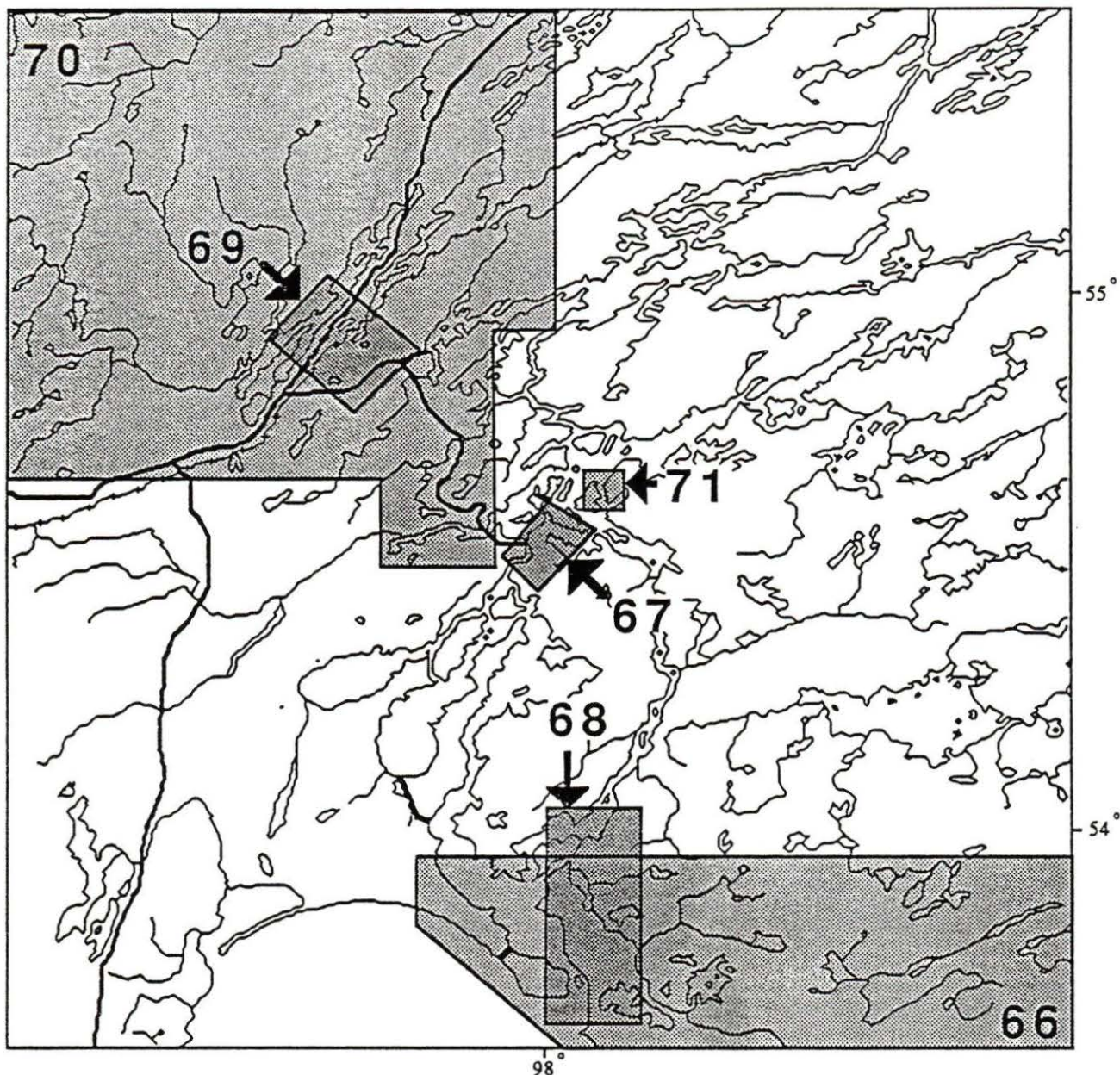
Block	Type	Scale	Altitude	Format	Date
55	BW	50000	26000	9X9	JUL 78
56,56.1	BW	50000	26000	9X9	SEPT 79
57	BW	6000	NA	70mm	AUG 79
58	BW	6000	3000 AGL	9X9	MAY 78
59	BW	~140000	35000	70mm	OCT 73
60	BW	15840	9000	70mm	SEPT 73
60.1	BW	15840	9000	70mm	SEPT 73
60.2	BW	15840	9000	70mm	SEPT 73



## Outlet Lakes



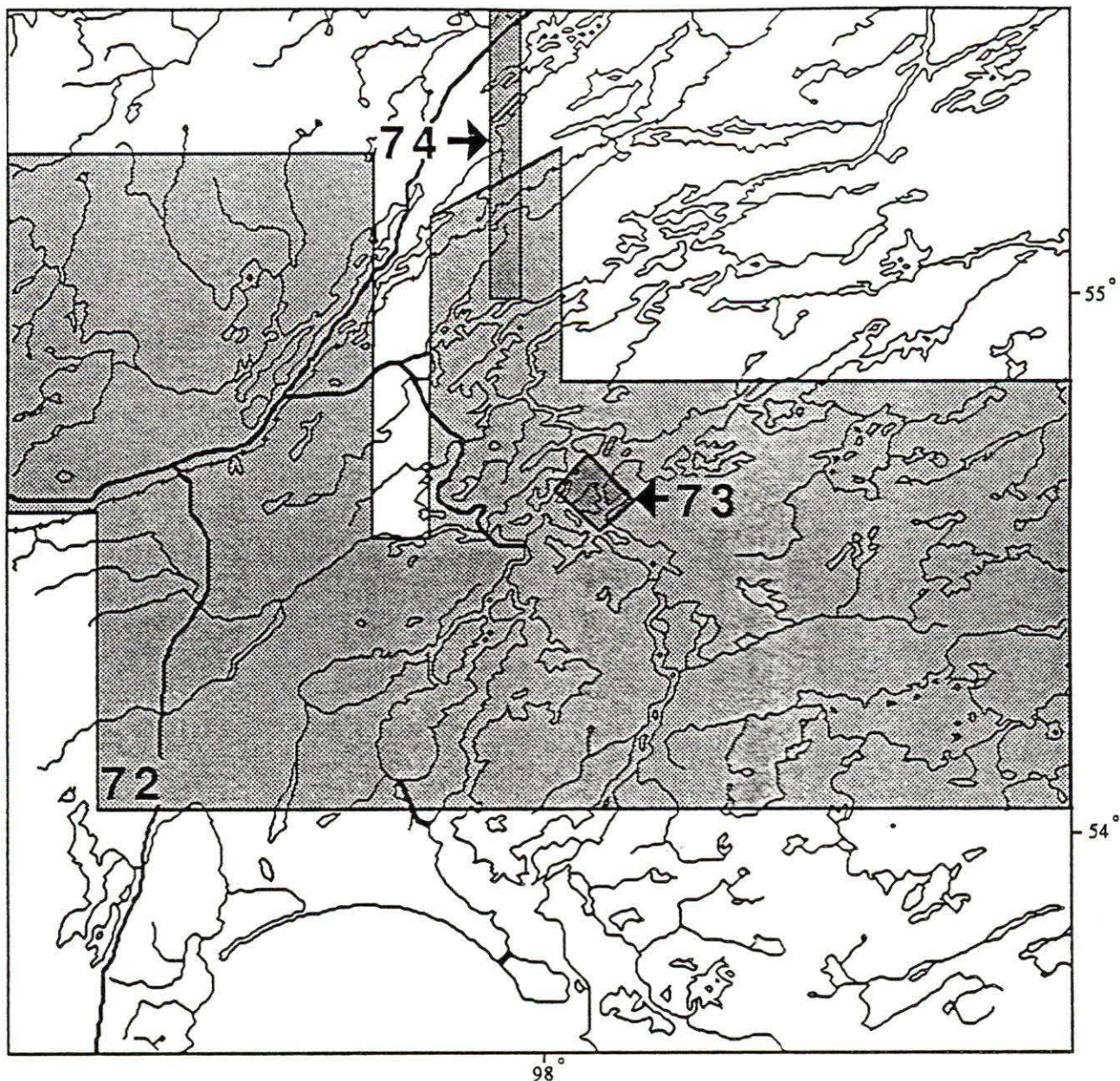
Block	Type	Scale	Altitude	Format	Date
61	CLR	NA	4200	9X9	MAY 73
62	CLR	12000	6800	9X9	JUL 74
63	CLR	12000	6720	9X9	JUL 74
64	CLR	12000	6850	9X9	JUL 74
65	CLR	12000	4200	9X9	MAY 73



## Outlet Lakes



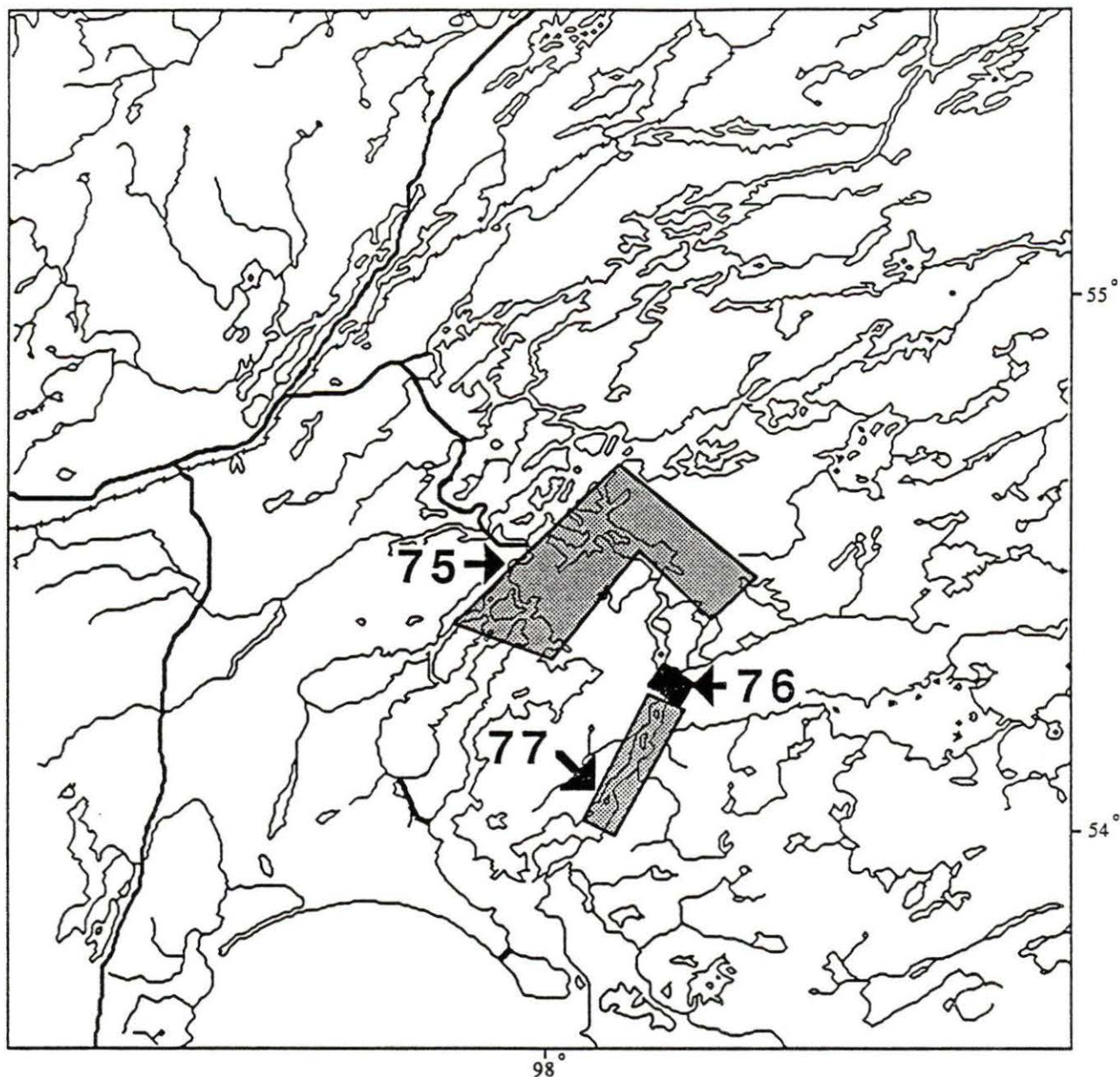
Block	Type	Scale	Altitude	Format	Date
66	BW	80000	40000	9X9	MAY 72
67	BW	6000	3000 AGL	9X9	MAY 76
68	BW	50000	25700	9X9	AUG 71
69	BW	6000	3000 AGL	9X9	MAY 77
70	BW	50000	26000	9X9	1978
71	BW	6000	3000 AGL	9X9	1973



## Outlet Lakes



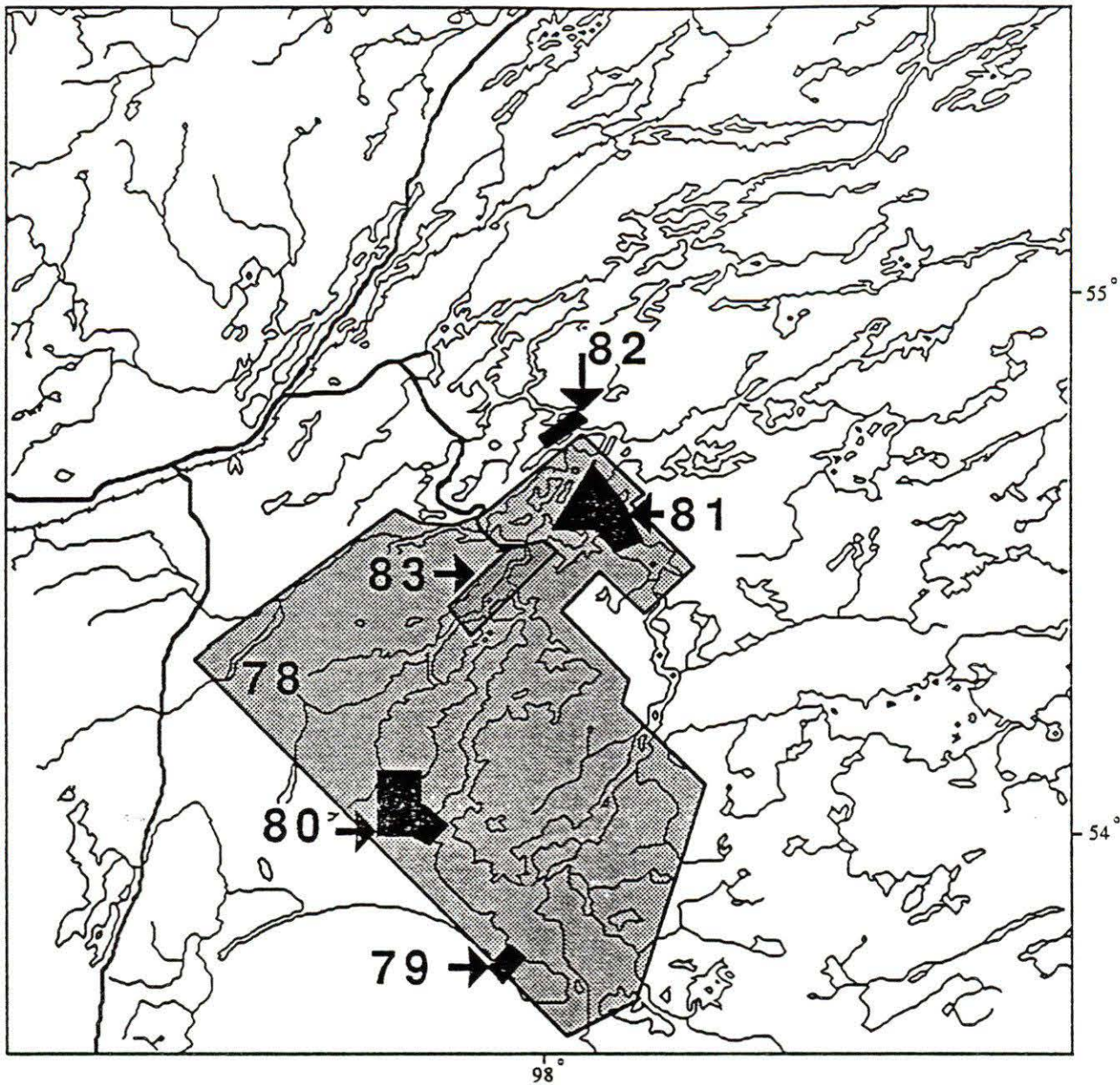
Block	Type	Scale	Altitude	Format	Date
72	BW	50000	26000	9X9	SEPT 79
73	BW	6000	3000 AGL	9X9	JUL 75
74	BW	56000	28900	9X9	AUG 76



## Outlet Lakes



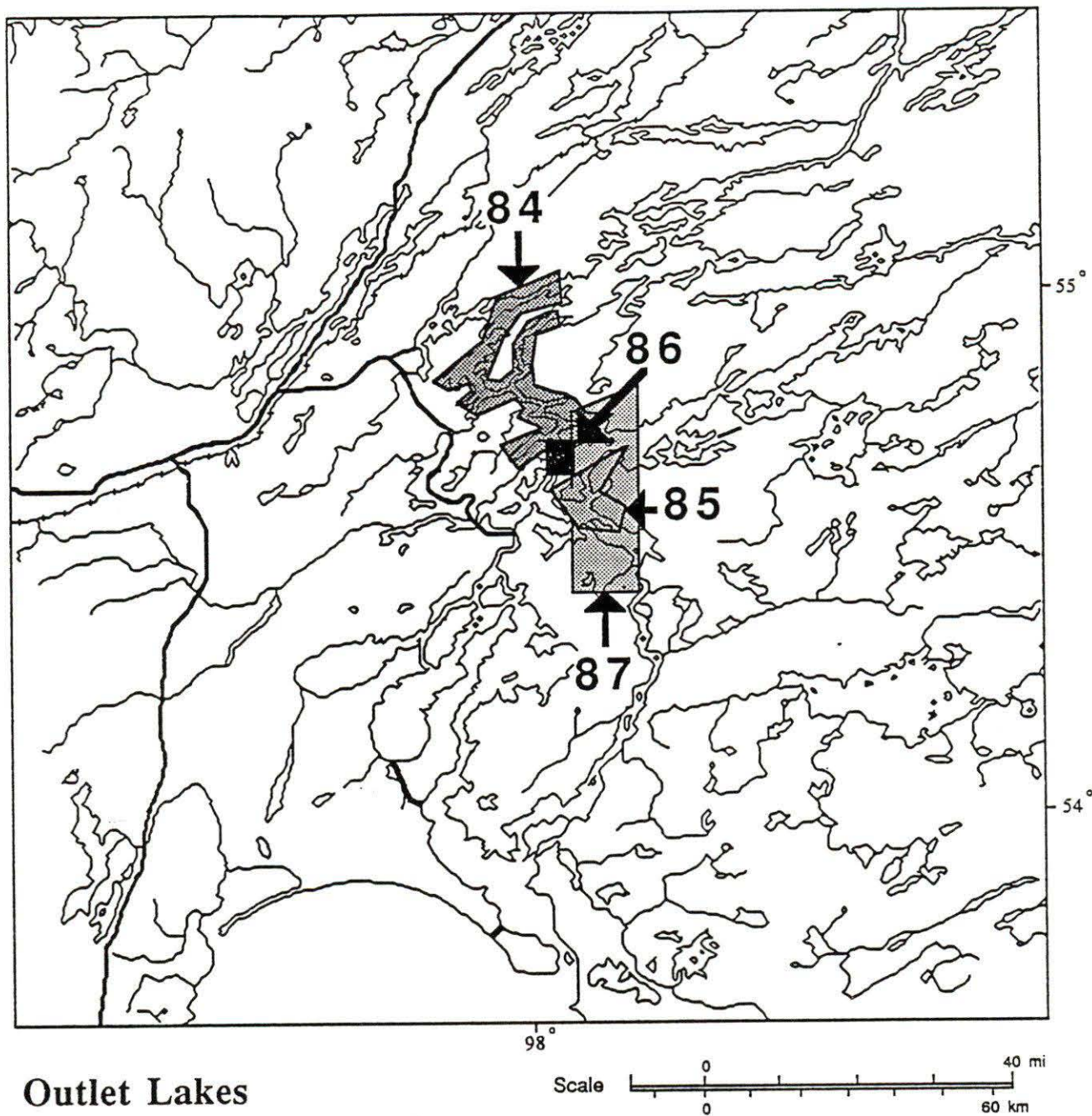
Block	Type	Scale	Altitude	Format	Date
75	BW	15840	NA	70mm	AUG 78
76	BW	4000	NA	70mm	AUG 78
77	BW	14000	NA	70mm	JUL 77



### Outlet Lakes



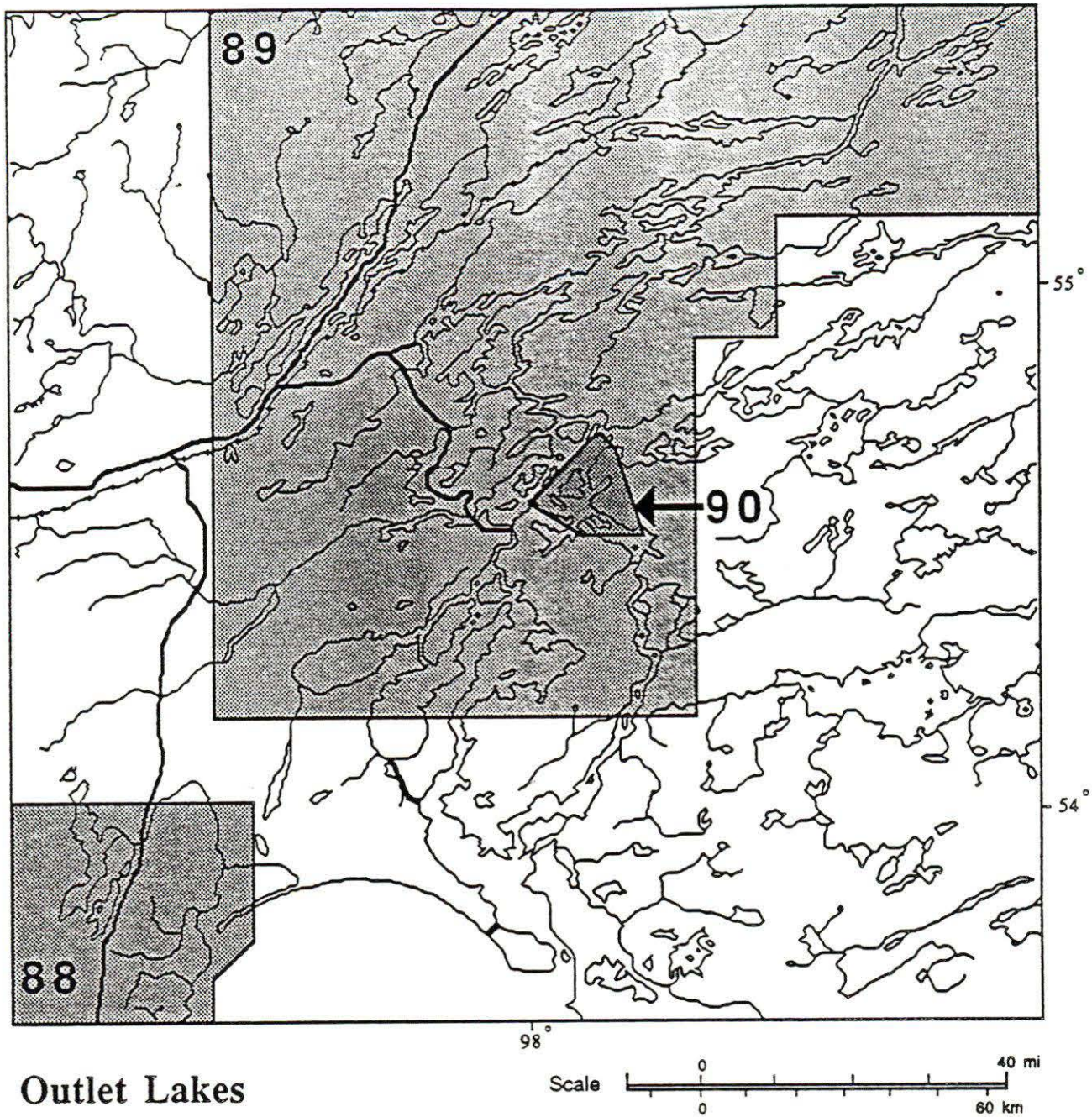
Block	Type	Scale	Altitude	Format	Date
78	BW	36000	18000 AGL	9X9	OCT 77
79	BW	12000	6000 AGL	9X9	SEPT 76
80	BW	12000	6000 AGL	9X9	SEPT 76
81	BW	6000	3000 AGL	9X9	MAY 78
82	BW	4800	2400 AGL	9X9	OCT 77
83	BW	4800, 6000	Various	9X9	MAY 74



## Outlet Lakes

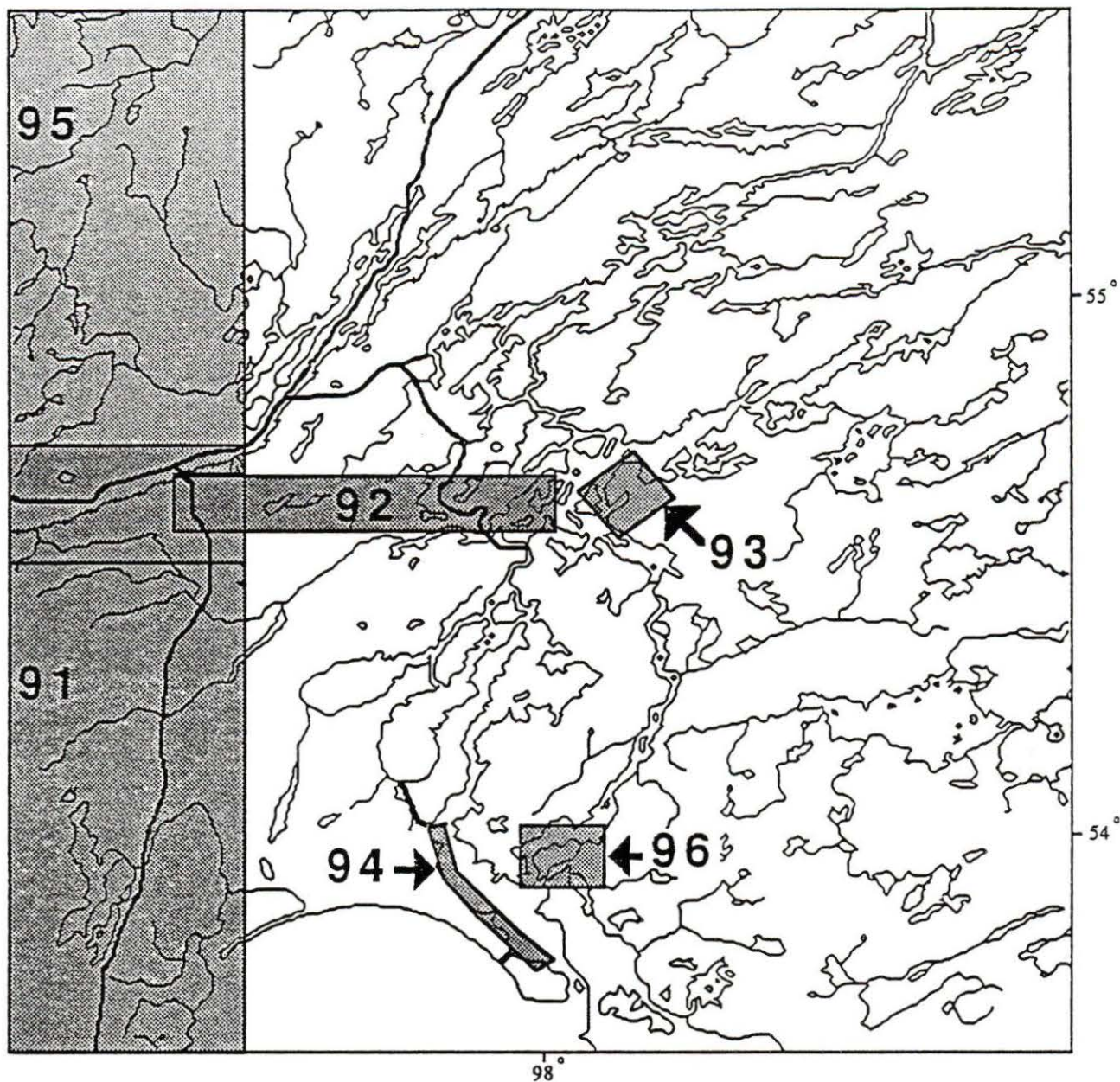
Block	Type	Scale	Altitude	Format	Date
84	BW	4800,12000	Various	9X9	OCT 77
85	BW	12000	6000 AGL	9X9	SEPT 77
86	BW	5000	2500 AGL	9X9	OCT 79
87	BW	12000	6000 AGL	9X9	AUG 72



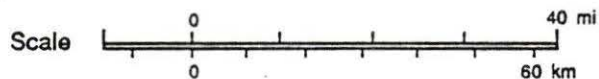


## Outlet Lakes

Block	Type	Scale	Altitude	Format	Date
88	BW	56000	17233	9X9	1981
89	BW	15840	7920 AGL	9X9	JUN 85
90	BW	6000	NA	70mm	JUN 81



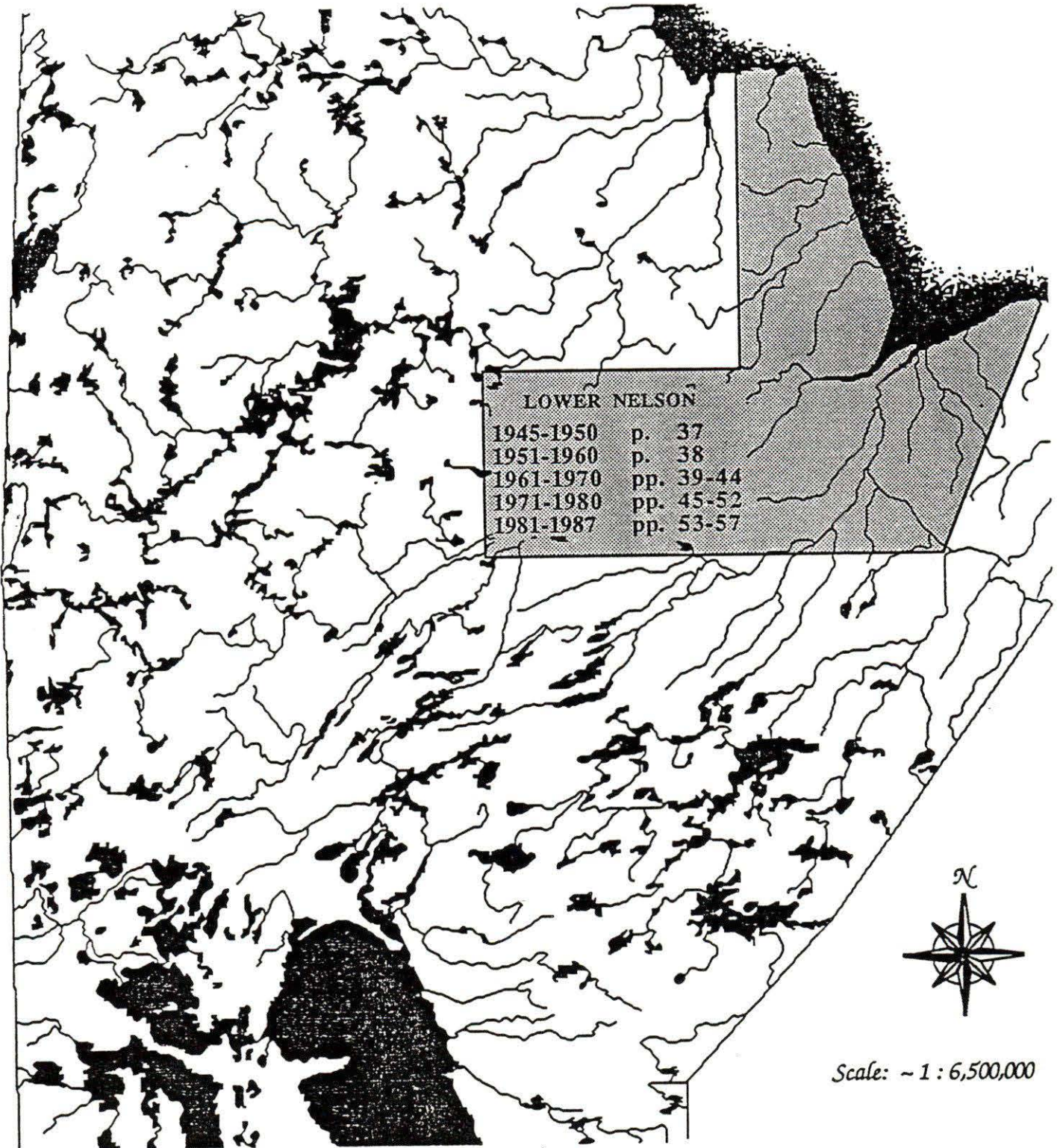
## Outlet Lakes



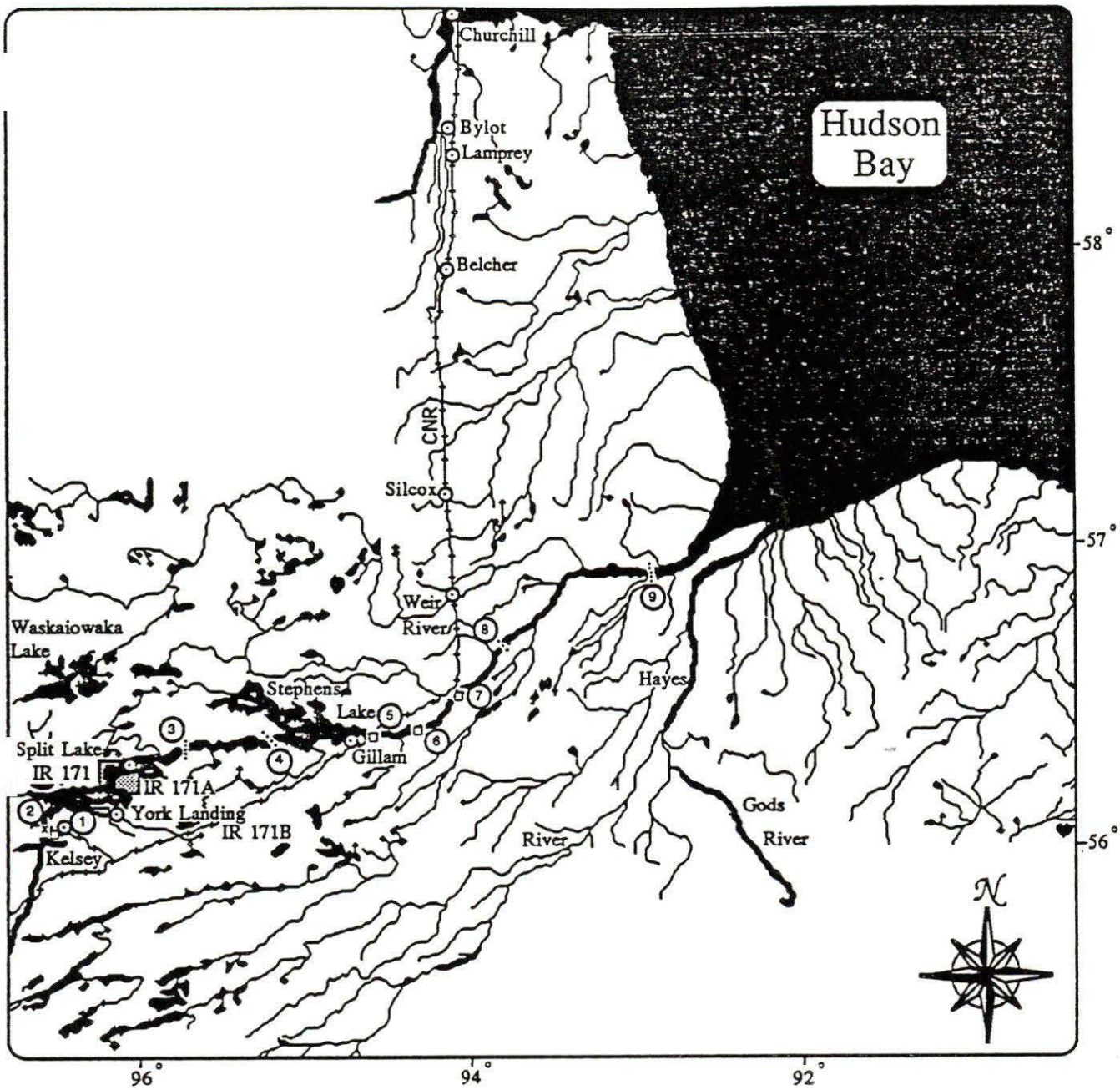
Block	Type	Scale	Altitude	Format	Date
91	BW	15840	7920 AGL	9X9	1982
92	BW	50000	14435 AGL	9X9	AUG 81
93	BW	10000	5700	9X9	MAY 85
94	CLR	4000	2000	9X9	JUL 84
95	BW	15840	7920 AGL	9X9	1987
96	BW	Various	Various	9X9	1987



# Aerial Photography Index Map: Lower Nelson



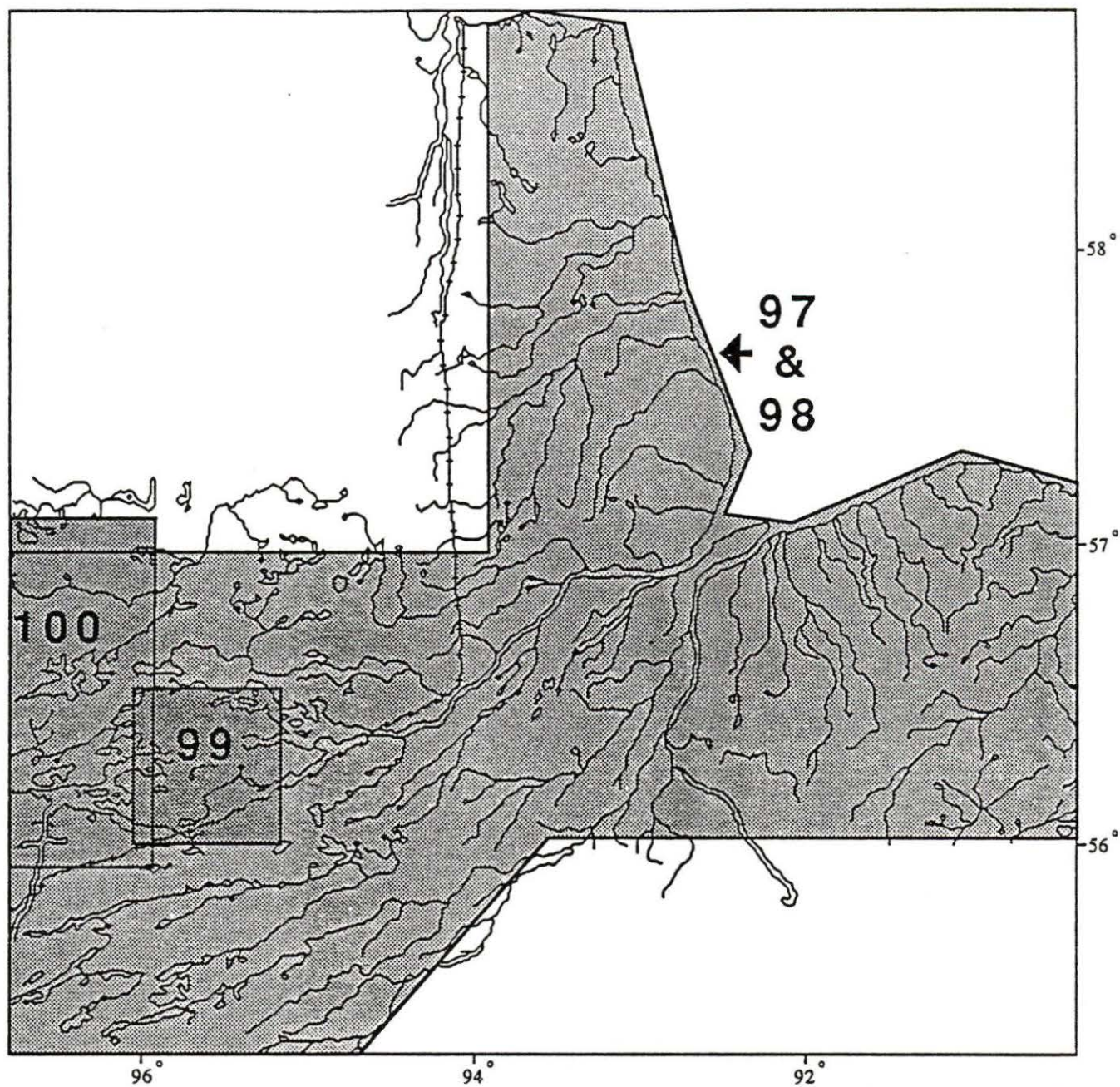
# Geographical Reference Map: Lower Nelson



## LEGEND



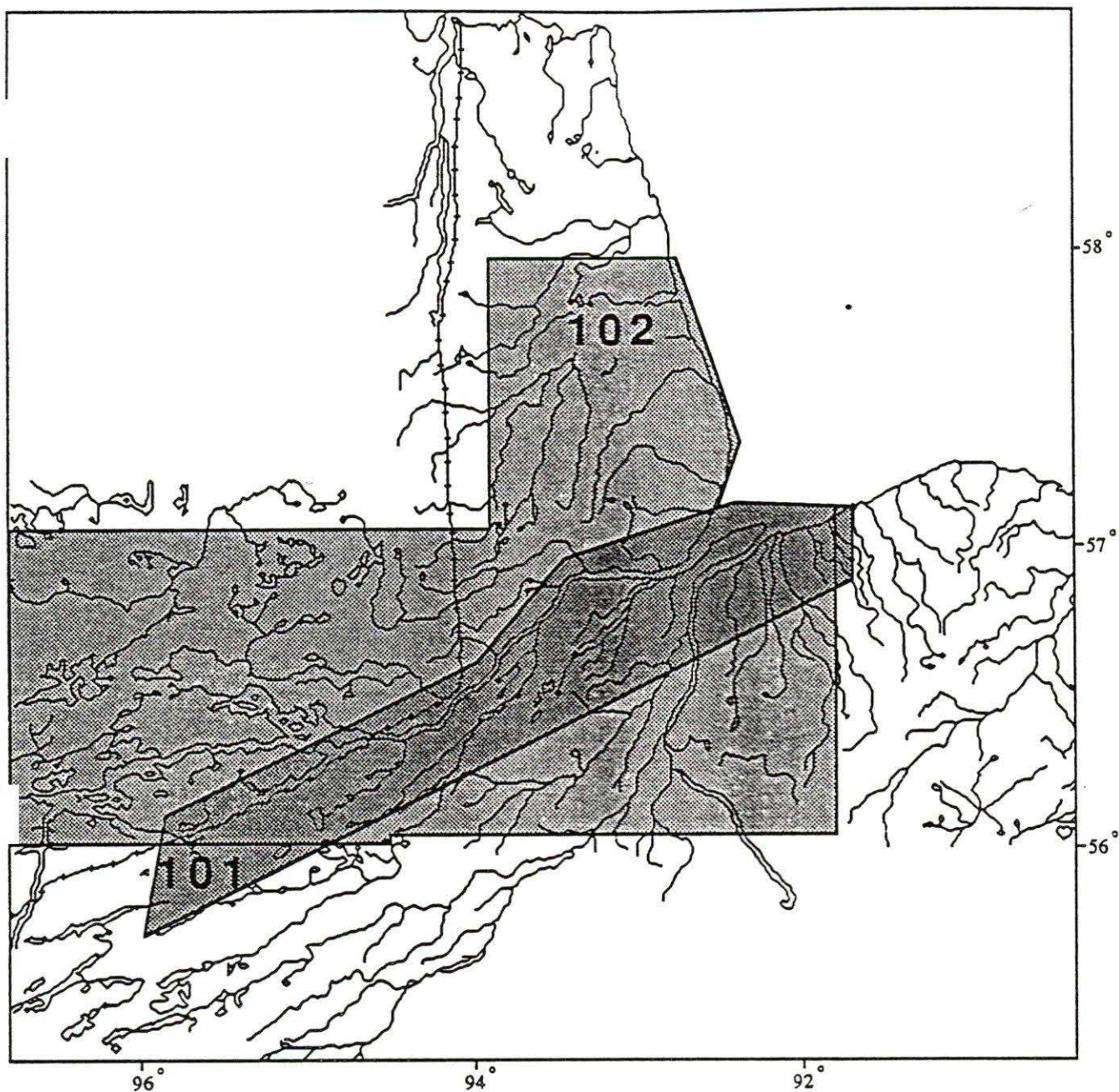
- |                               |                                    |                       |
|-------------------------------|------------------------------------|-----------------------|
| ① Kelsey Generating Station   | ⑥ Longspruce Generating Station    | —+— railroads         |
| ② Kelsey Dam & Dykes          | ⑦ Limestone Generating Station     | ○ towns               |
| ③ Birthday Generating Station | ⑧ Conapawa Generating Station      | ◻ Indian reservations |
| ④ Gull Generating Station     | ⑨ Gillam Island Generating Station | x dams/dykes          |
| ⑤ Kettle Generating Station   |                                    | ◻ generating stations |
|                               |                                    | ⋯ proposed structures |



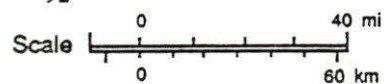
## Lower Nelson



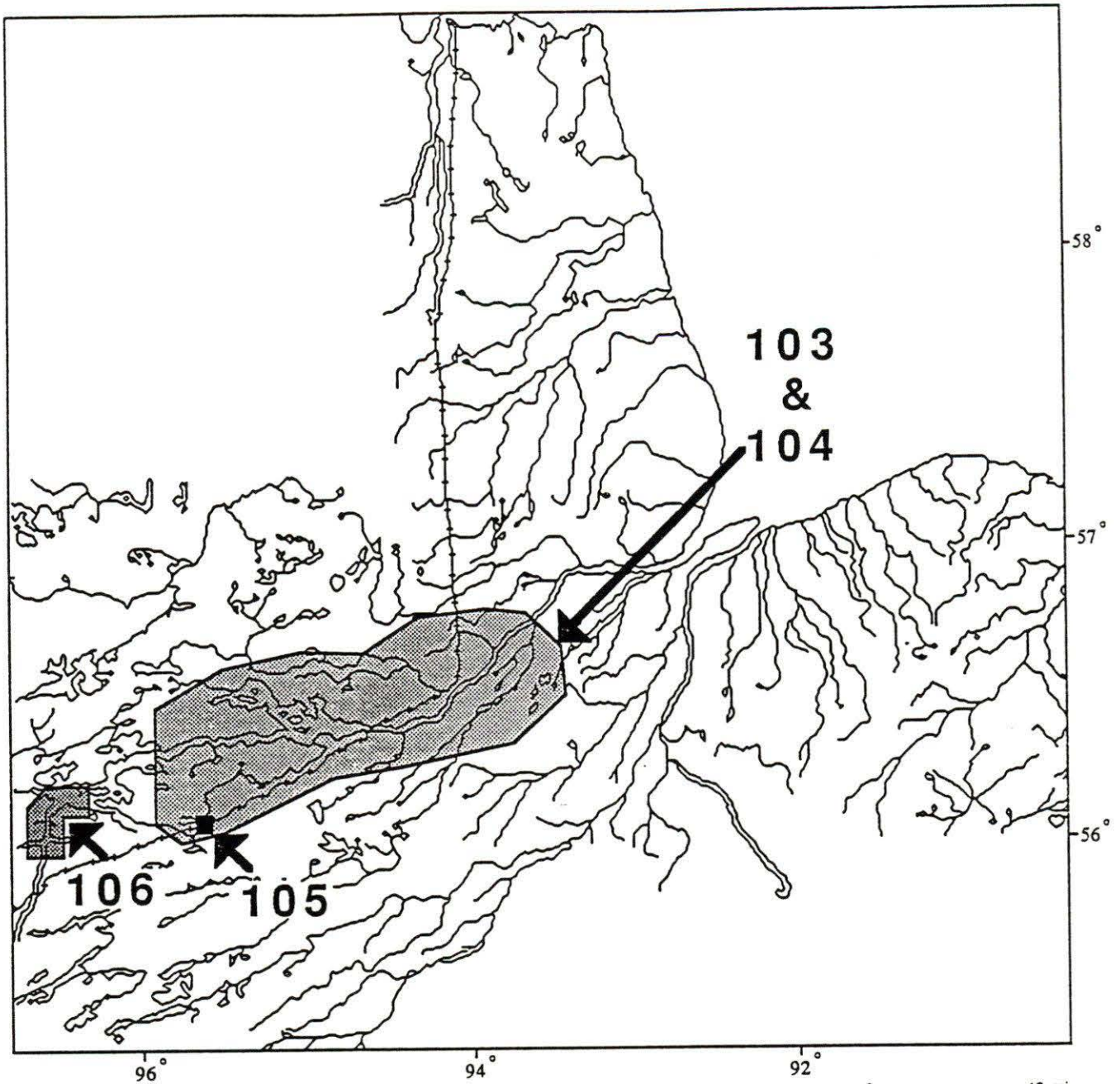
Block	Type	Scale	Altitude	Format	Date
97	BW	40000	20000	9X9	1946-47
98	BW	40000	20000	9X9	1946-47
99	BW	32000	16700	9X9	JUN 47
100	BW	36000	18000 AGL	9X9	1950-51



## Lower Nelson



Block	Type	Scale	Altitude	Format	Date
101	BW	40000	20400	9X9	JUN 54
102	BW	58000	30000	9X9	1954

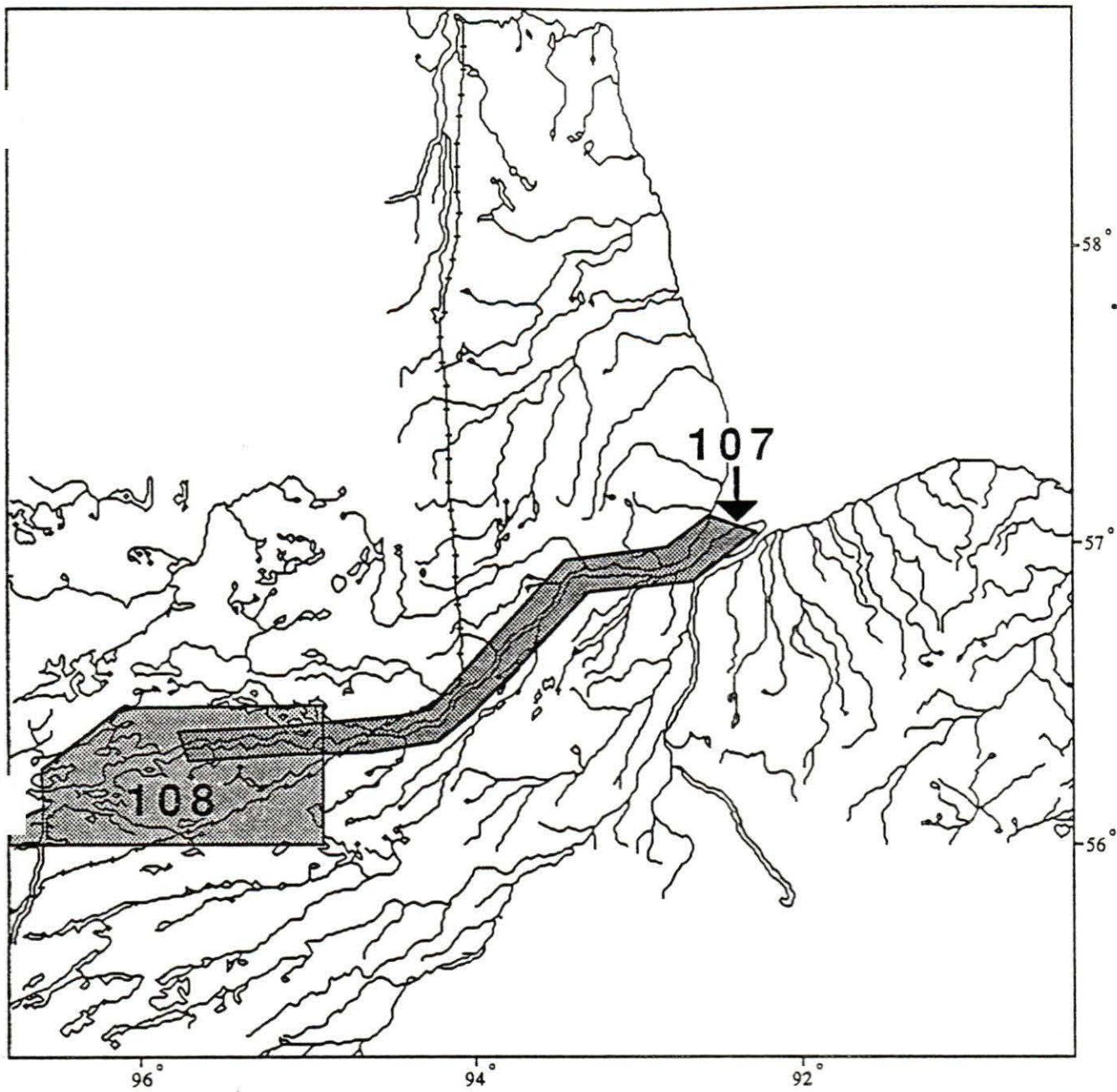


### Lower Nelson



Block	Type	Scale	Altitude	Format	Date
103	BW	12000	6450	9X9	SEPT 62
104	BW	36000	18450	9X9	SEPT 62
105	BW	4800	2400	9X9	SEPT 69
106	BW	12000	6500	9X9	FEB 63

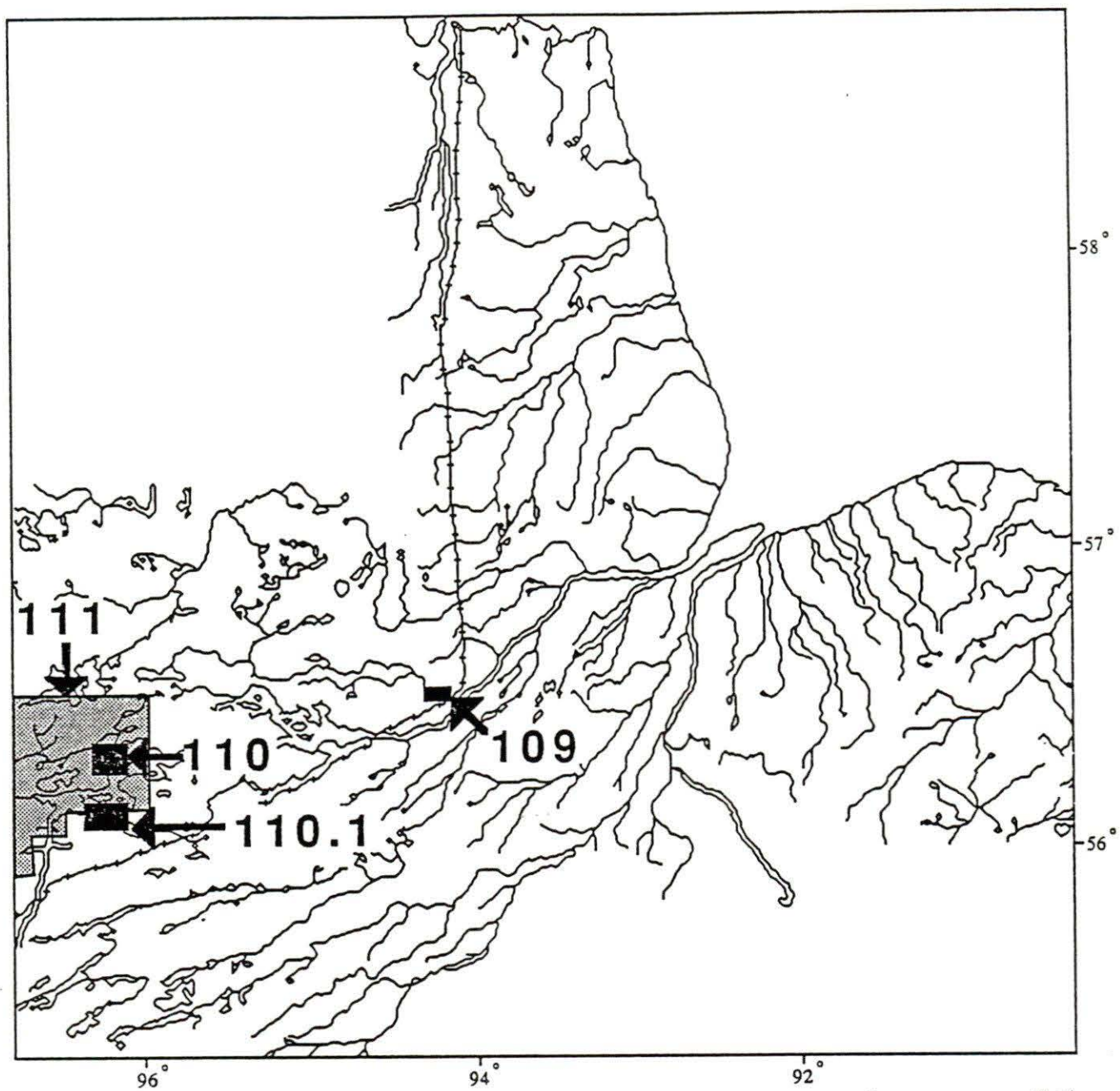




## Lower Nelson



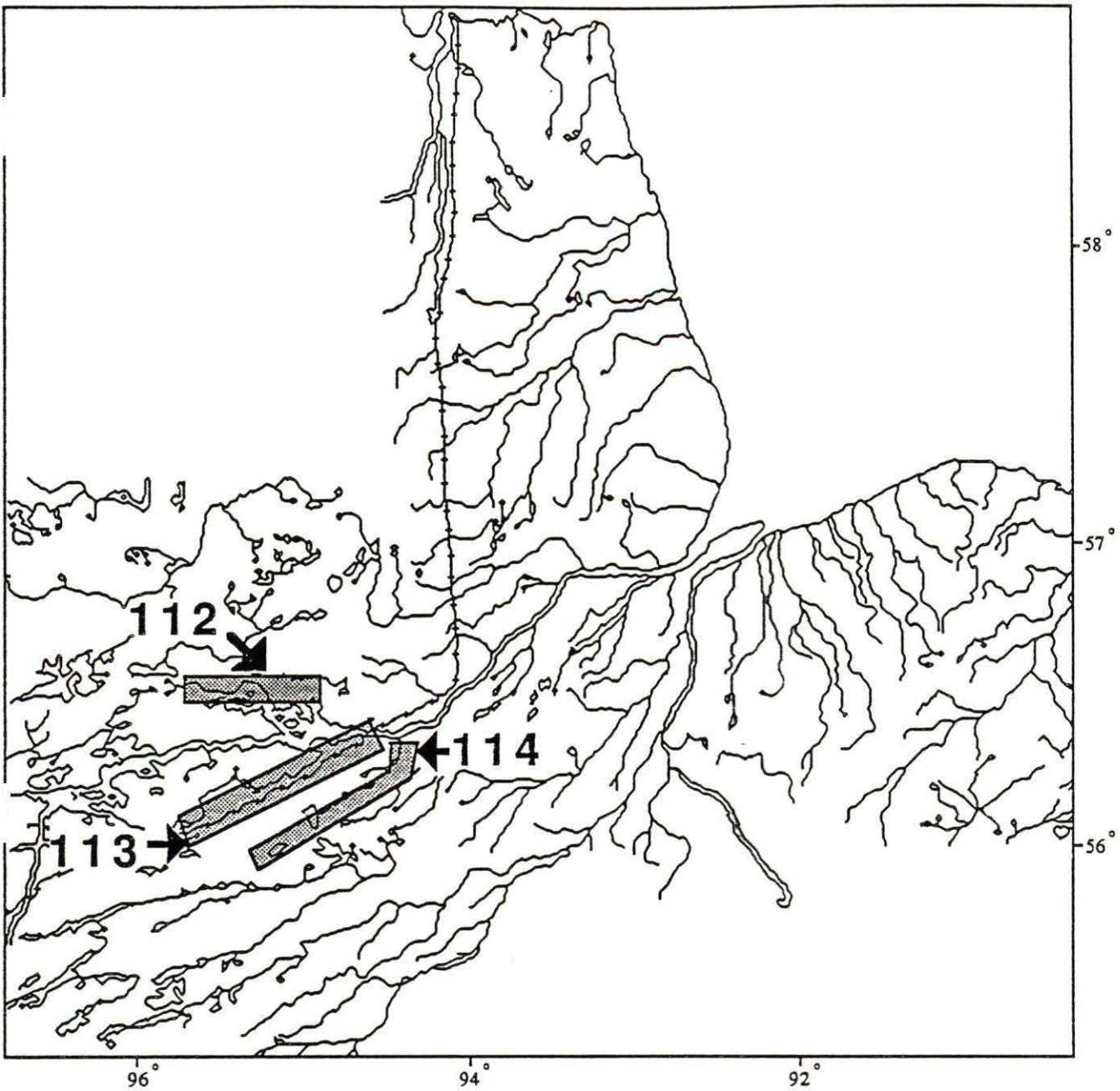
Block	Type	Scale	Altitude	Format	Date
107	BW	12000	6400	9X9	FEB 63
108	BW	16000	8700	9X9	SEPT 65



## Lower Nelson

Scale 0 40 mi  
0 60 km

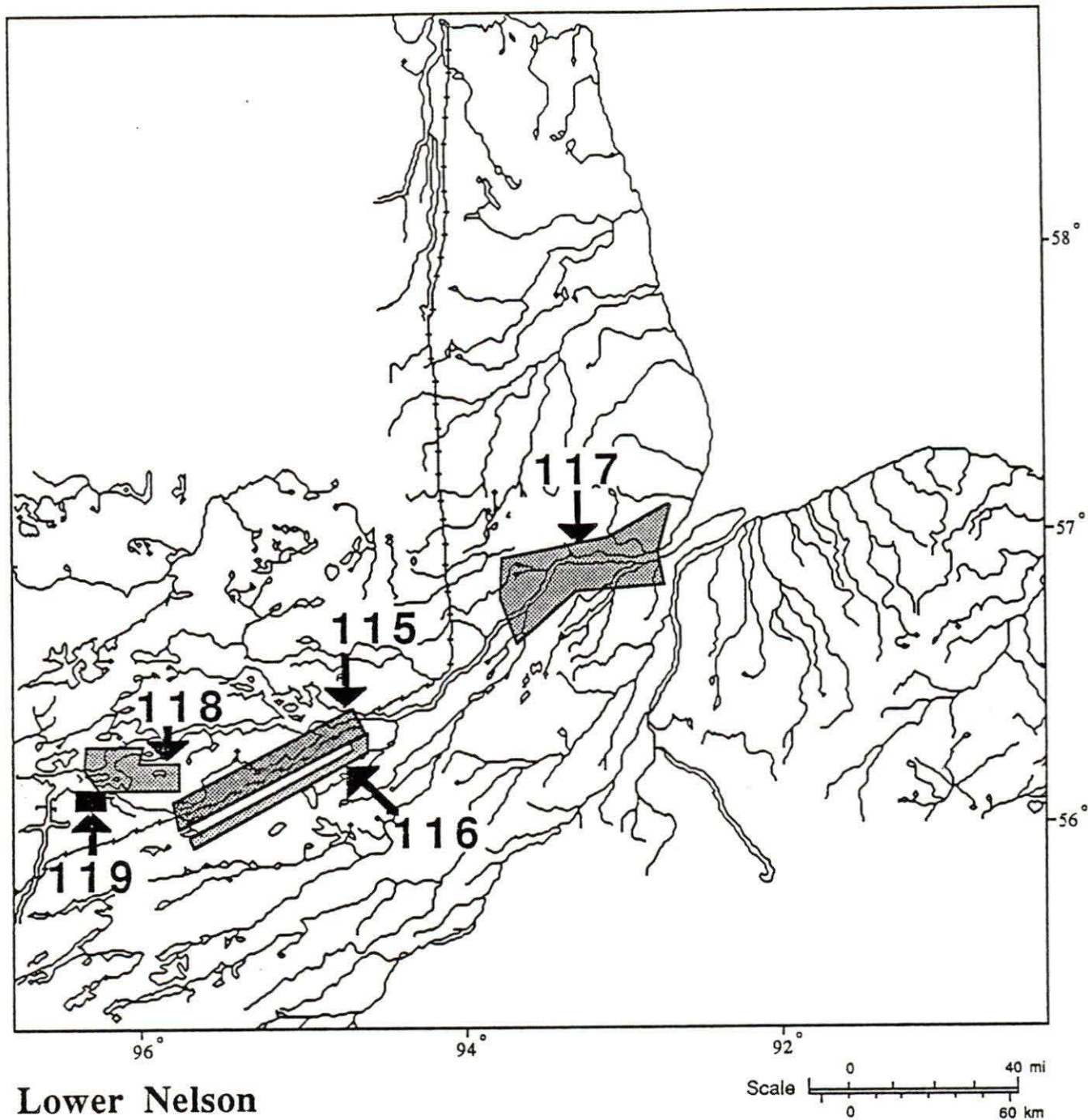
Block	Type	Scale	Altitude	Format	Date
109	BW	6000	3500	9X9	SEPT 69
110	BW	6000	3300	9X9	SEPT 69
110.1	BW	6000	3300	9X9	SEPT 69
111	BW	16000	8700	9X9	AUG 70



## Lower Nelson

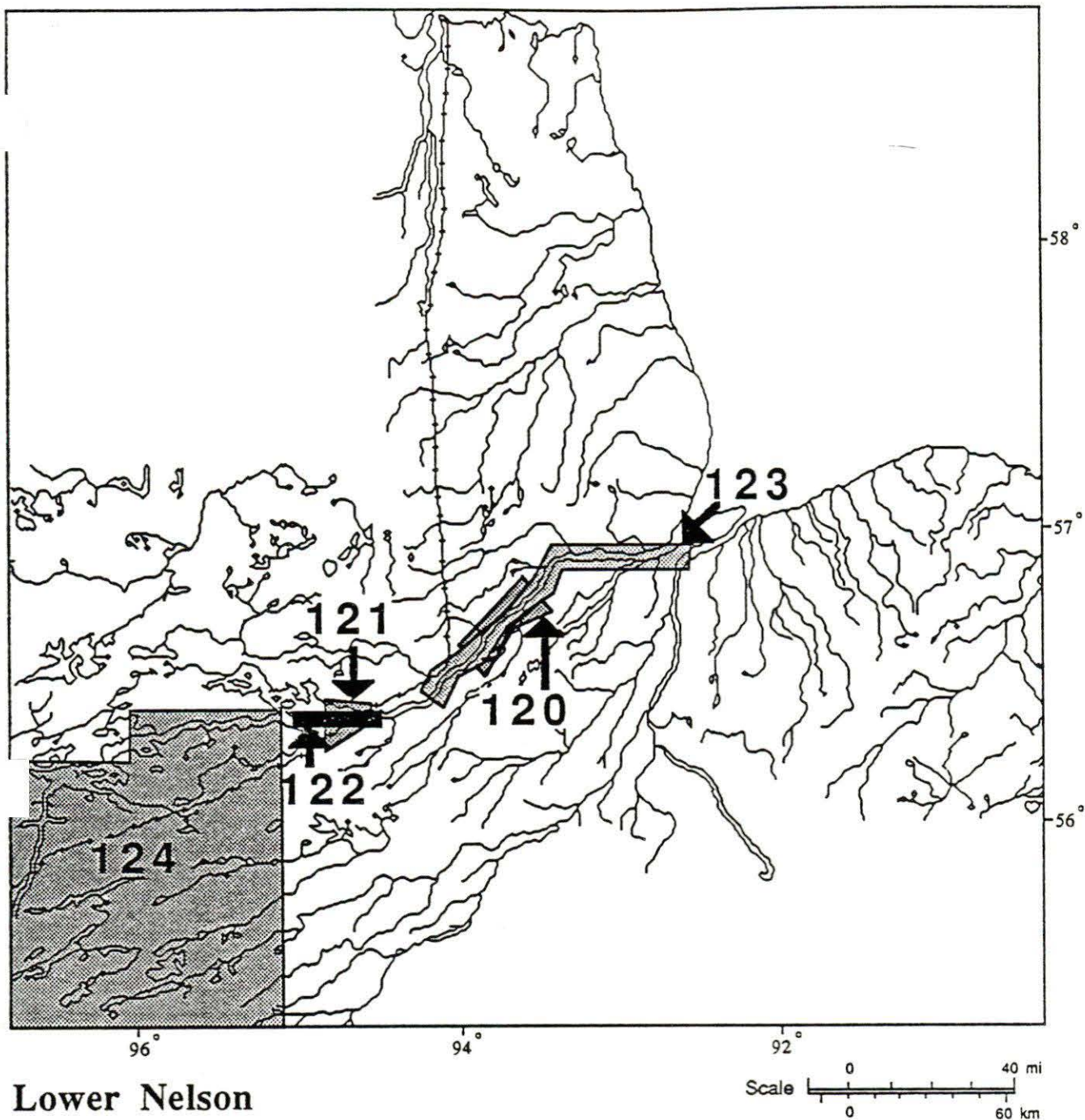


Block	Type	Scale	Altitude	Format	Date
112	BW	12000	6700	9X9	MAY 65
113	BW	24000	12650	9X9	JUN 67
114	BW	24000	12700	9X9	MAY 68



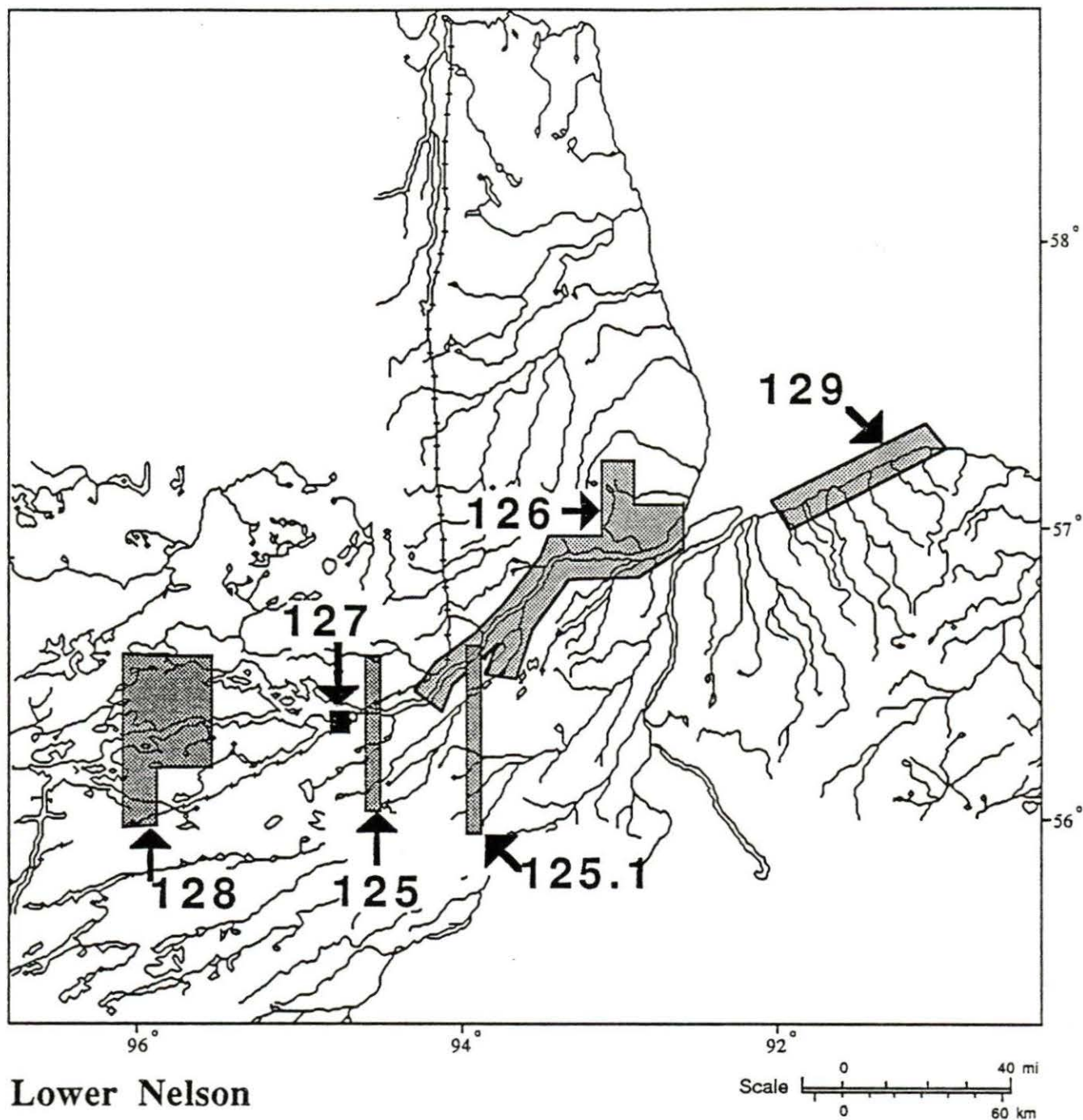
## Lower Nelson

Block	Type	Scale	Altitude	Format	Date
115	BW	12000	6600	9X9	JUN 67
116	BW	12000	6700	9X9	MAY 68
117	BW	12000	6300	9X9	JUN 65
118	BW	12000	6600	9X9	AUG 70
119	BW	12000	6600	9X9	AUG 70

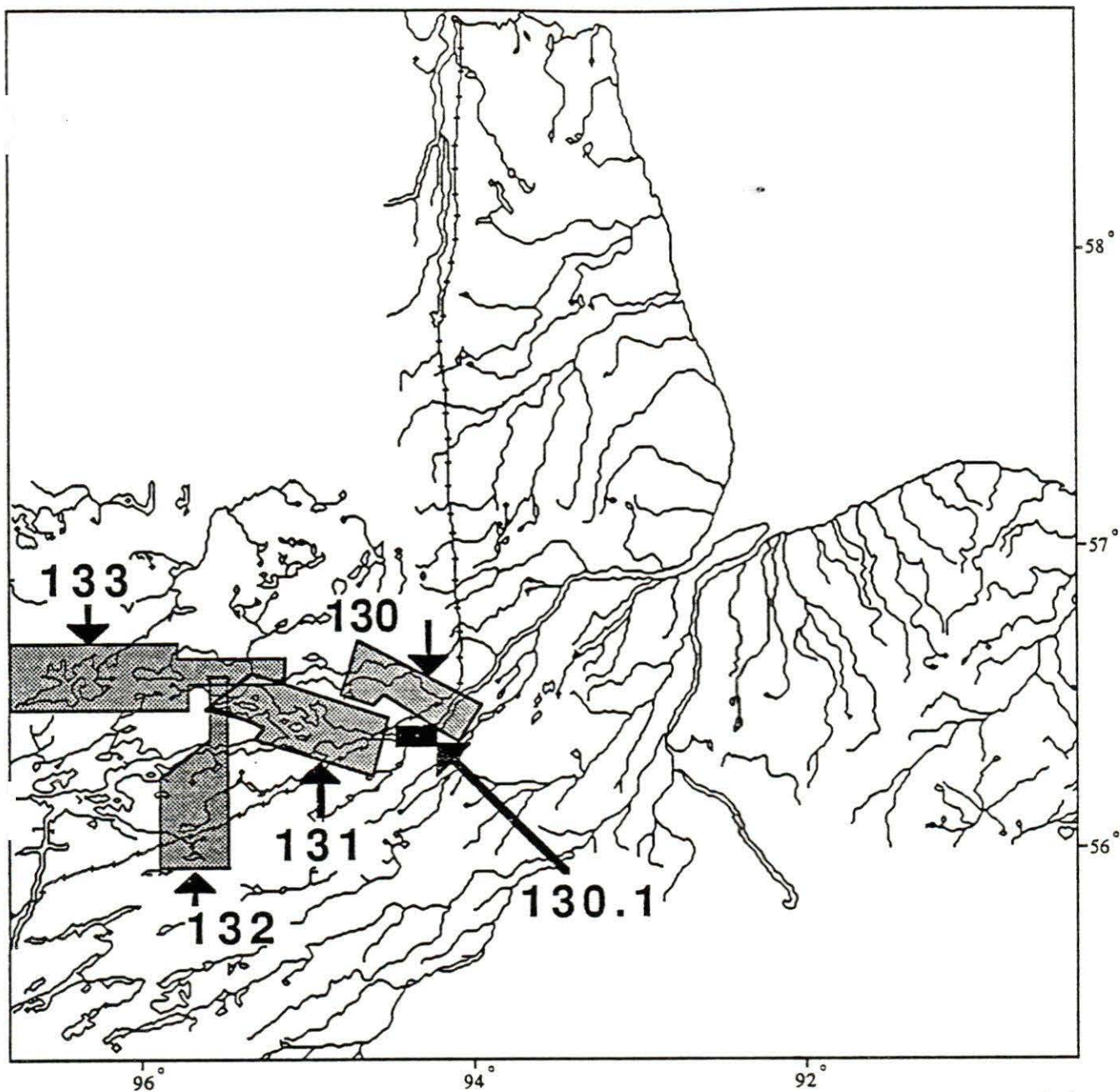


## Lower Nelson

Block	Type	Scale	Altitude	Format	Date
120	BW	6000	3000 AGL	9X9	NOV 70
121	BW	12000	6000 AGL	9X9	AUG 67
122	BW	6000	3000 AGL	9X9	1969
123	BW	12000	6000 AGL	9X9	NOV 70
124	BW	15480	7740 AGL	9X9	1965



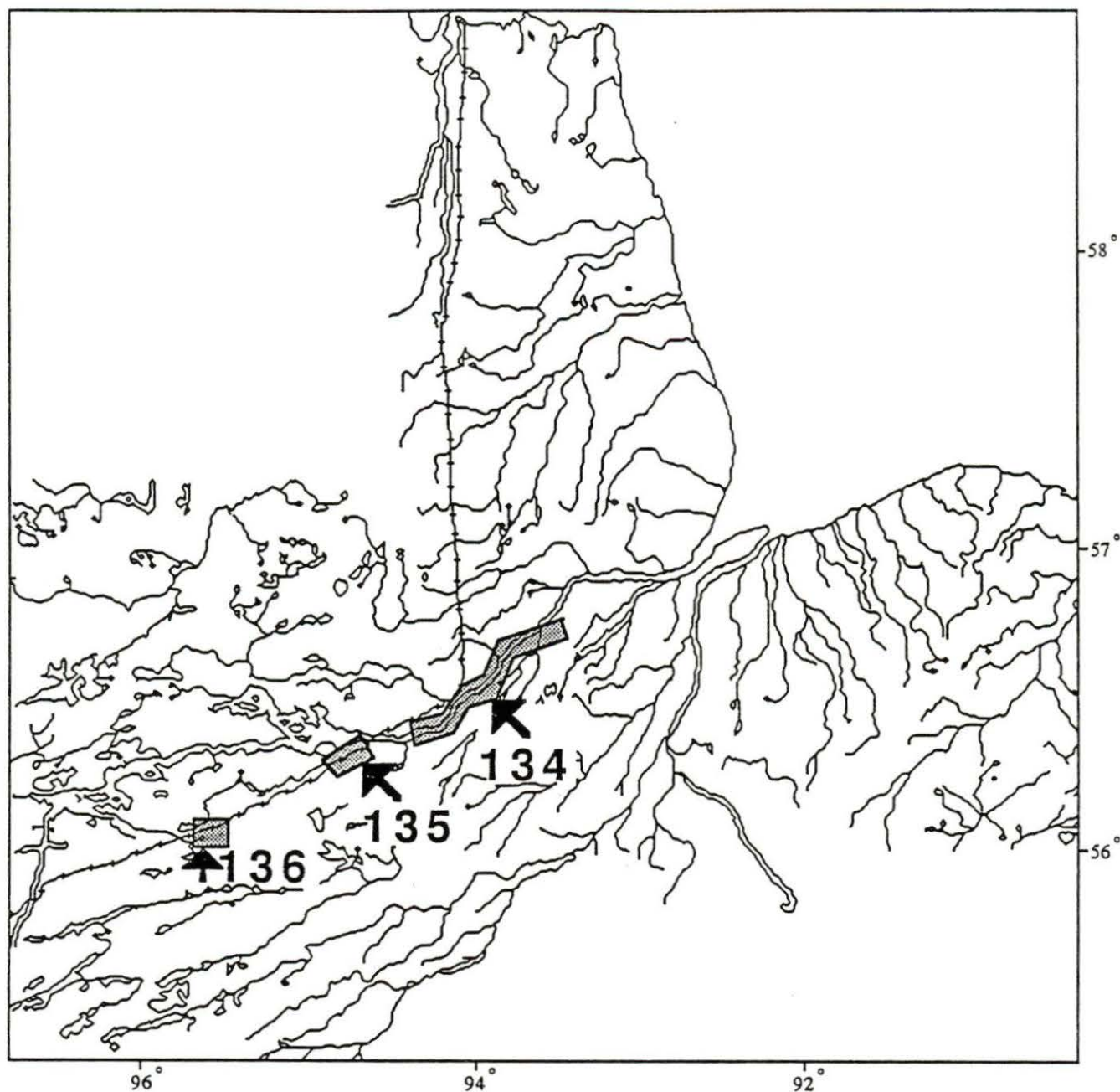
Block	Type	Scale	Altitude	Format	Date
125	BW	20000	10000	9X9	JUN 71
125.1	BW	20000	10000	9X9	JUN 71
126	BW	12000	Various	9X9	SEPT 71
127	BW	6000	NA	70mm	1971
128	BW	50000	26000	9X9	1978
129	CLR	18000	9000	9X9	AUG 74



## Lower Nelson



Block	Type	Scale	Altitude	Format	Date
130	BW	12000	6560	9X9	OCT 71
130.1	BW	12000	6560	9X9	OCT 71
131	BW	24000	12490	9X9	OCT 71
132	BW	50000	26000	9X9	SEPT 79
133	BW	56000	16200	9X9	JUN 76

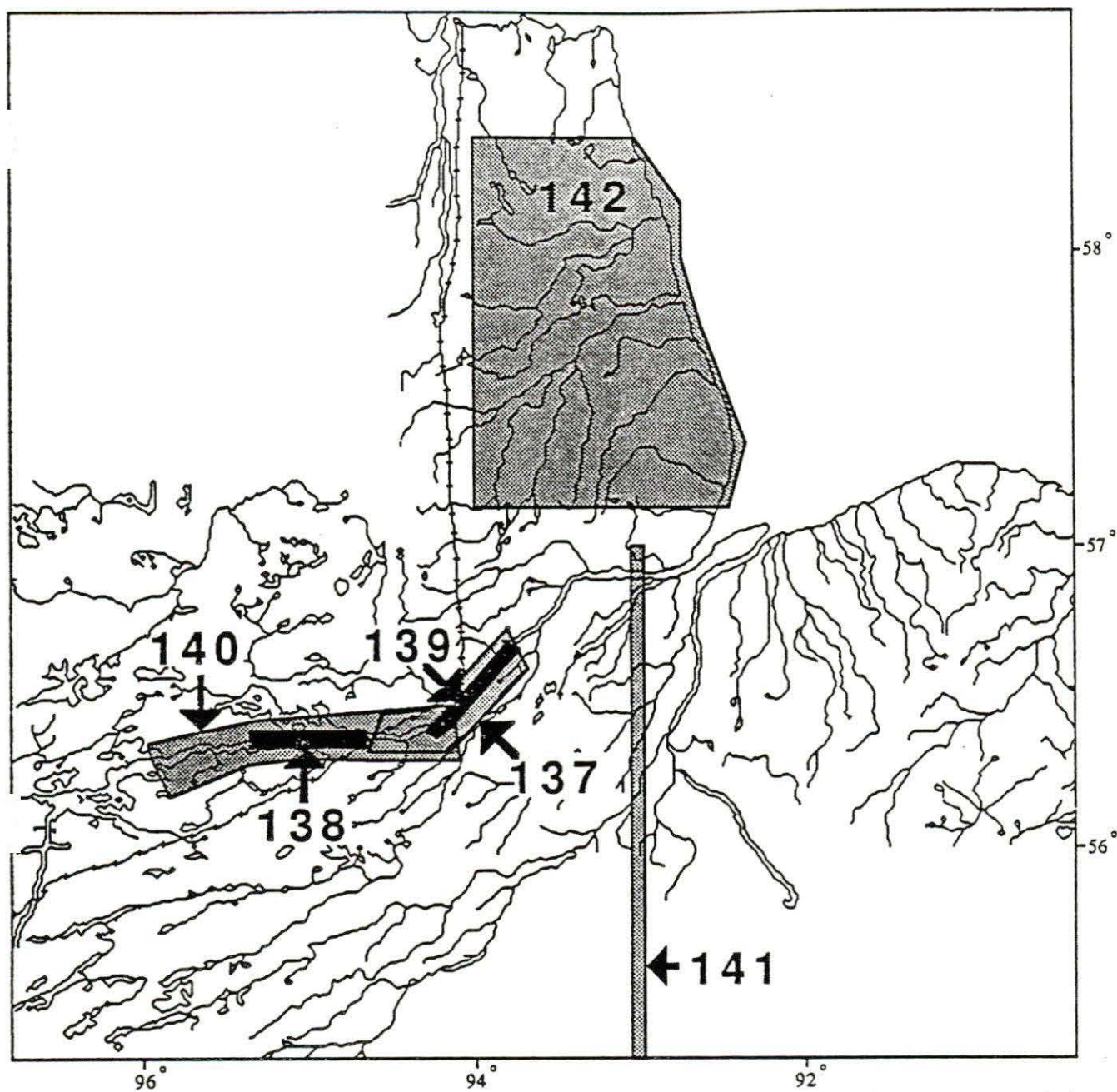


## Lower Nelson

Scale 0 40 mi  
0 60 km

Block	Type	Scale	Altitude	Format	Date
134	BW	12000	6340	9X9	OCT 71
135	BW	6000	3000 AGL	9X9	1975
136	BW	6000	3000 AGL	9X9	JUN 77

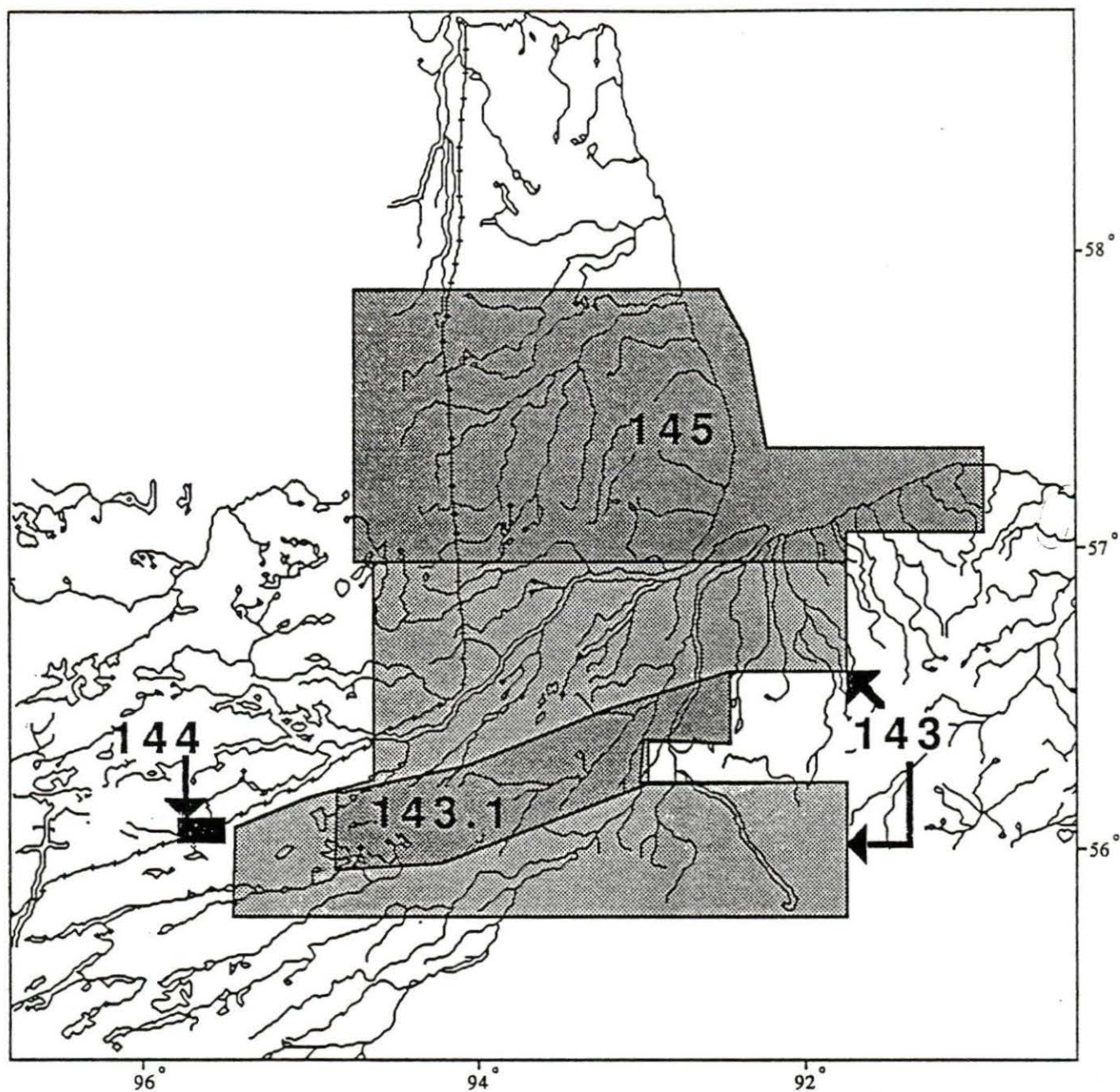




## Lower Nelson



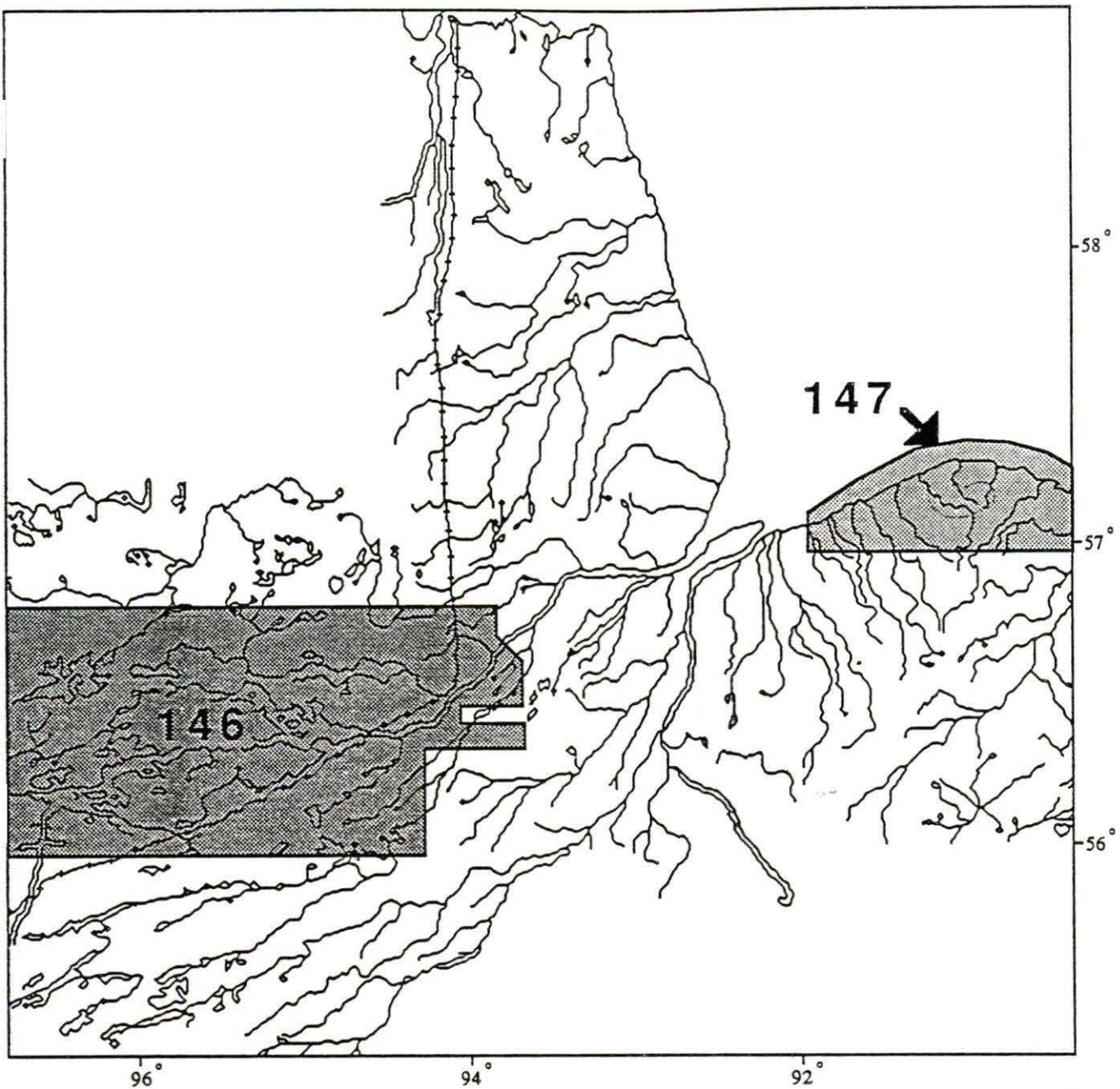
Block	Type	Scale	Altitude	Format	Date
137	CLR	35000	10000	9X9	OCT 72
138	CLR	Various	5000-6000	9X9	AUG 72
139	CLR	21500	6000 AGL	9X9	AUG 72
140	CLR IR	120000	35000	9X9	AUG 72
141	CLR IR	68000	20500	9X9	JUN 73
142	BW	49992	30000	9X9	JUN 74



## Lower Nelson

Scale 0 40 mi  
0 60 km

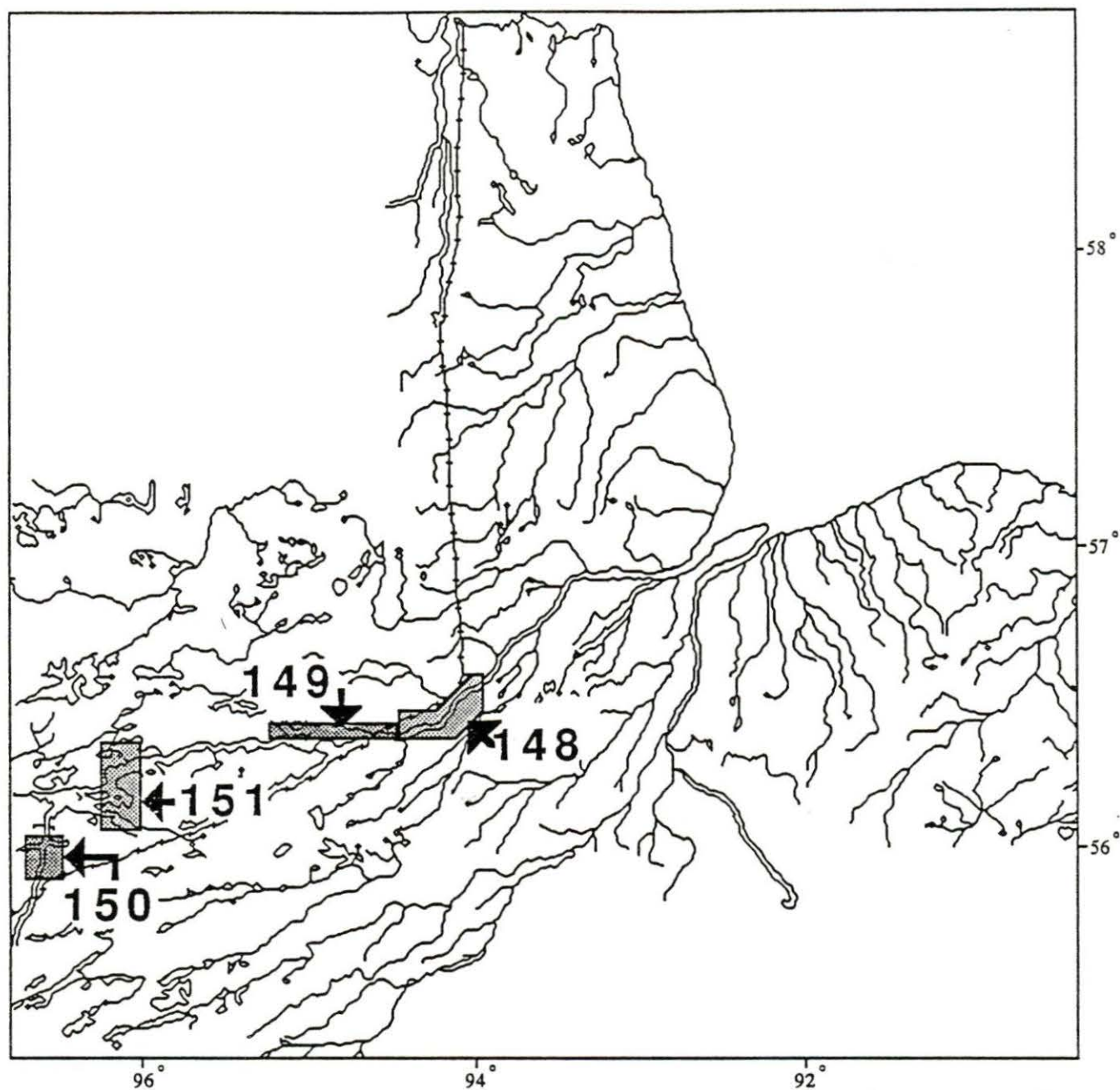
Block	Type	Scale	Altitude	Format	Date
143	BW	55992	28500	9X9	JUL 74
143.1	BW	60000	30000	9X9	JUL 74
144	BW	6000	3000 AGL	9X9	1975
144	BW	6000	3000 AGL	9X9	1973
145	BW	60000	30000	9X9	JUN 74



## Lower Nelson



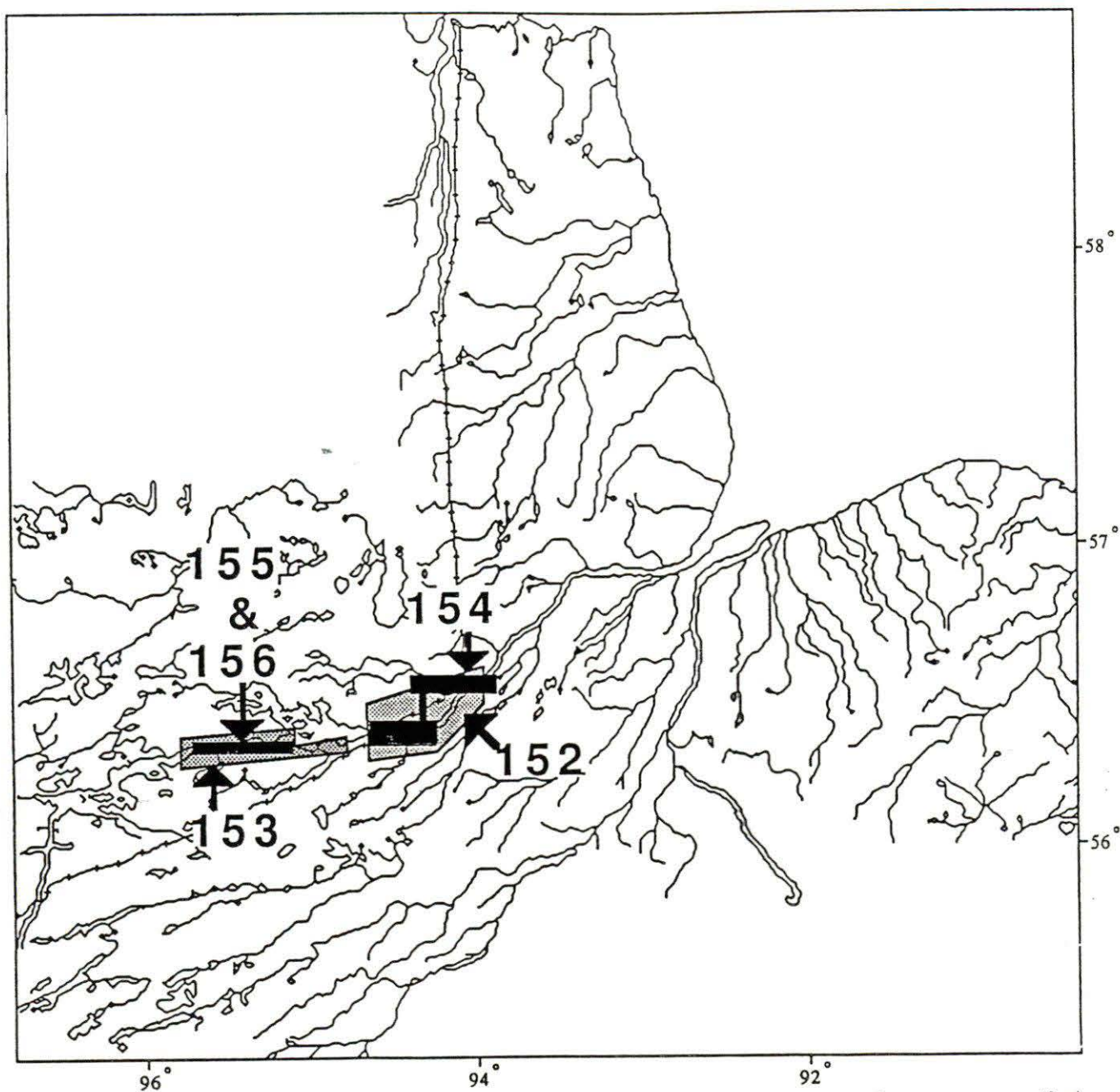
Block	Type	Scale	Altitude	Format	Date
146	BW	56000	28500	9X9	AUG 75
147	BW	56000	28500	9X9	AUG 75



## Lower Nelson

Scale 0 40 mi  
0 60 km

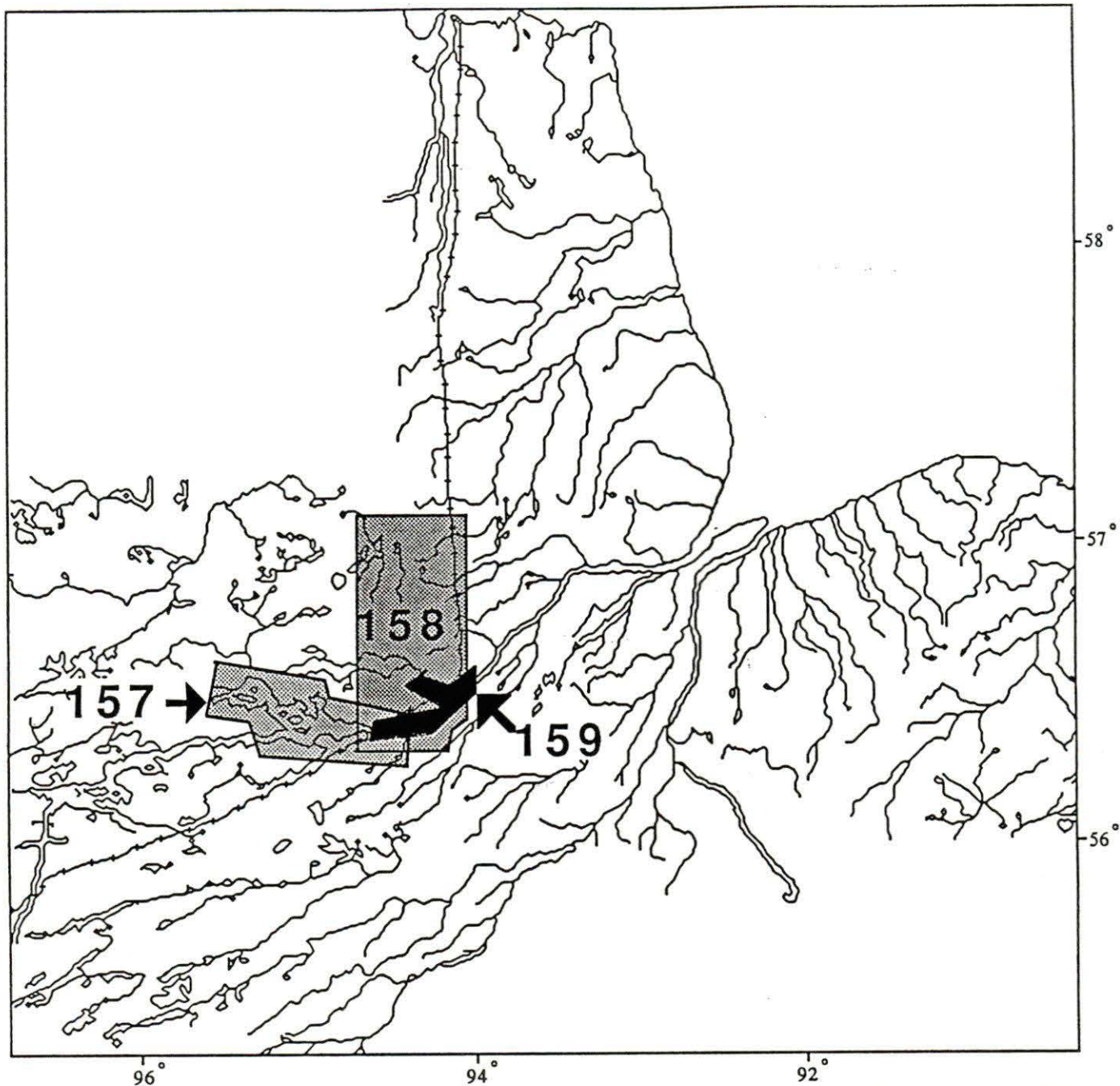
Block	Type	Scale	Altitude	Format	Date
148	BW	12000	6000 AGL	9X9	OCT 73
149	BW	12000	6000 AGL	9X9	OCT 73
150	BW	4000	2000 AGL	9X9	OCT 79
151	BW	12000	6000 AGL	9X9	AUG 77



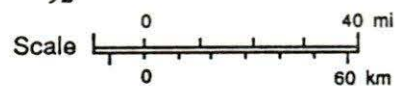
## Lower Nelson

Scale 0 40 mi  
0 60 km

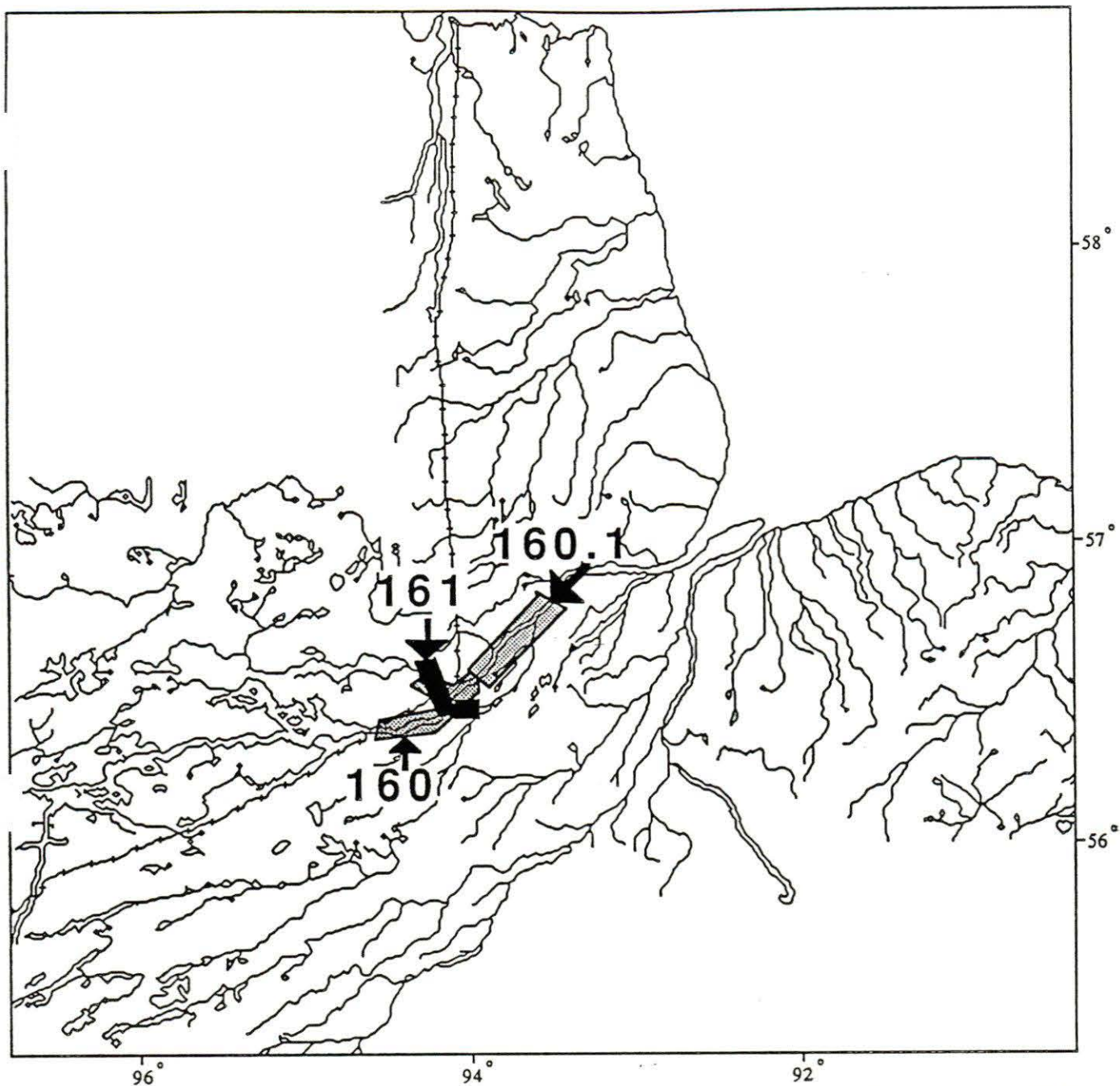
Block	Type	Scale	Altitude	Format	Date
152	BW	24000	12000 AGL	9X9	OCT 77
153	BW	12000	6000 AGL	9X9	MAY 74
154	BW	12000	6000 AGL	9X9	OCT 75
155	BW	12000	6000 AGL	9X9	MAY 74
156	BW	12000	6000 AGL	9X9	AUG 77



## Lower Nelson



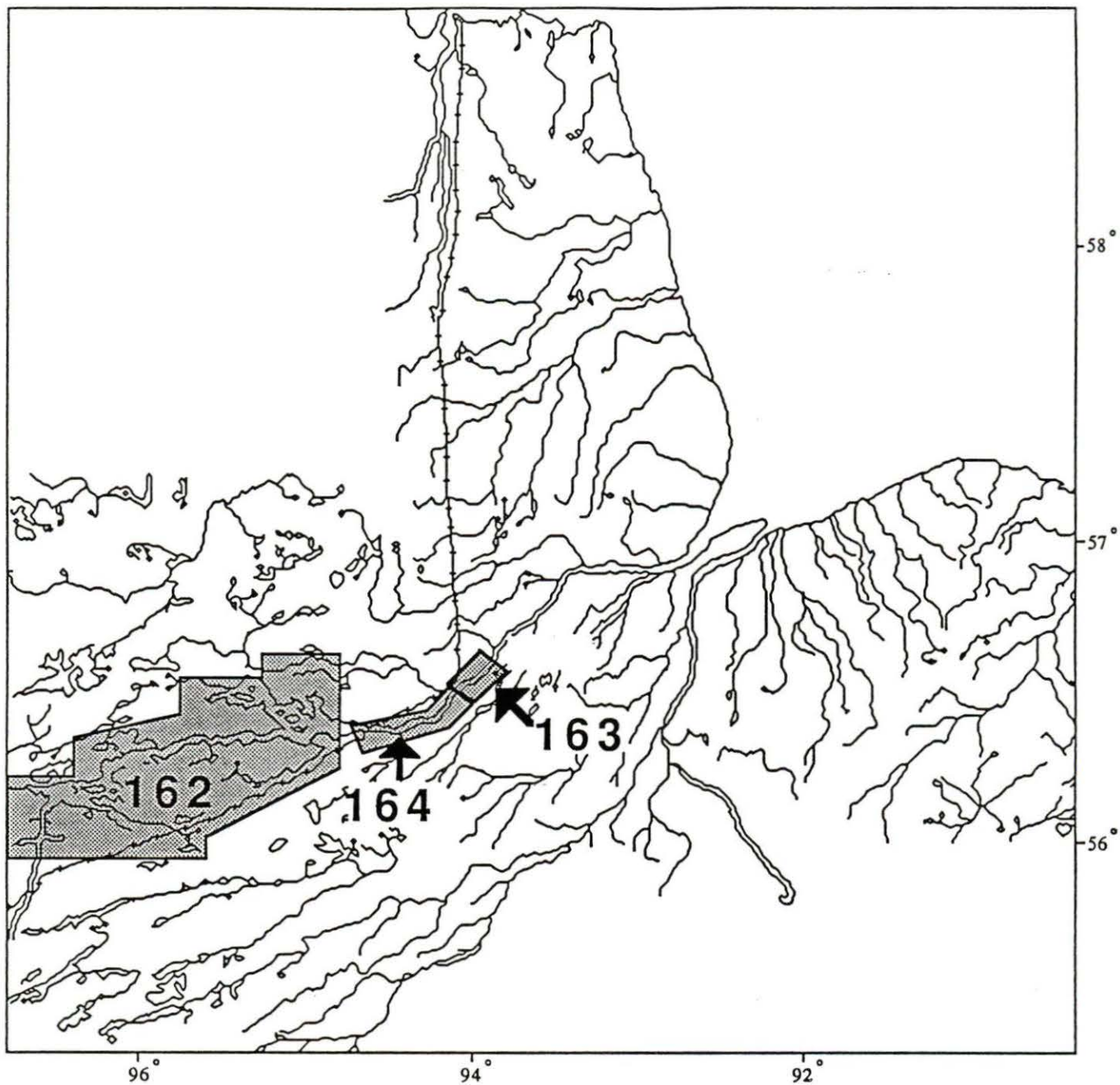
Block	Type	Scale	Altitude	Format	Date
157	BW	40000	20500	9X9	OCT 82
158	BW	24000	12000 AGL	9X9	JUN 84
159	BW	4800	2400 AGL	9X9	1985



## Lower Nelson

Scale 0 40 mi  
0 60 km

Block	Type	Scale	Altitude	Format	Date
160	BW	12000	6000 AGL	9X9	AUG 85
160.1	BW	12000	6000 AGL	9X9	SEPT 85
161	BW	4800	2400 AGL	9X9	JUN 86

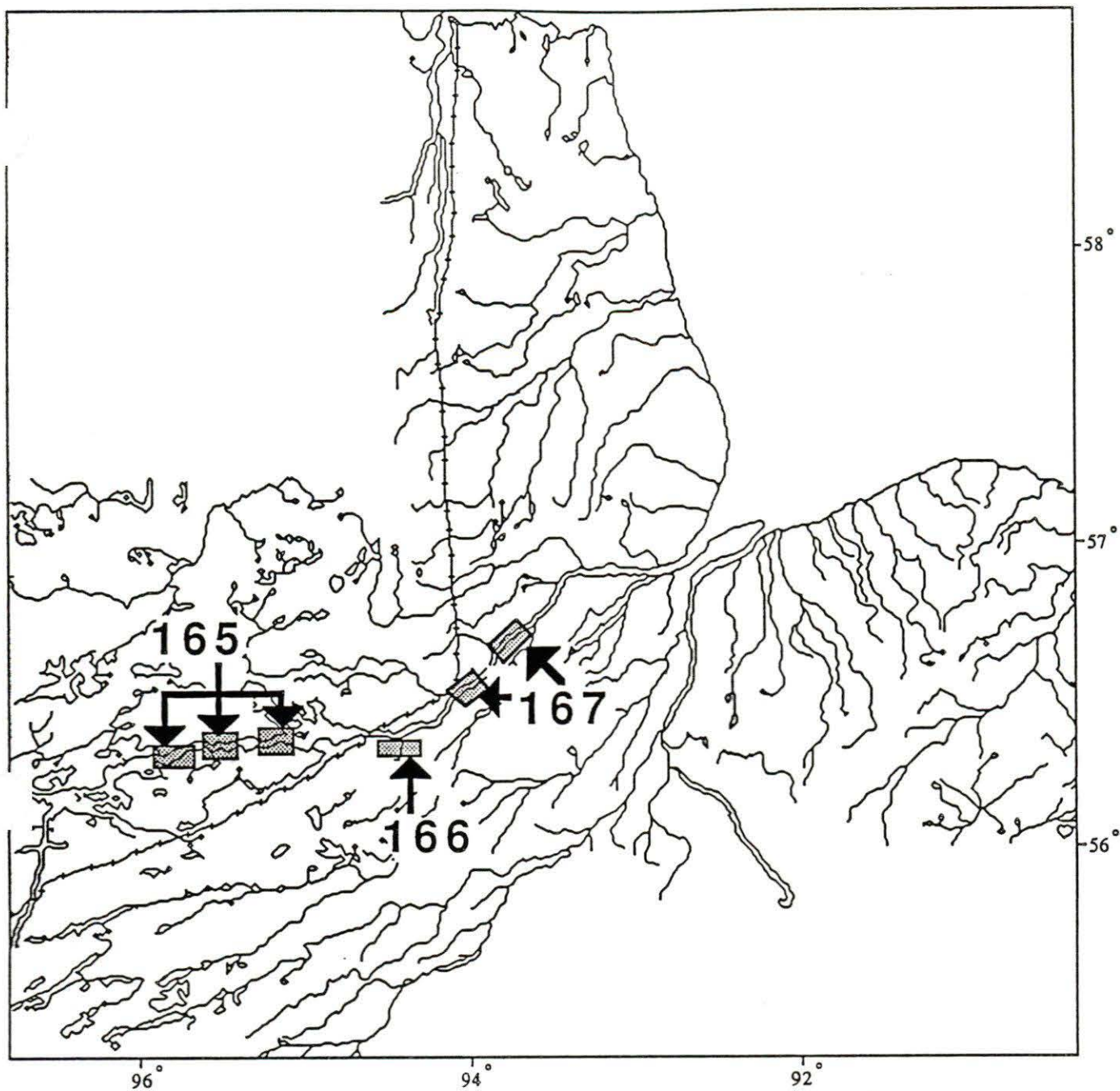


## Lower Nelson



Block	Type	Scale	Altitude	Format	Date
162	BW	20000	10000 AGL	9X9	OCT 86
163	BW	4800	2400 AGL	9X9	1987
164	BW	12000	6000 AGL	9X9	1987

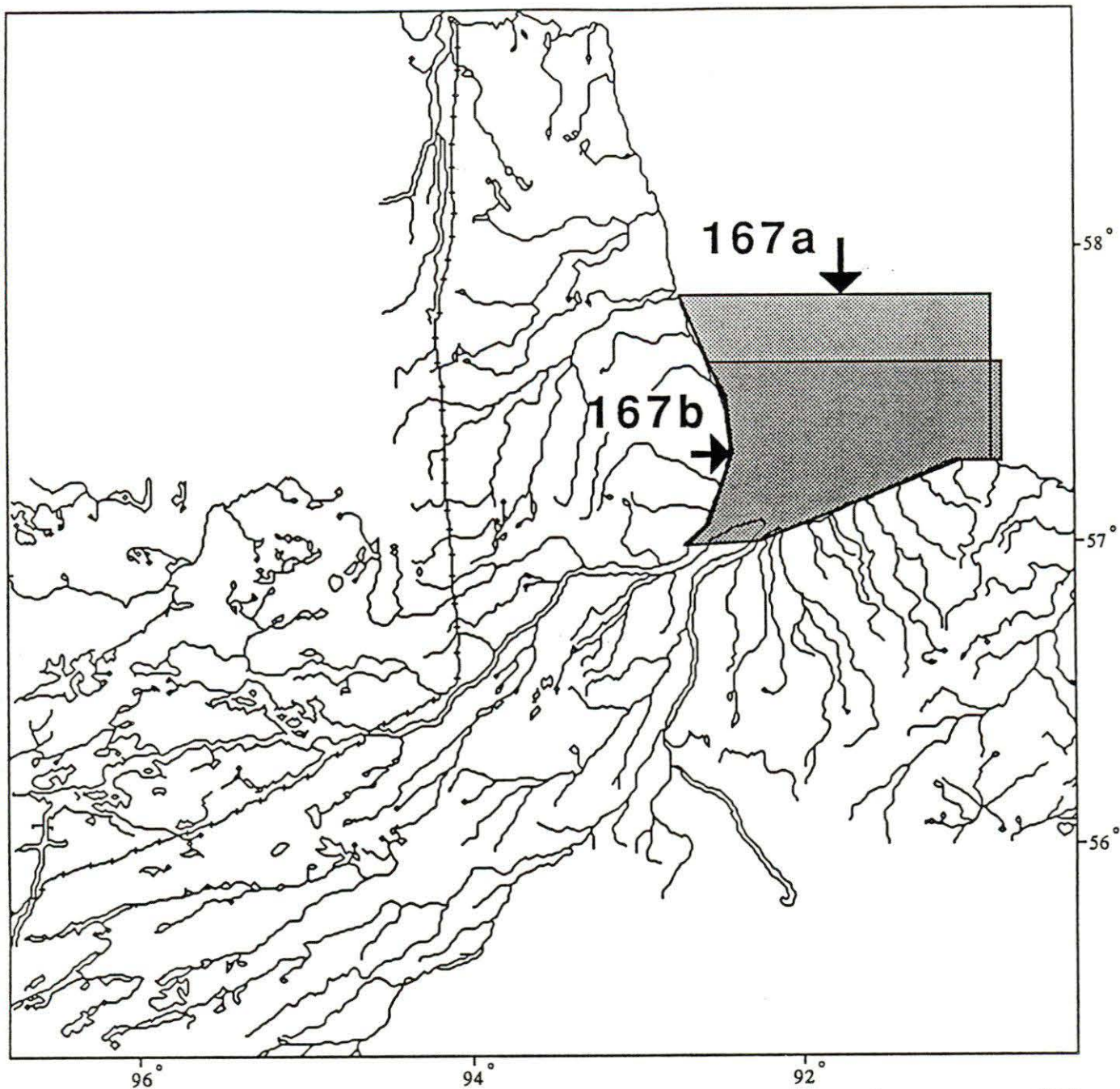




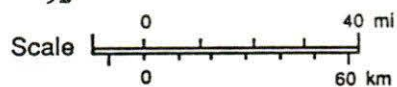
## Lower Nelson



Block	Type	Scale	Altitude	Format	Date
165	BW	10000	5000 AGL	9X9	OCT 86
166	BW	4800	2400 AGL	9X9	SEPT 86
167	BW	4800	2400 AGL	9X9	SEPT 86



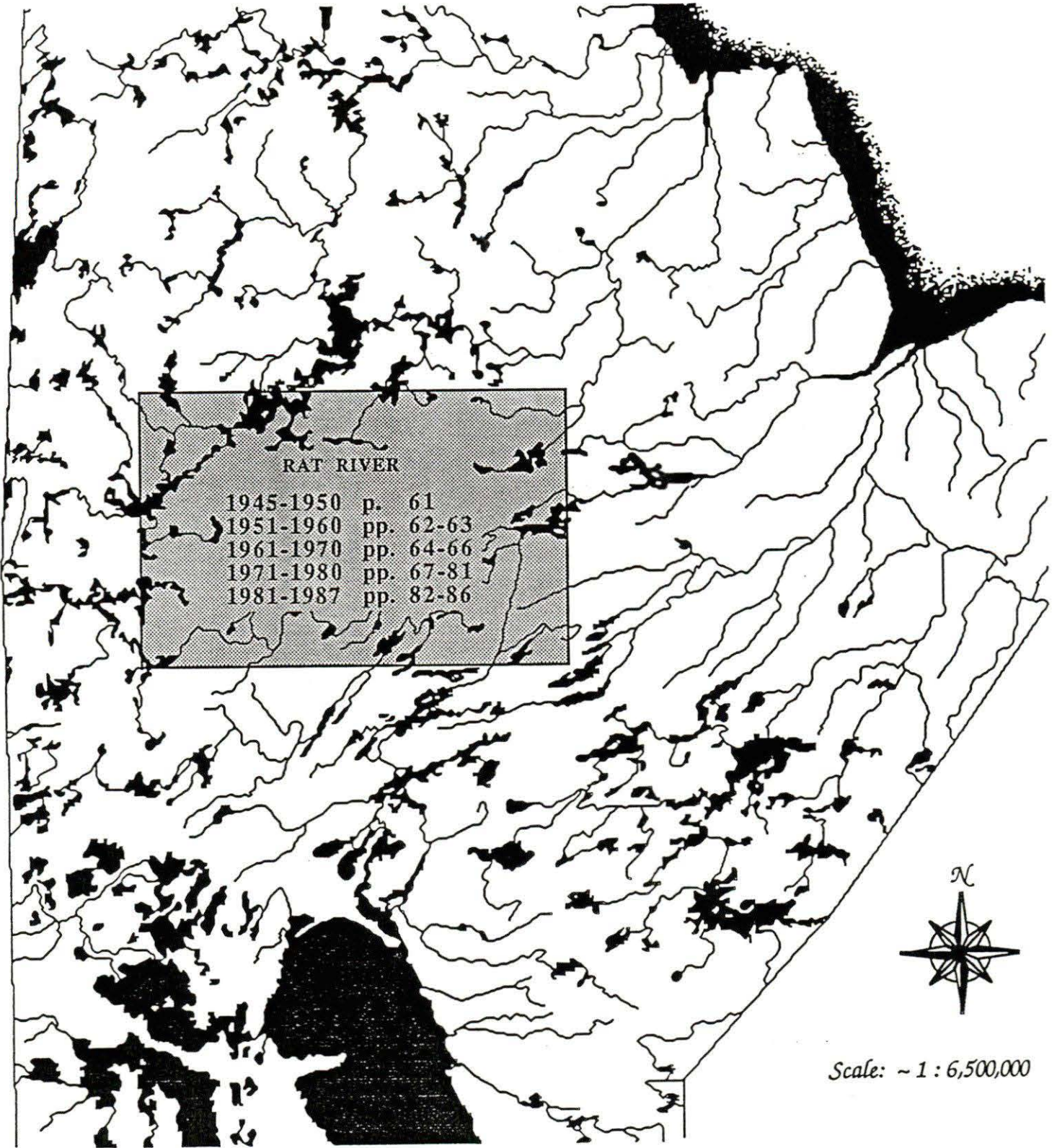
### Lower Nelson



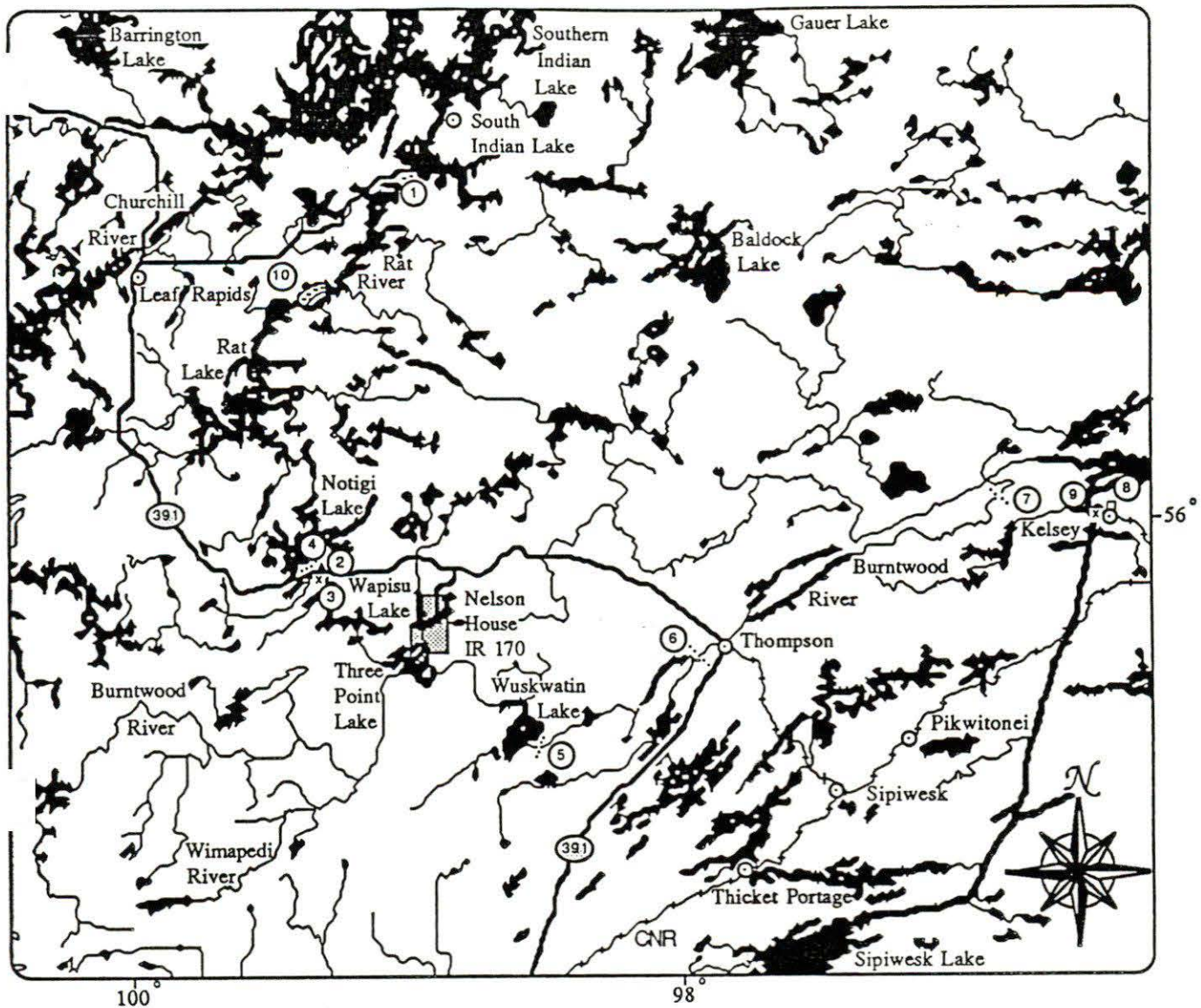
Block	Type	Scale	Altitude	Format	Date
167a	CLR	8000	4000	9X9	JUL 87
167b	CLR	6000	3000	9X9	JUL 87



Aerial Photography Index Map:  
Rat River



# Geographical Reference Map: Rat River

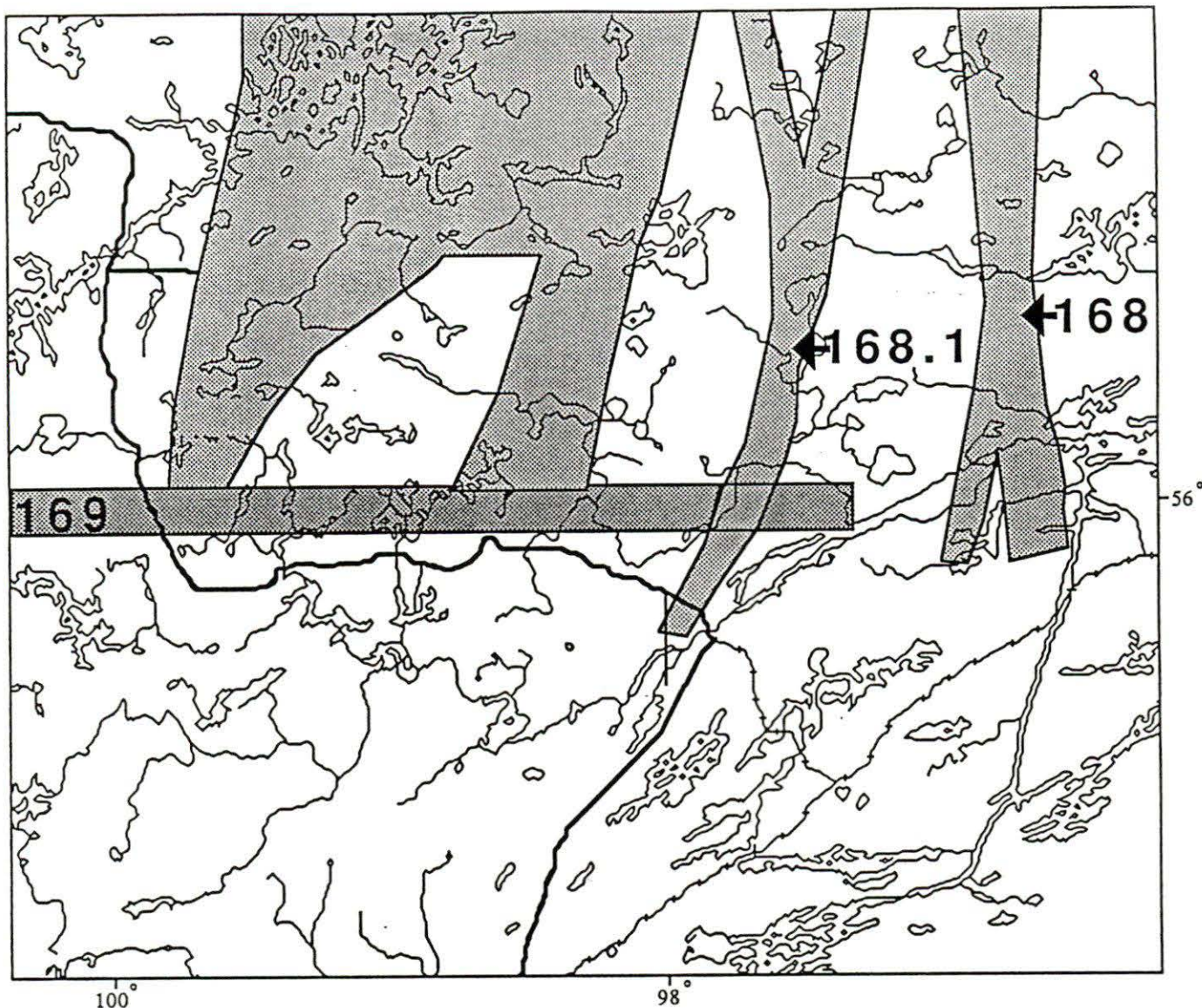


## LEGEND

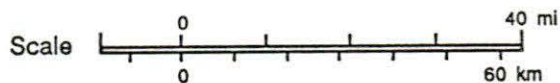


- |                                |                                 |
|--------------------------------|---------------------------------|
| ① South Bay Channel            | ⑥ Manasan                       |
| ② Notigi Control Structure     | ⑦ First Rapids                  |
| ③ Notigi Dam & Dykes           | ⑧ Kelsey Generating Station     |
| ④ Notigi Generating Station    | ⑨ Kelsey Dam/Dykes              |
| ⑤ Wuskwatin Generating Station | ⑩ Karsakuwigamak Bypass Channel |

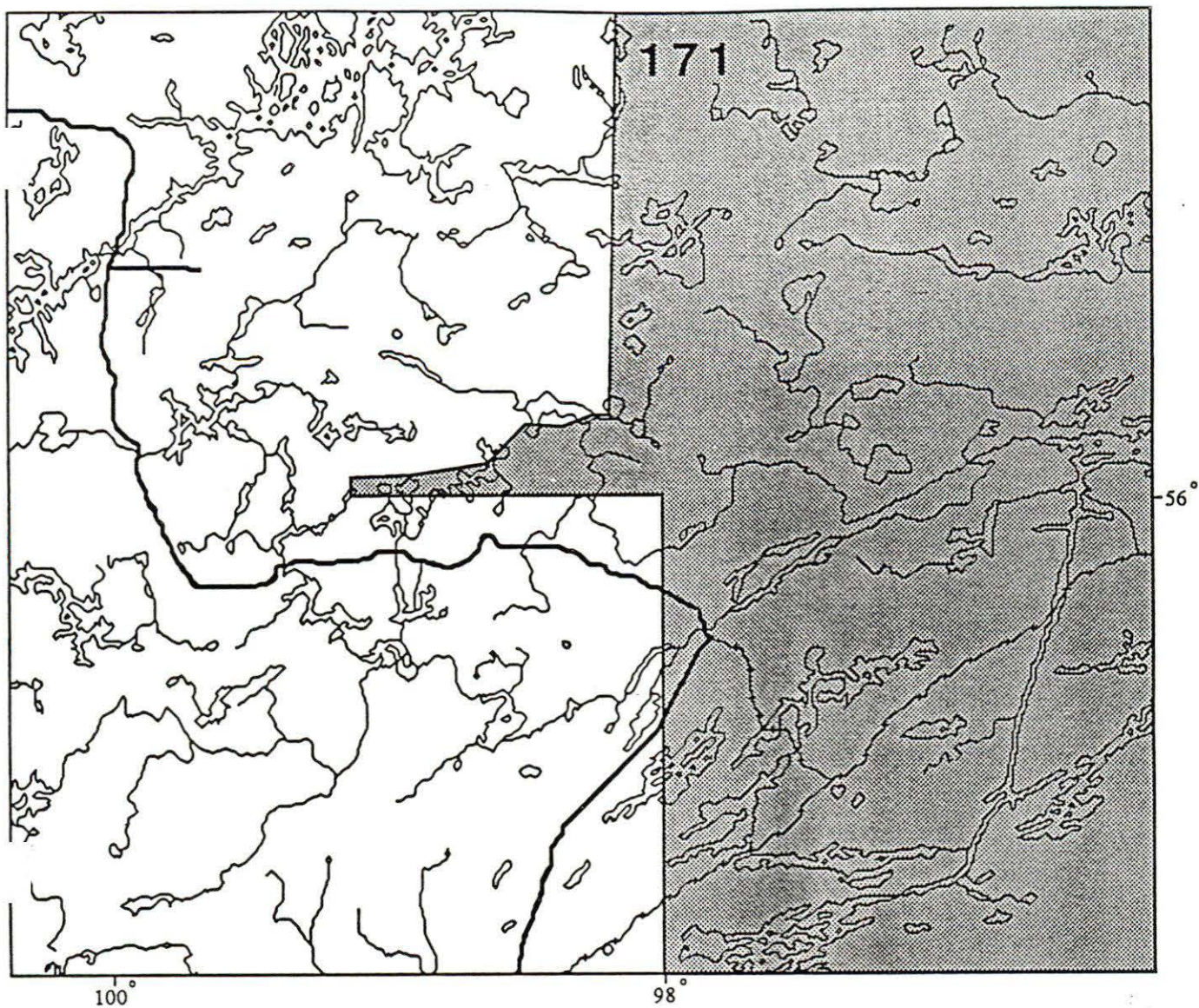
- railroads
- roads
- towns
- Indian reservations
- channels
- dams/dykes
- control structures
- generating stations
- proposed structures



**Rat River**  
(pre 1978 base map)



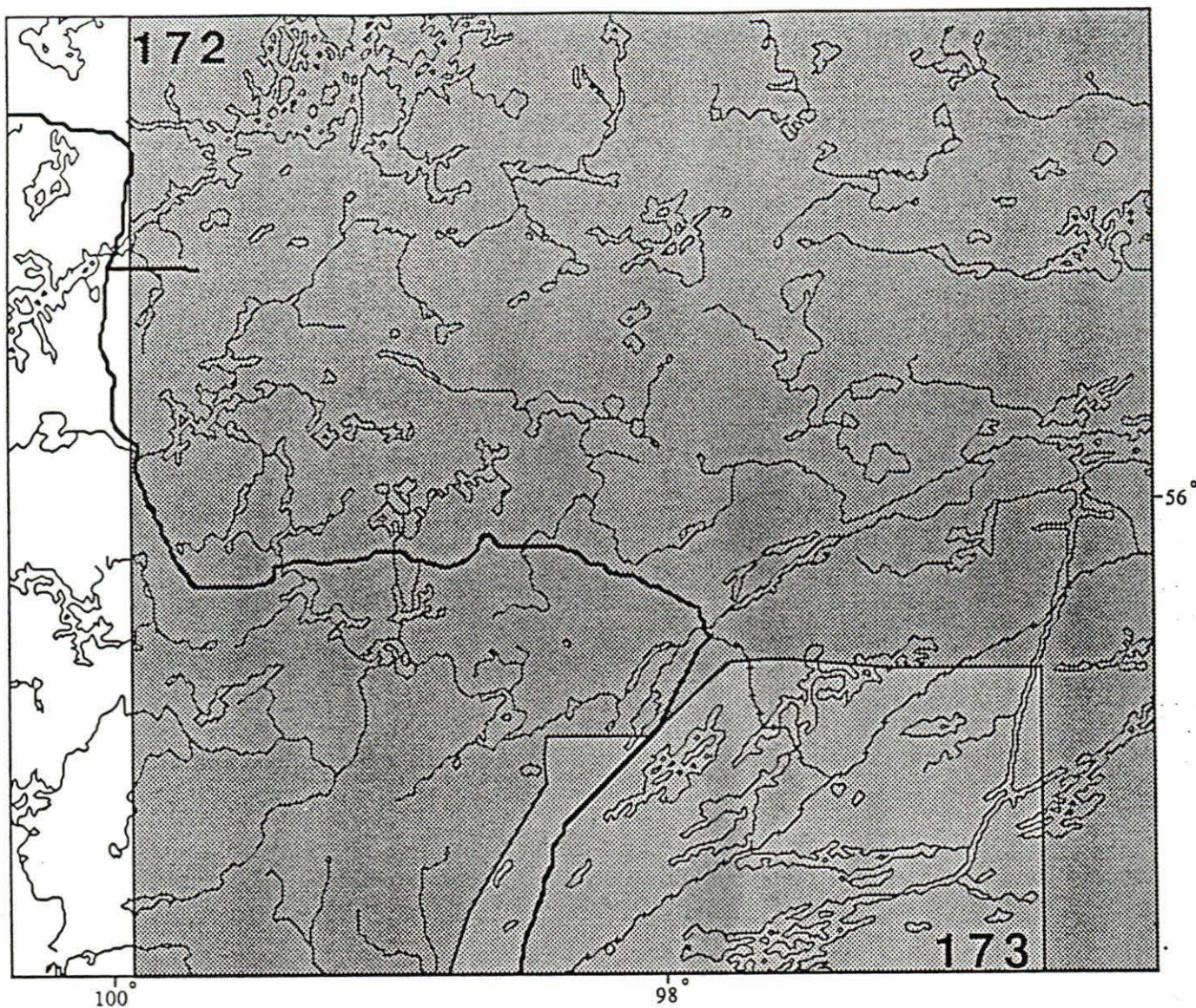
Block	Type	Scale	Altitude	Format	Date
168	BW	20000	10000	9X9	1946
168.1	BW	20000	10000	9X9	1946
169	BW	40000	20000	9X9	1950
170	BW	39000	20000	9X9	1946-47



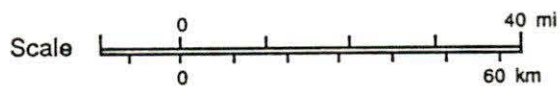
**Rat River**  
(pre 1978 base map)



Block	Type	Scale	Altitude	Format	Date
171	BW	36000	18000 AGL	9X9	1950-51

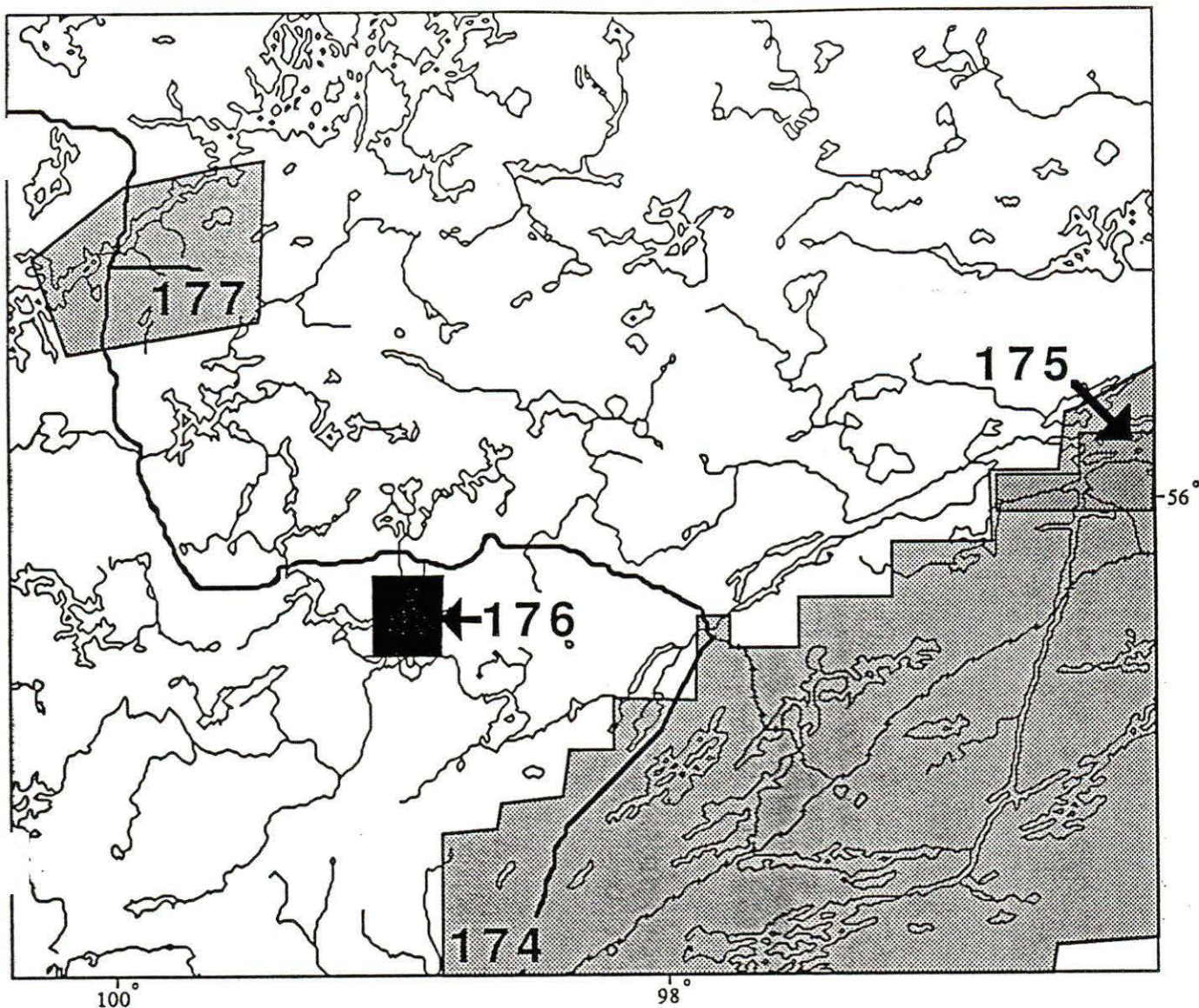


**Rat River**  
(pre 1978 base map)



Block	Type	Scale	Altitude	Format	Date
172	BW	58000	30000	9X9	1954-55
173	BW	15840	8600	9X9	JUN 53

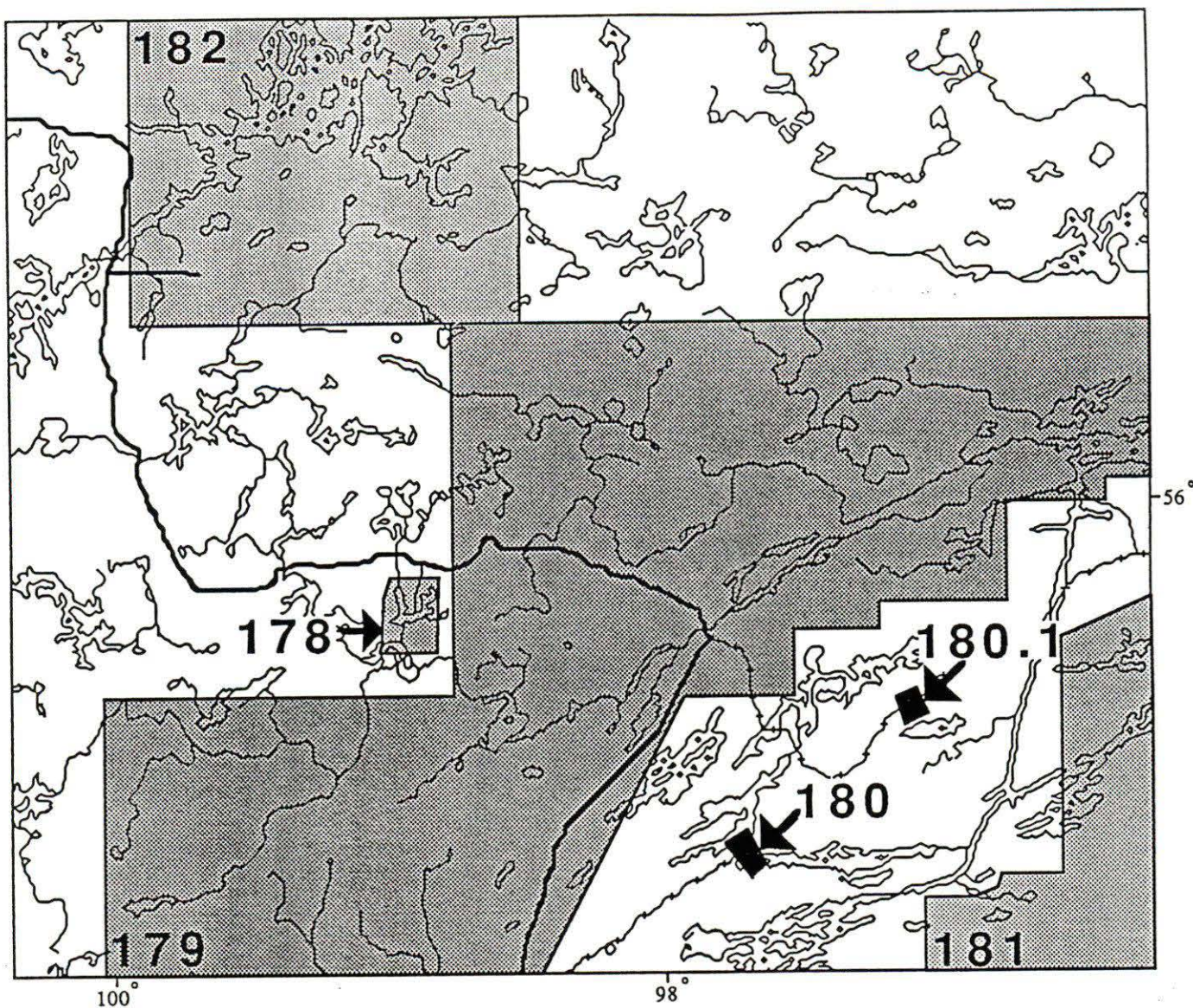




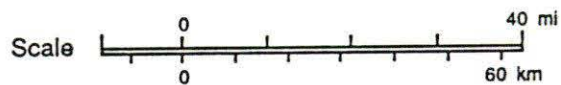
**Rat River**  
(pre 1978 base map)



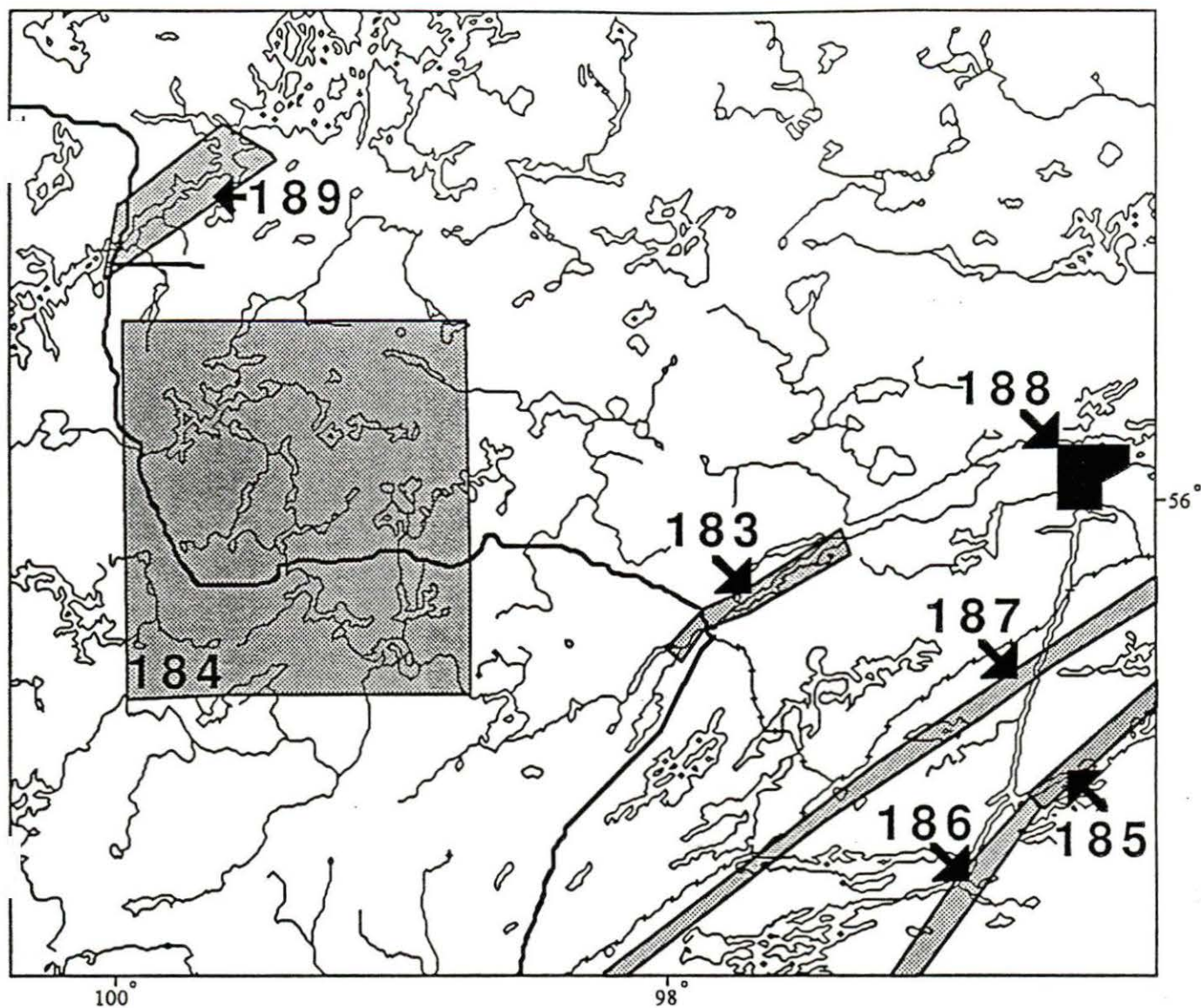
Block	Type	Scale	Altitude	Format	Date
174	BW	16000	8700	9X9	SEPT 65
175	BW	15480	7740 AGL	9X9	1965
176	BW	12600	7000	9X9	SEPT 69
177	BW	12000	6700	9X9	OCT 69



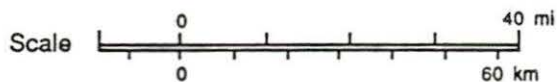
**Rat River**  
(pre 1978 base map)



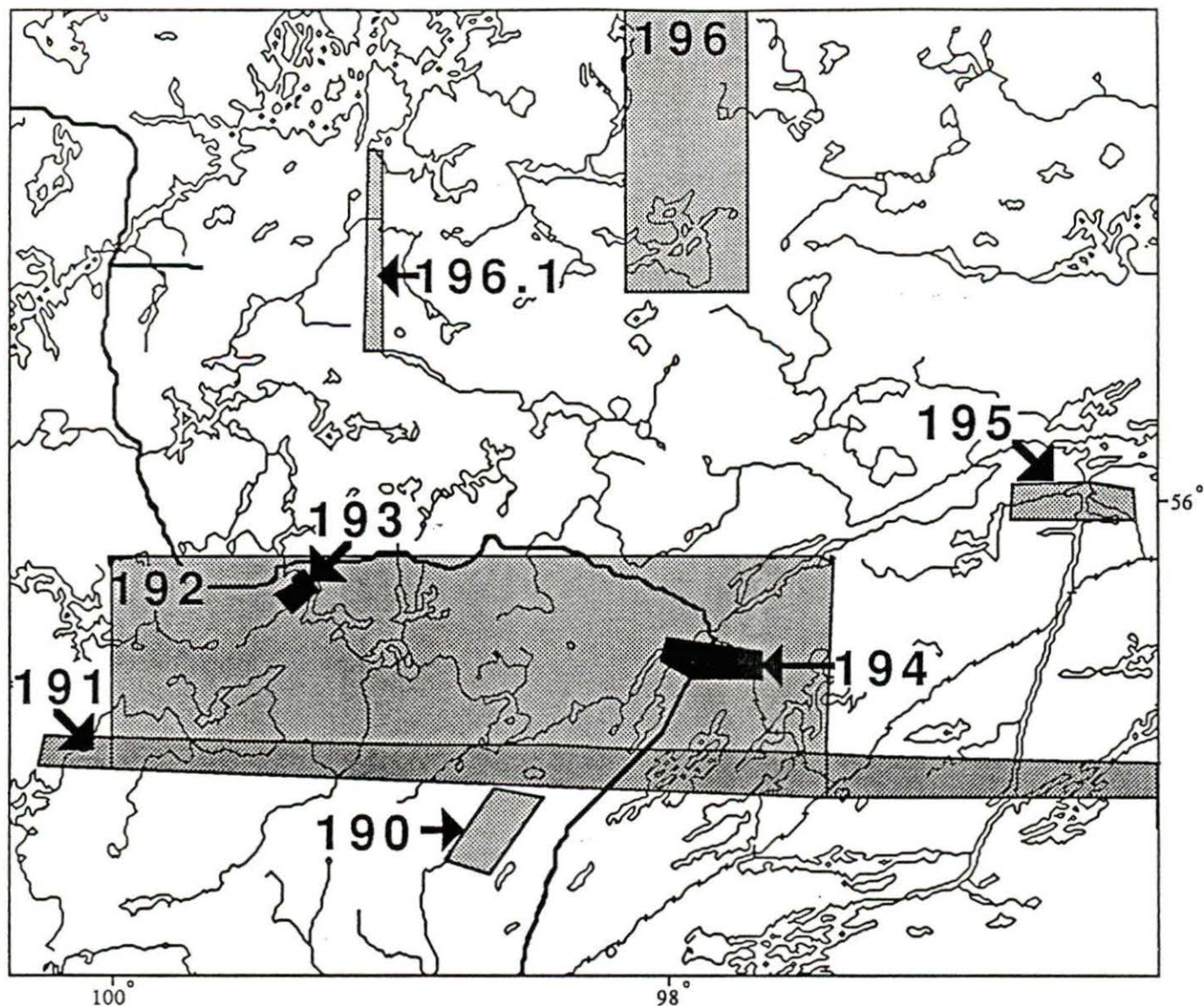
Block	Type	Scale	Altitude	Format	Date
178	BW	6000 & 12000	Various	9X9	SEPT 69
179	BW	16000	8700	9X9	AUG 70
180	BW	6000	3300	9X9	AUG 69
180.1	BW	6000	3300	9X9	AUG 69
181	BW	16000	8700	9X9	JUL 69
182	BW	32000	16840	9X9	AUG 69



**Rat River**  
(pre 1978 base map)



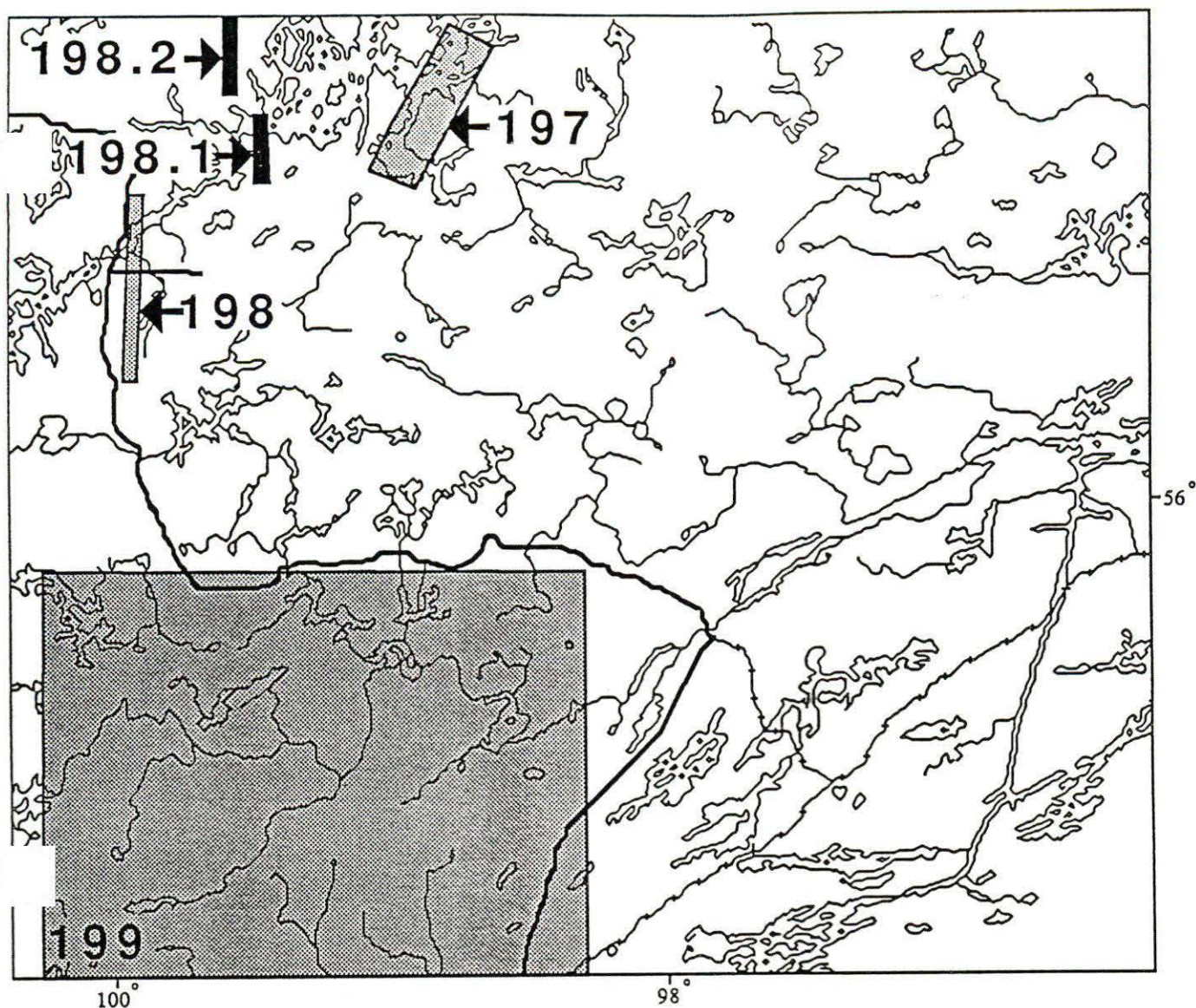
Block	Type	Scale	Altitude	Format	Date
183	BW	12000	6750	9X9	1967-68
184	BW	16000	8820	9X9	JUL-AUG 69
185	BW	24000	12700	9X9	MAY 68
186	BW	12000	6700	9X9	MAY 68
187	BW	12000	6600	9X9	JUN 68
188	BW	12000	6000 AGL	9X9	FEB 63
189	BW	16000	8870	9X9	JUL 69



**Rat River**  
(pre 1978 base map)



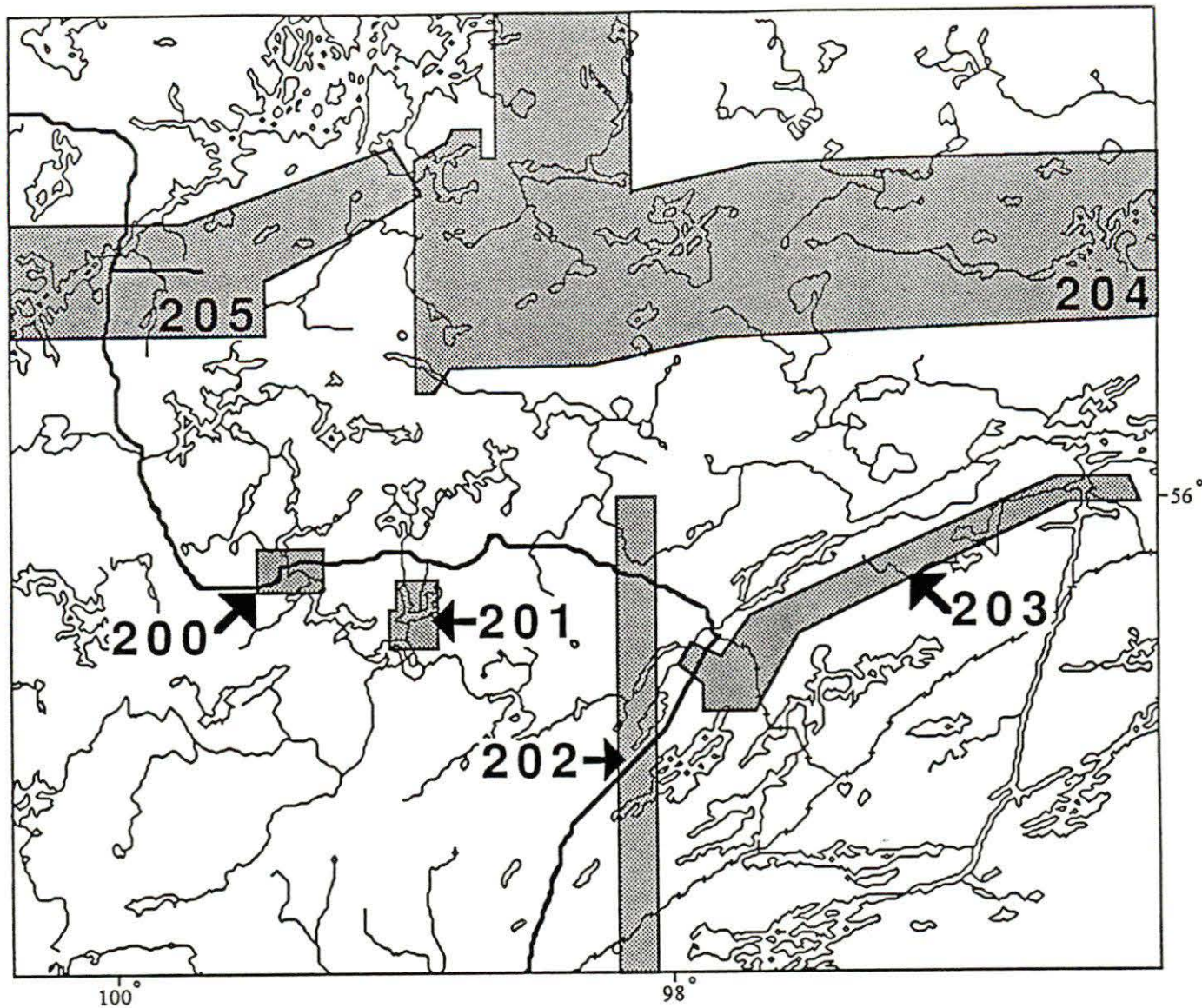
Block	Type	Scale	Altitude	Format	Date
190	BW	Various	7000-8000	9X9	JUN 71
191	BW	20000	10000	9X9	JUN 71
192	CLR	120000	36000	9X9	JUN 72
193	BW	15840	NA	70mm	OCT 77
194	CLR IR	10000	NA	9X9	1979
195	BW	12000	6650	9X9	JUN 71
196	BW	32000	16850	9X9	AUG 74
196.1	BW	31700	16840	9X9	AUG 74



**Rat River**  
(pre 1978 base map)



Block	Type	Scale	Altitude	Format	Date
197	BW	12000	6000 AGL	9X9	AUG 72
198	BW	31700	16840	9X9	JUL 71
198.1	BW	31700	16840	9X9	JUL 71
198.2	BW	31700	16840	9X9	JUL 71
199	BW	58000	30000	9X9	AUG 71

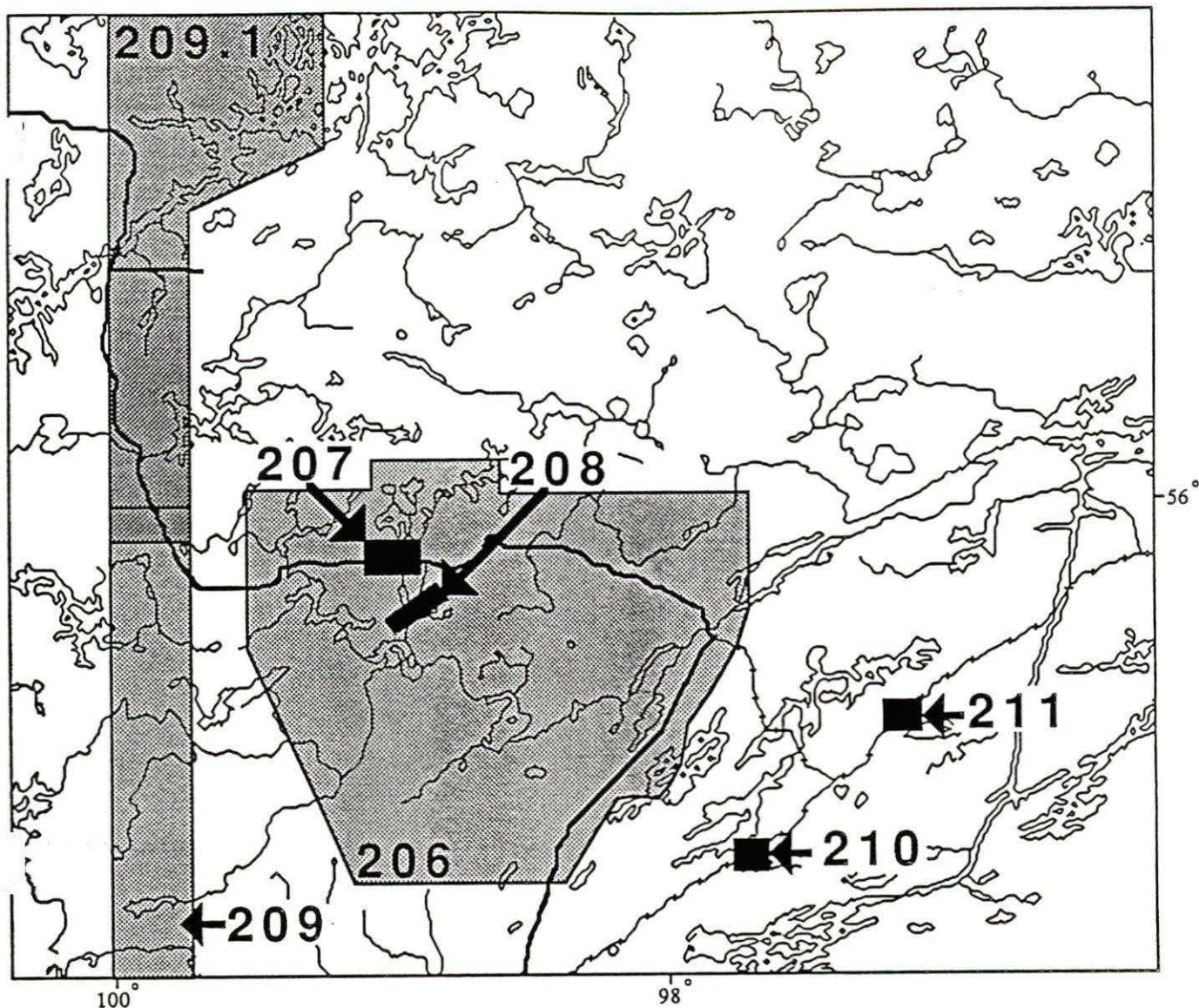


## Rat River

(pre 1978 base map)



Block	Type	Scale	Altitude	Format	Date
200	BW	6000	3000 AGL	9X9	MAY 76
201	BW	6000	3000 AGL	9X9	MAY 78
202	BW	56000	28900	9X9	AUG 76
203	BW	12000	6650	9X9	JUN 70
204	BW	31800	16800	9X9	JUL, SEPT 75
205	CLR	128000	37000	9X9	MAY 73

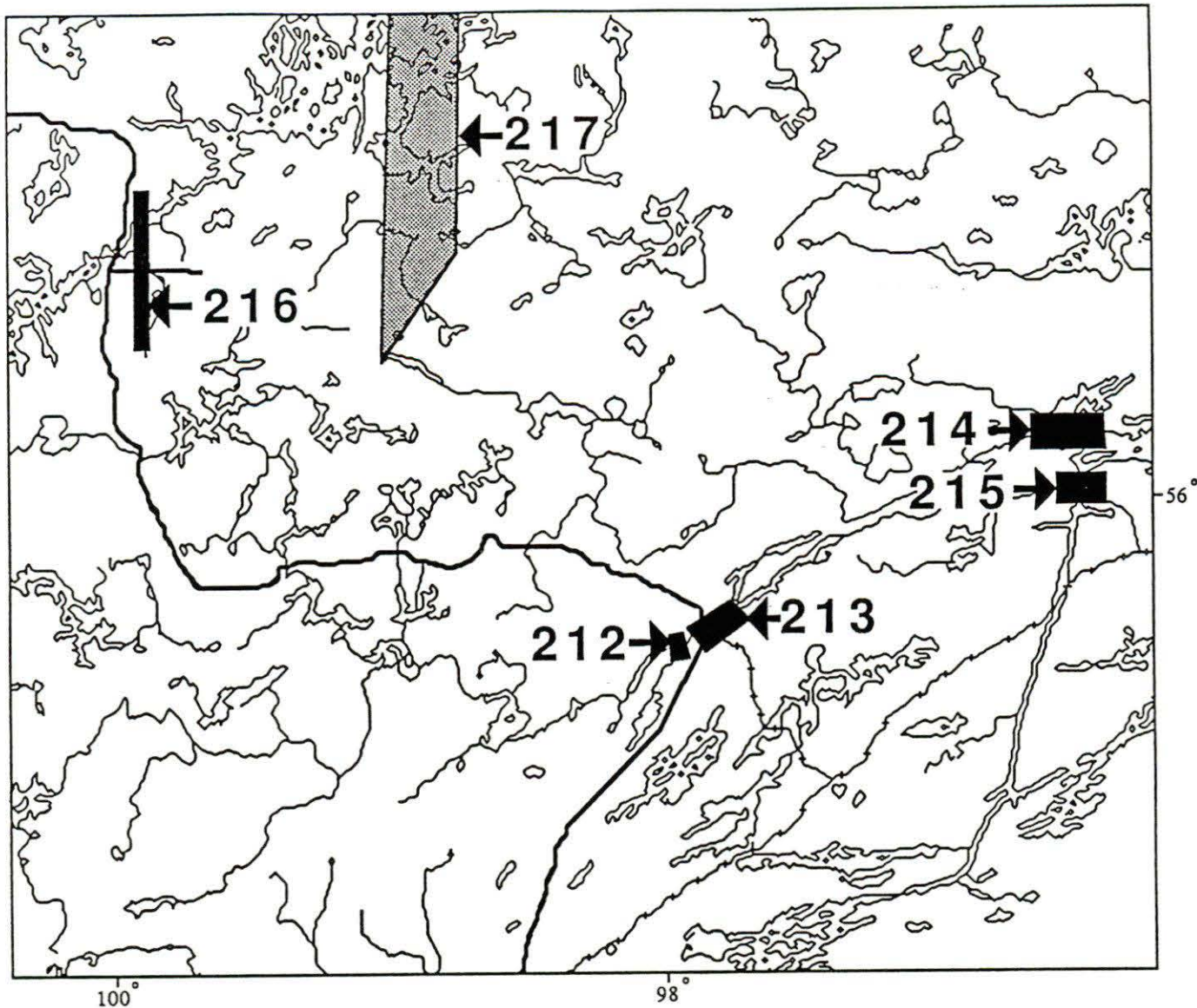


## Rat River

(pre 1978 base map)



Block	Type	Scale	Altitude	Format	Date
206	BW	24000	Various	9X9	JUN 72
207	BW	6000	3000 AGL	9X9	JUN 77
208	BW	6000	3000 AGL	9X9	JUN 75
209	BW	50000	26000	9X9	SEPT 79
209.1	BW	50000	26000	9X9	JUL, SEPT 79
210	BW	6000	3000 AGL	9X9	1973
211	BW	6000	3000 AGL	9X9	1973

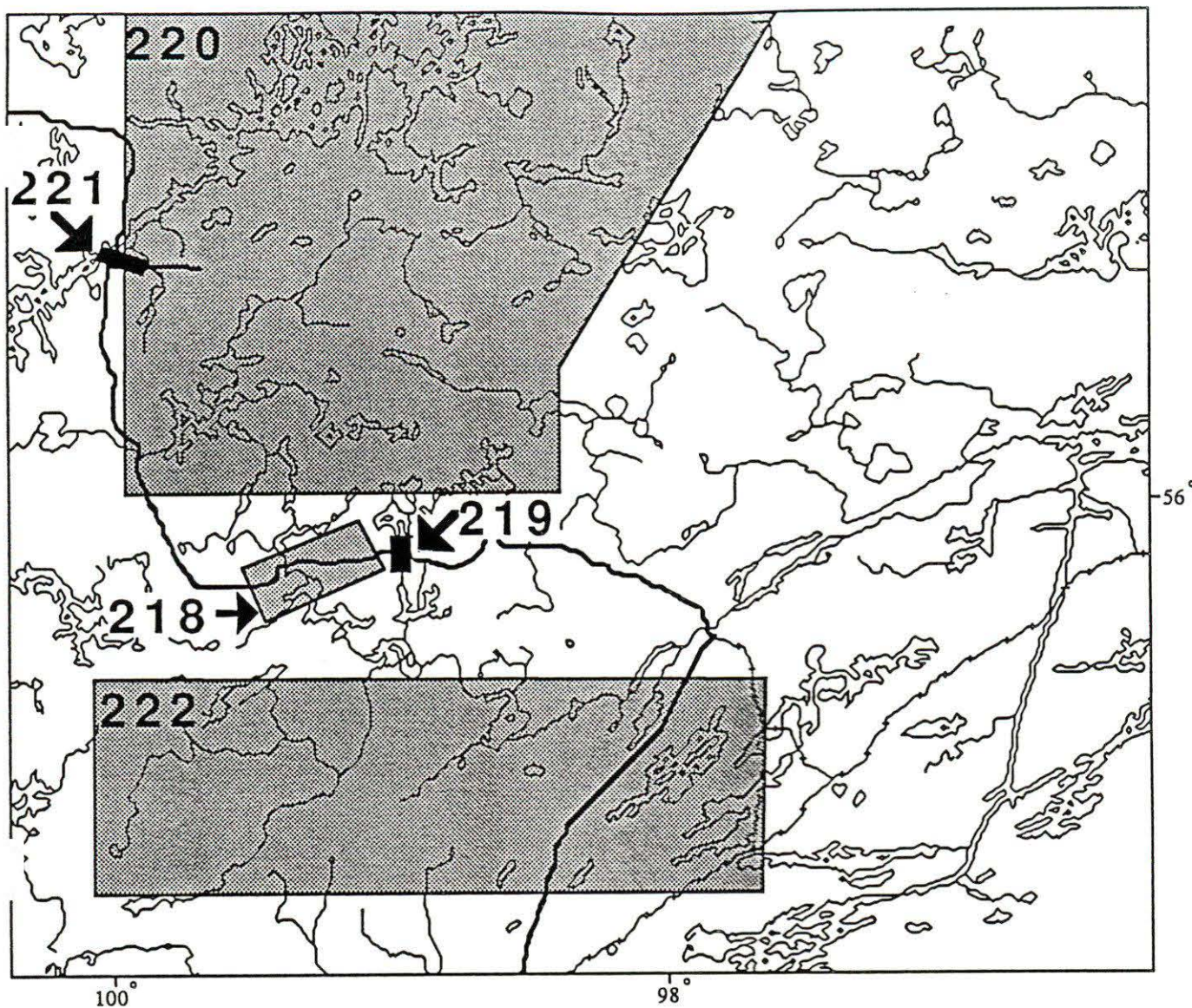


**Rat River**  
(pre 1978 base map)



Block	Type	Scale	Altitude	Format	Date
212	BW	5700	NA	70mm	JUN 71
213	BW	14000	NA	70mm	AUG 79
214	BW	6000	NA	70mm	JUN 76
215	BW	4560	NA	70mm	JUN 76
216	BW	31700	16840	9X9	OCT 71
217	BW	31700	16840	9X9	JUL 71

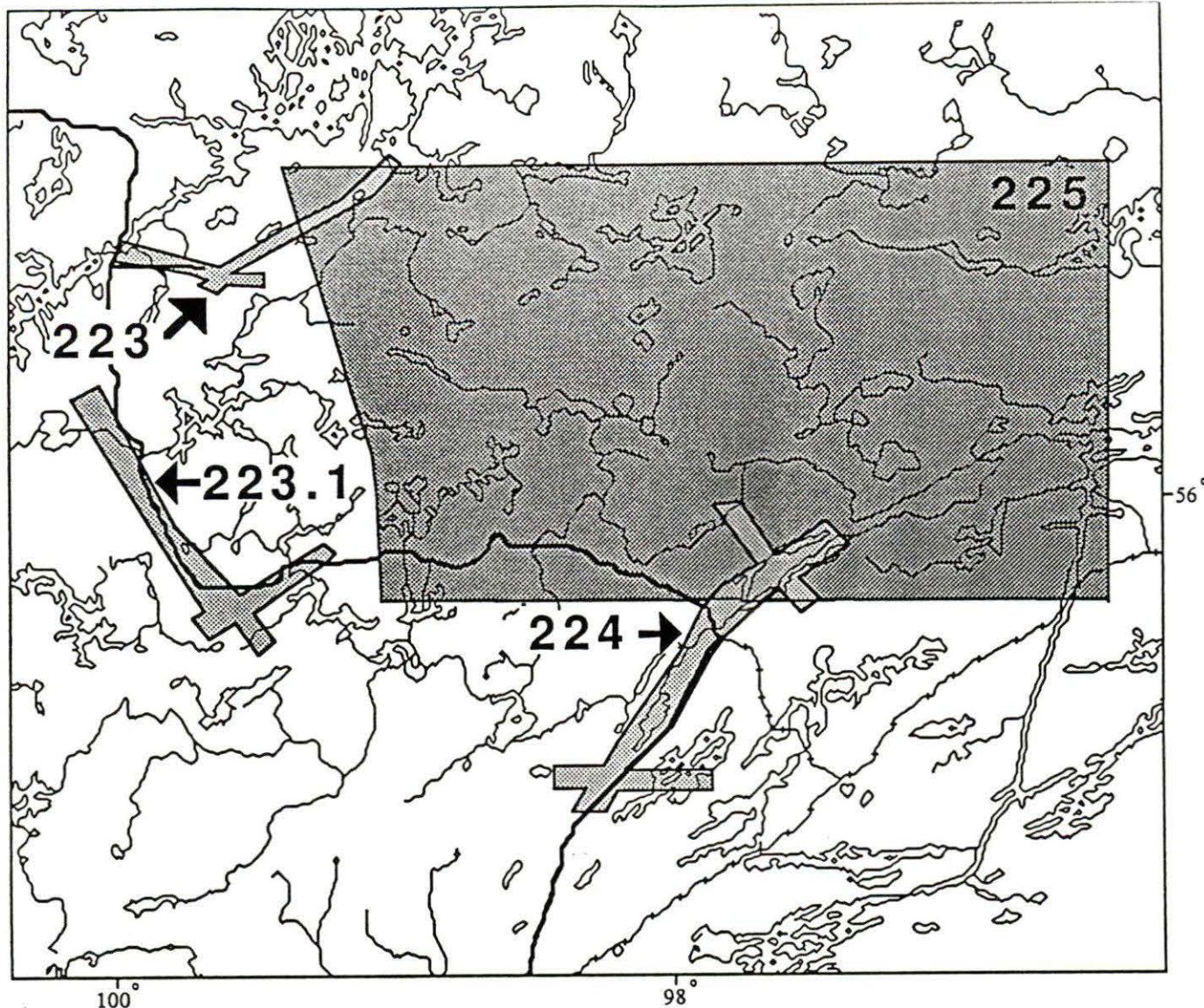




**Rat River**  
(pre 1978 base map)



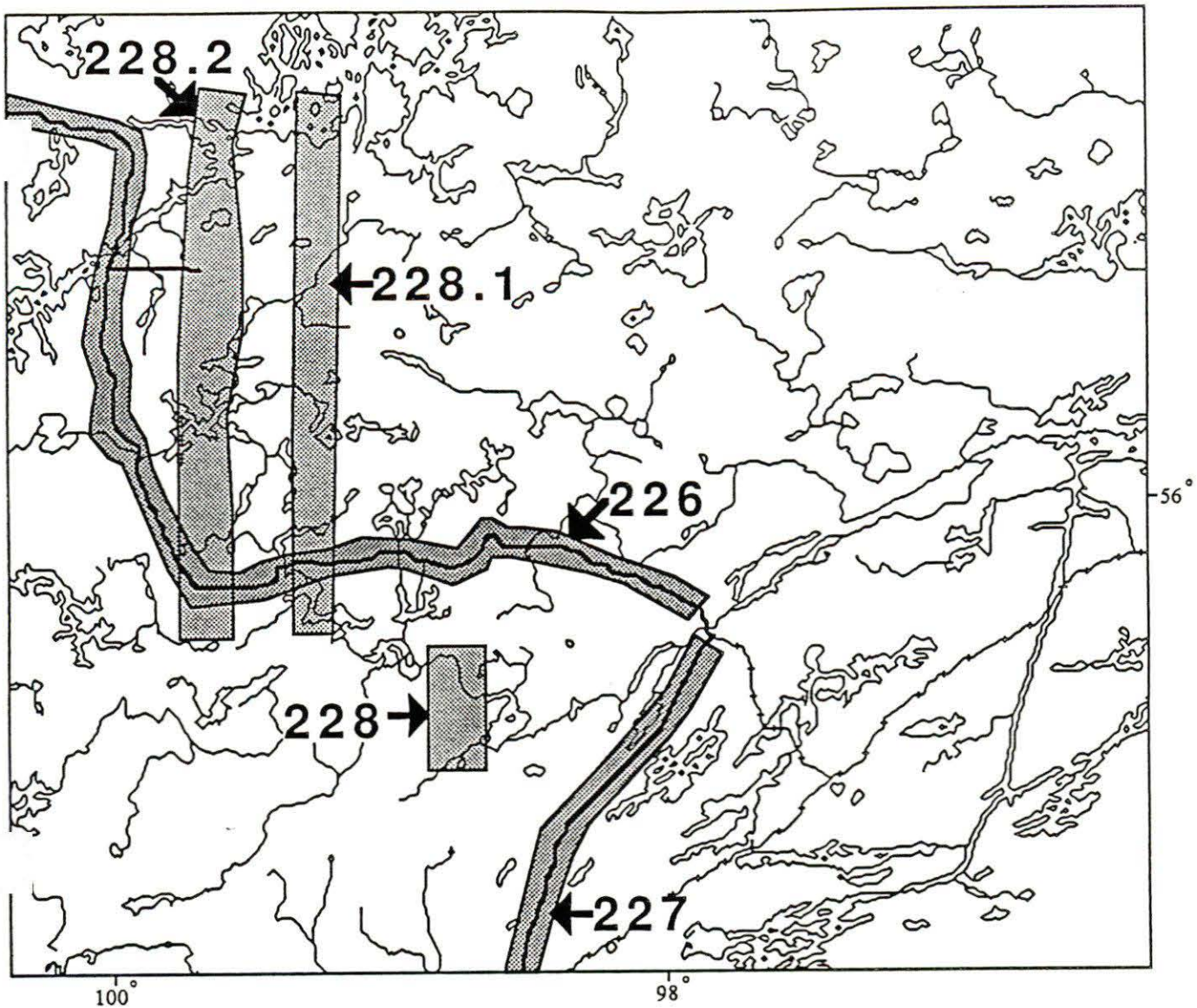
Block	Type	Scale	Altitude	Format	Date
218	BW	15840	7920 AGL	9X9	JUL 71
219	BW	6000	NA	70mm	JUN 76
220	CLR IR	116600	35000	9X9	SEPT 73
221	BW	6000	3000 AGL	9X9	OCT 79
222	CLR	120000	35000	9X9	MAY 73



**Rat River**  
(pre 1978 base map)



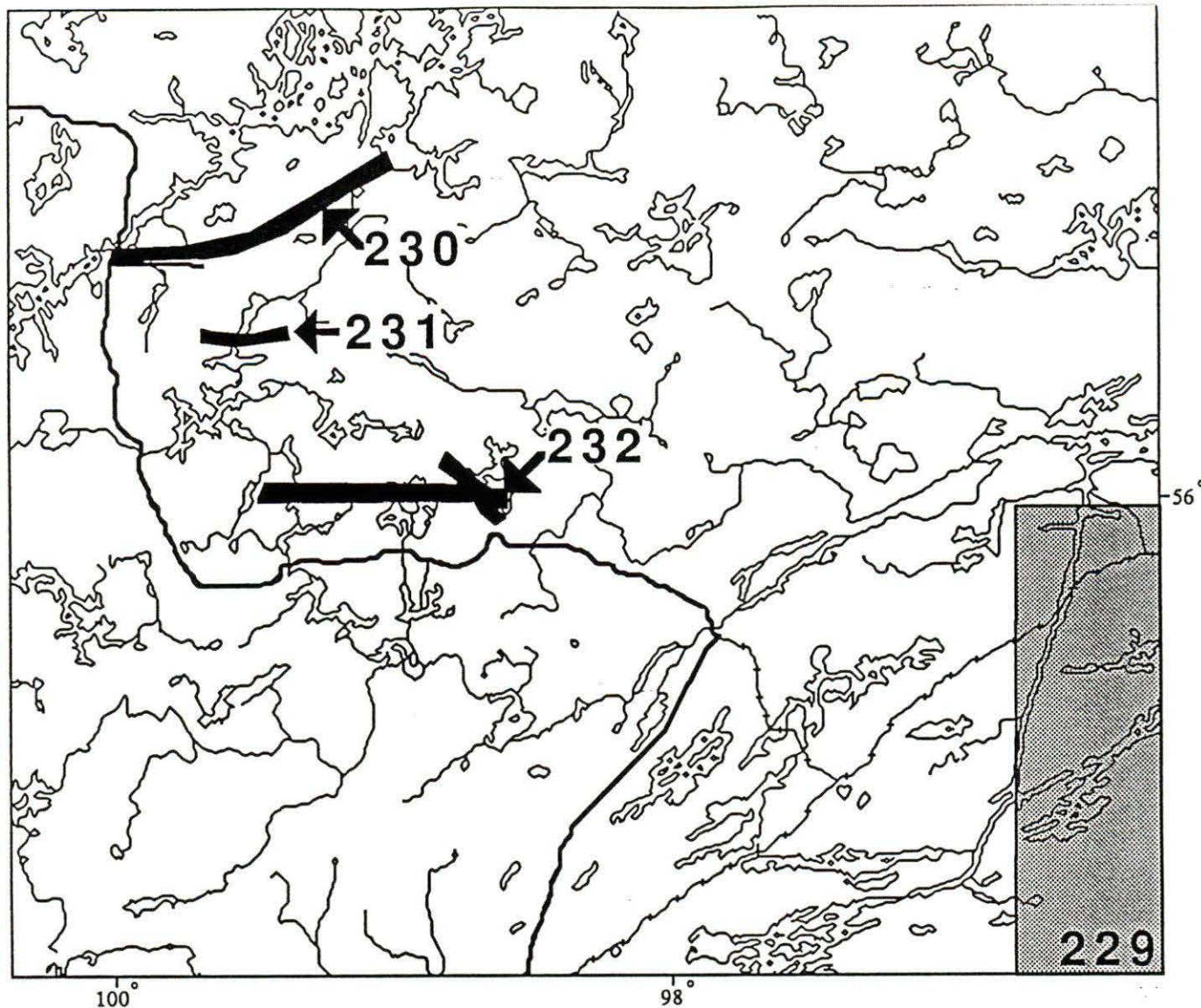
Block	Type	Scale	Altitude	Format	Date
223	CLR	48000	14000	9X9	JUN 73
223.1	CLR	48000	1400	9X9	JUN 73
224	CLR IR	20000	6000	9X9	MAY 73
225	CLR IR	118300	59150 AGL	9X9	JUL 76



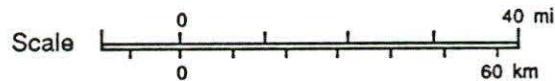
**Rat River**  
(pre 1978 base map)



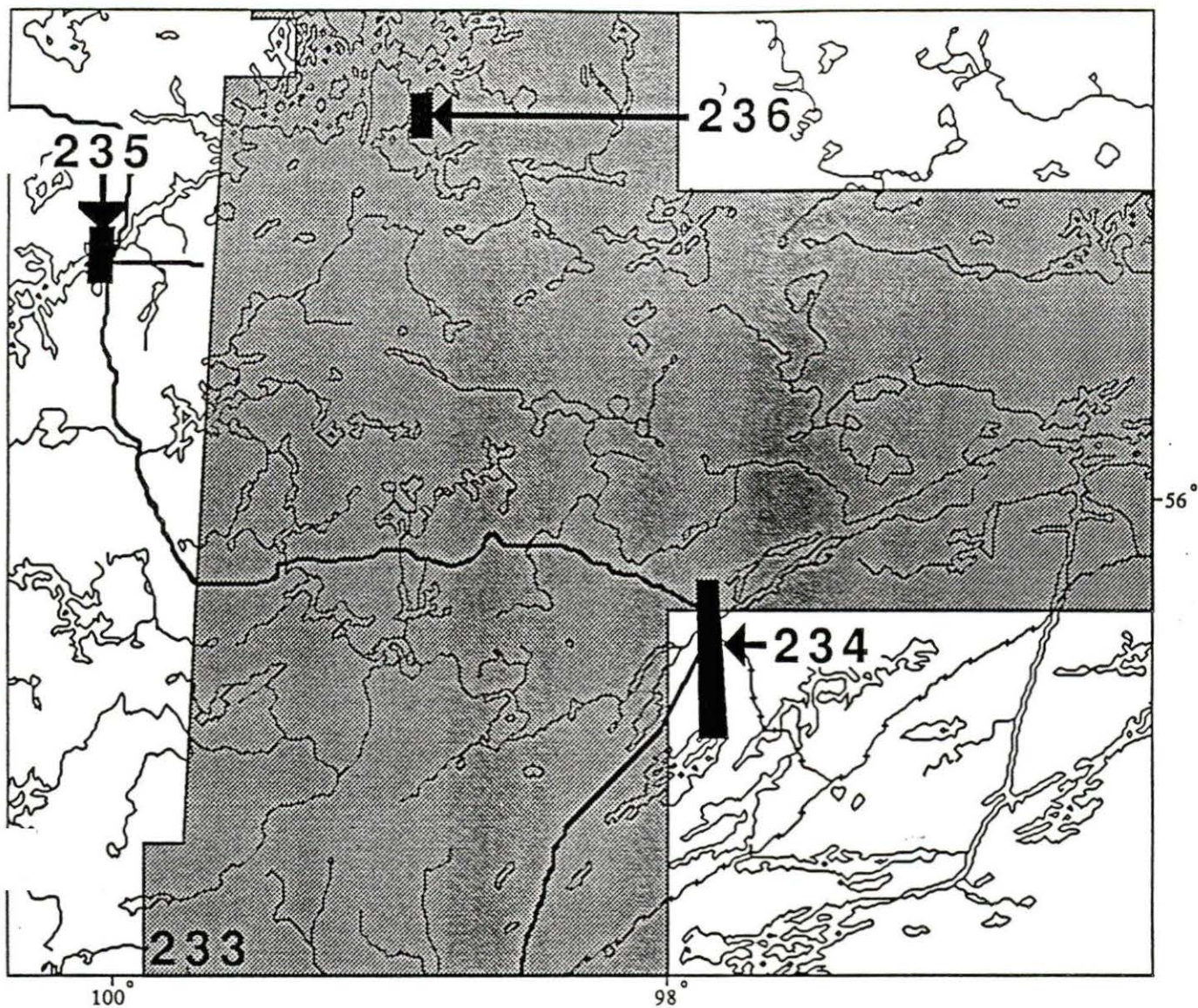
Block	Type	Scale	Altitude	Format	Date
226	BW	15840	NA	70mm	AUG 78
227	BW	15840	NA	70mm	AUG 78
228	BW	50000	25000 AGL	9X9	JUN 80
228.1	BW	50000	25000 AGL	9X9	JUN 80
228.2	BW	50000	25000 AGL	9X9	JUN 80



**Rat River**  
(pre 1978 base map)



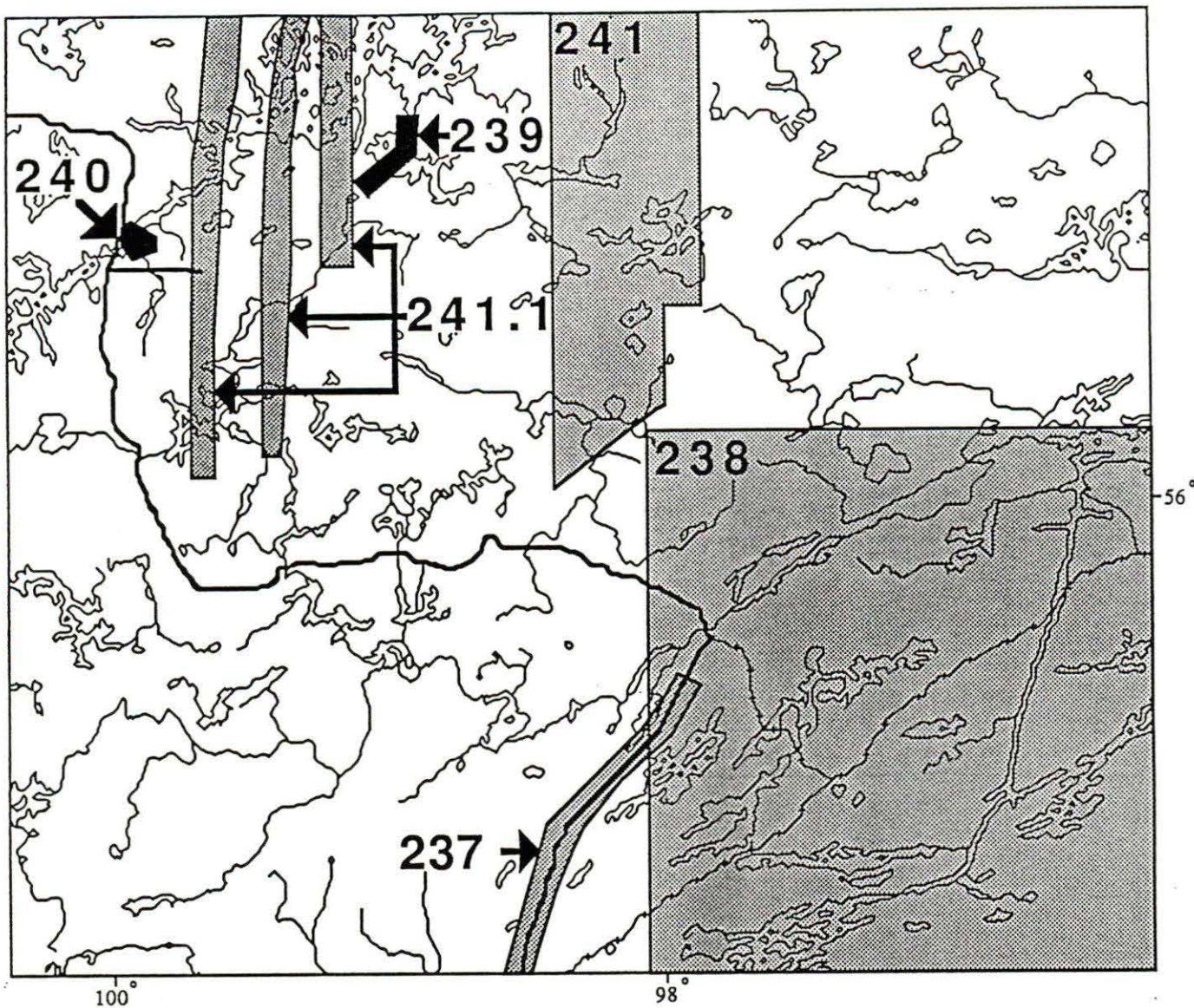
Block	Type	Scale	Altitude	Format	Date
229	BW	56000	28500	9X9	JUL 75
230	BW	15840	NA	70mm	NOV 78
231	BW	15840	NA	70mm	AUG 78
232	BW	20000	10000	9X9	JUN 71



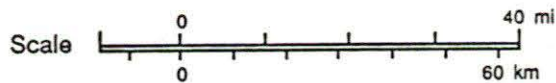
**Rat River**  
(pre 1978 base map)



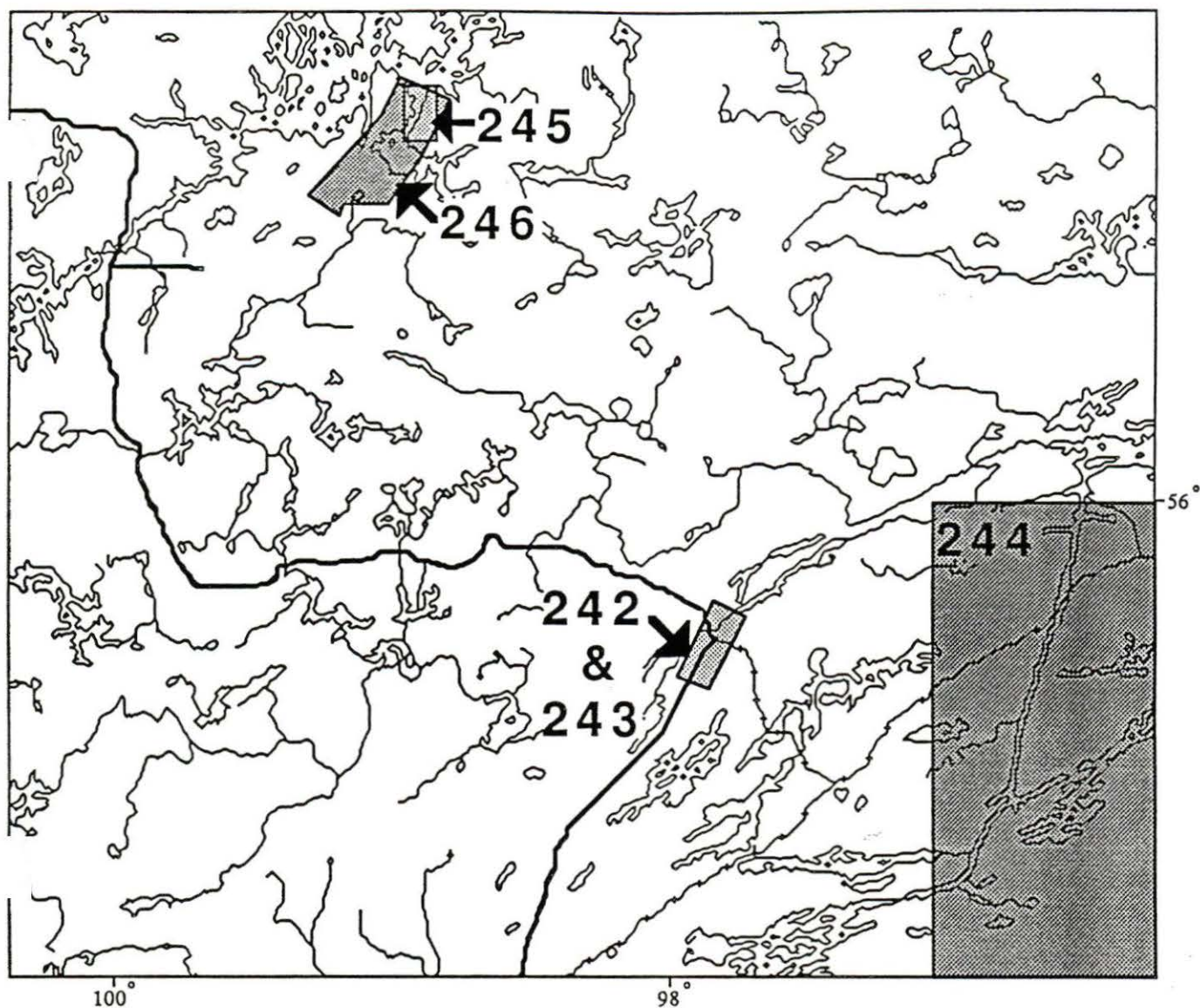
Block	Type	Scale	Altitude	Format	Date
233	BW	50000	26000	9X9	JUN-JUL 78
234	CLR IR	5200	2000	9X9	JUL 73
235	BW	6000	3900	9X9	OCT 71
236	BW	6000	3900	9X9	1973



**Rat River**  
(pre 1978 base map)



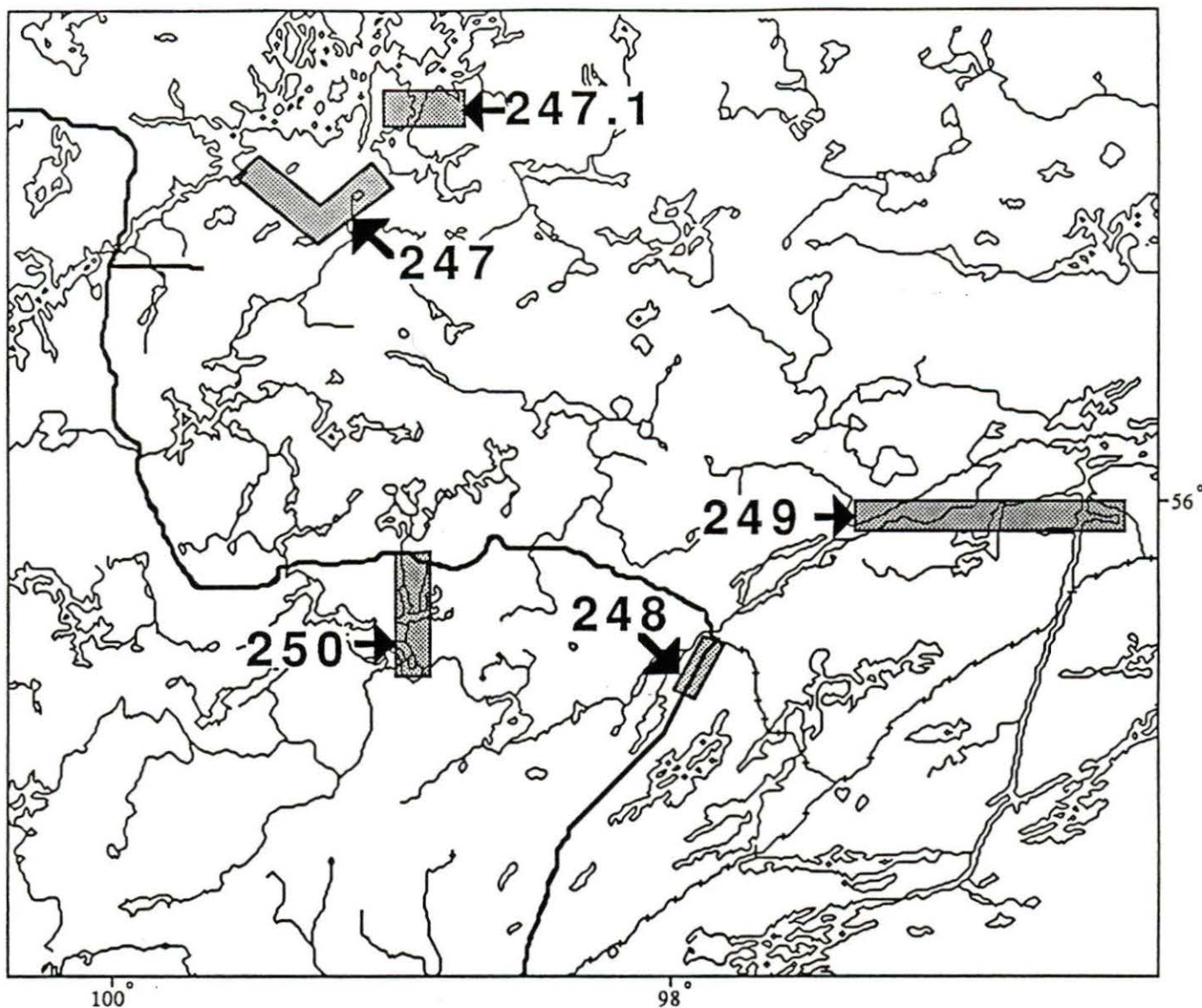
Block	Type	Scale	Altitude	Format	Date
237	BW	12000	7000	9X9	1980
238	BW	56000	28900	9X9	AUG 76
239	BW	15840	NA	70 mm	FEB 76
240	BW	15840	NA	70 mm	SEPT 72
241	BW	50000	26000	9X9	SEPT 77
241.1	BW	50000	26000	9X9	JUL 77



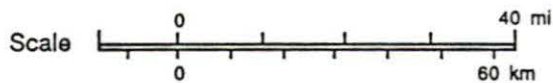
**Rat River**  
(pre 1978 base map)



Block	Type	Scale	Altitude	Format	Date
242	BW	12000	NA	9X9	JUN 77
243	CLR IR	6000	NA	9X9	SEPT 77
244	BW	24000	12000 AGL	9X9	MAY 72
245	BW	6000	3000 AGL	9X9	JUN 77
246	BW	15840	NA	70mm	NOV 78

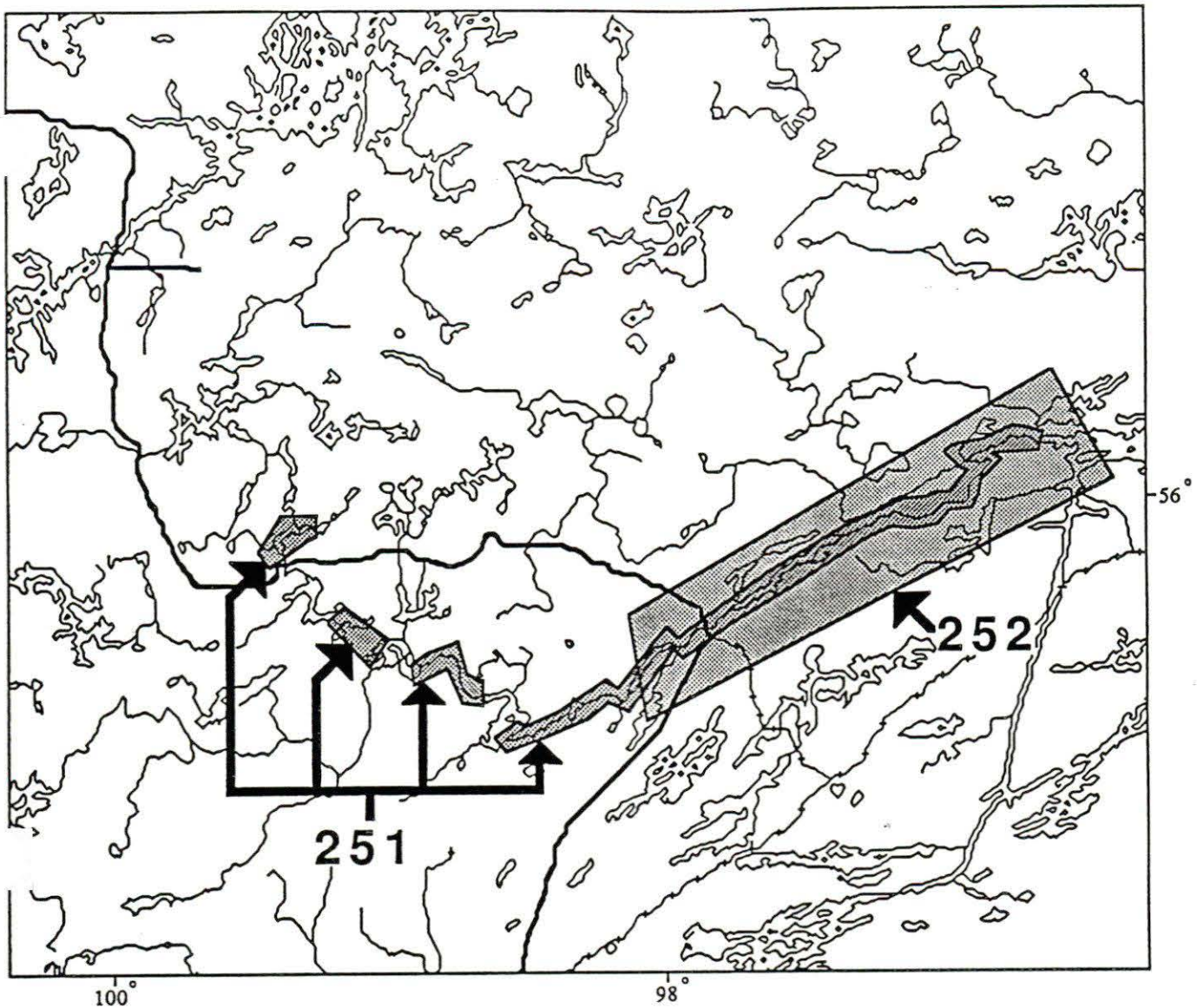


**Rat River**  
(pre 1978 base map)



Block	Type	Scale	Altitude	Format	Date
247	BW	12000	6900	9X9	AUG 70
247.1	BW	12000	6900	9X9	AUG 70
248	BW	~ 18600	10000	9X9	JUN 71
249	BW	20000	10000	9X9	1971
250	BW	12000	6000 AGL	9X9	AUG 72

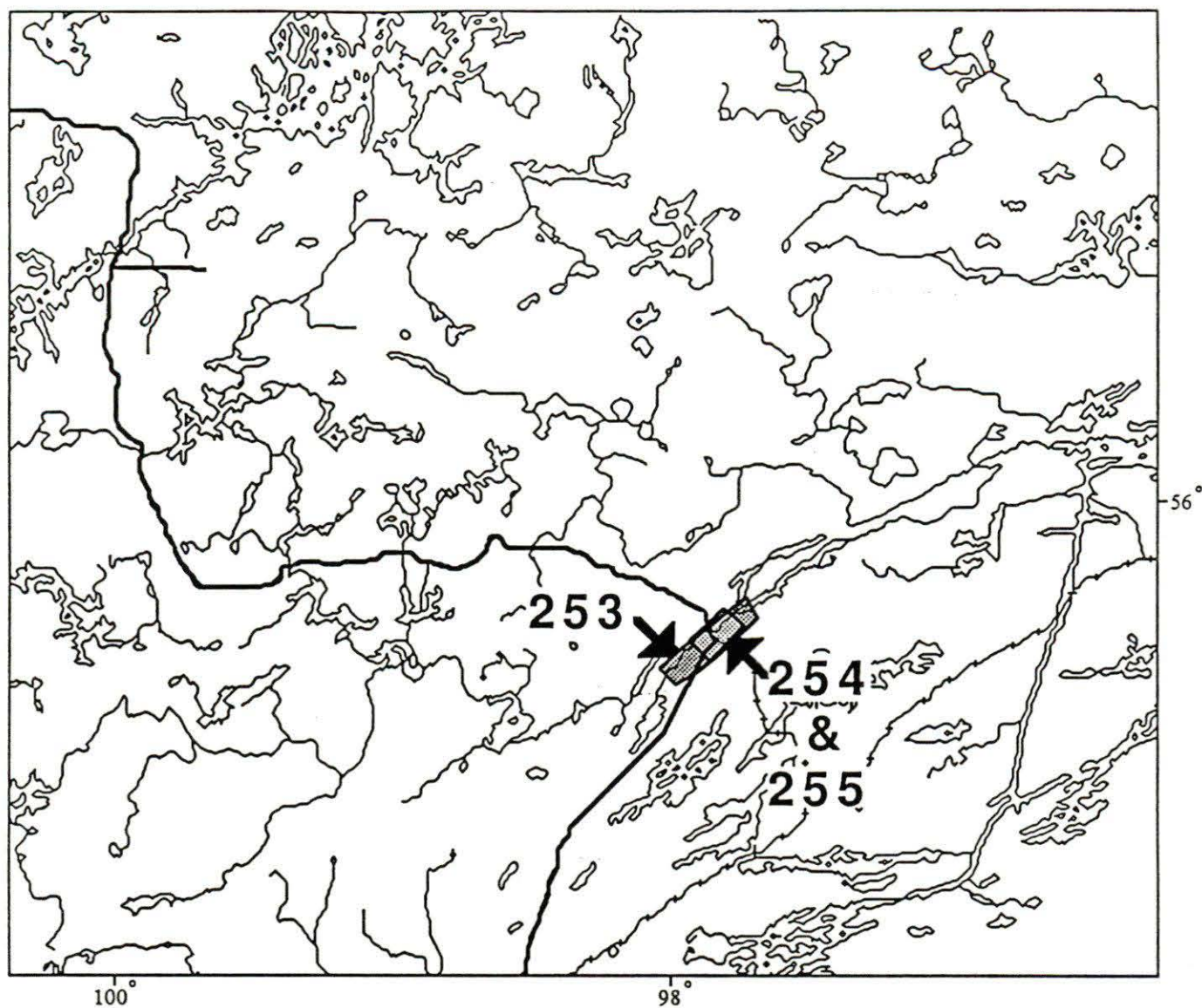




**Rat River**  
(pre 1978 base map)



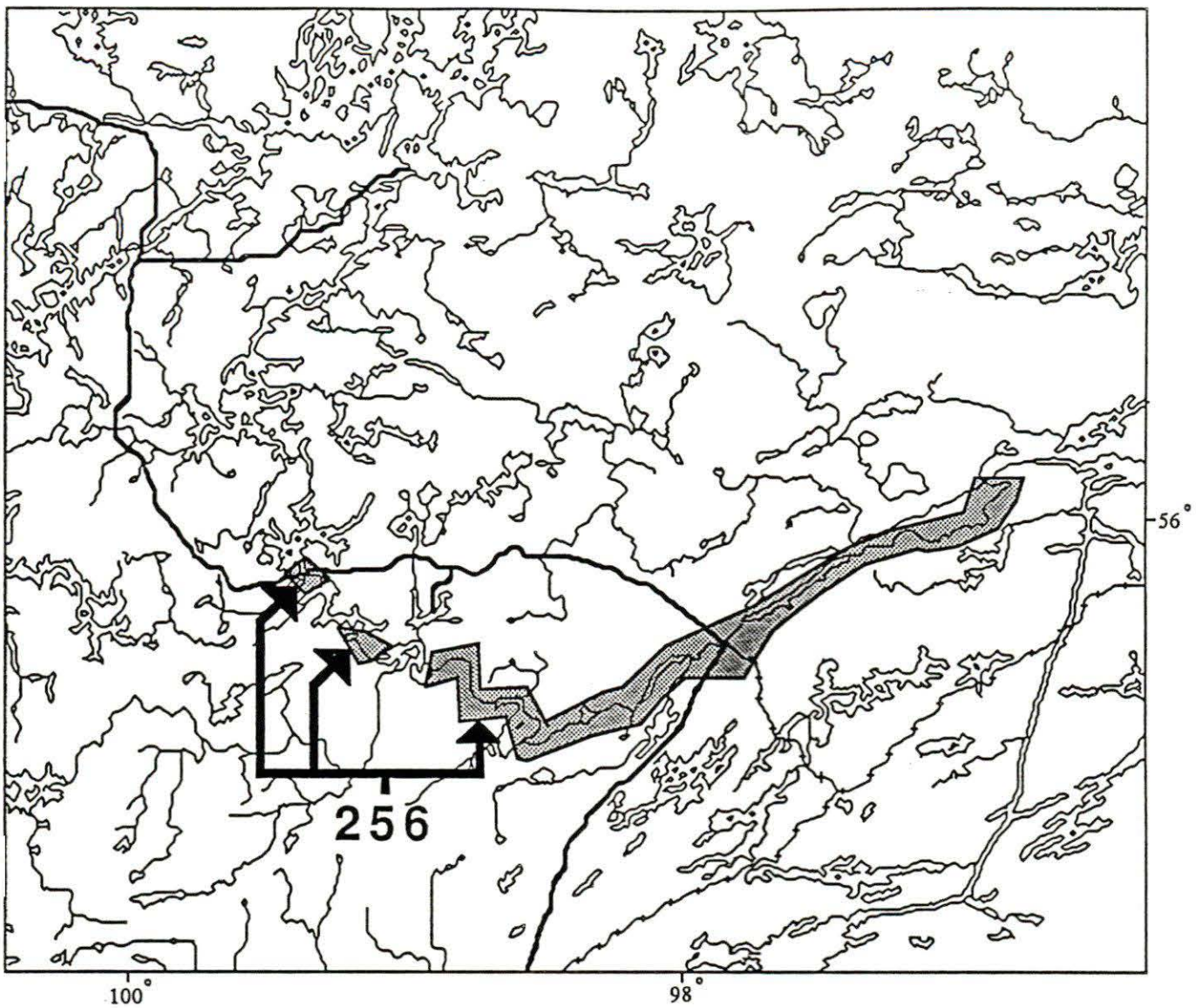
Block	Type	Scale	Altitude	Format	Date
251	BW	7200	3600 AGL	9X9	OCT 74
252	BW	24000	12000 AGL	9X9	MAY 74



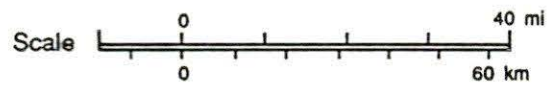
**Rat River**  
(pre 1978 base map)



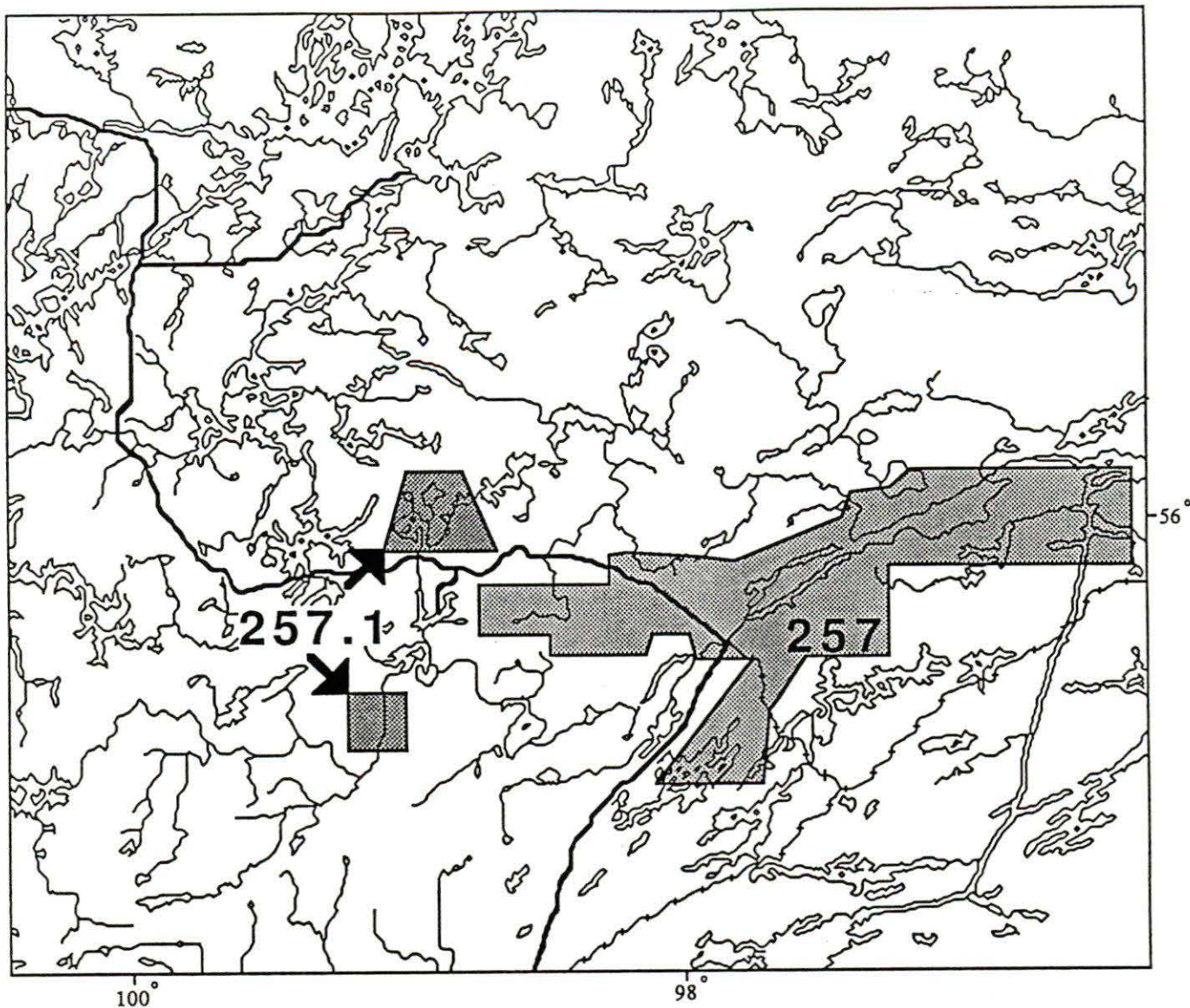
Block	Type	Scale	Altitude	Format	Date
253	BW	2400, 9600	Various	9X9	MAY 75
254	BW	6000	3000 AGL	9X9	SEPT 75
255	BW	12000	6000 AGL	9X9	JUN 77



**Rat River**  
(post 1978 base map)



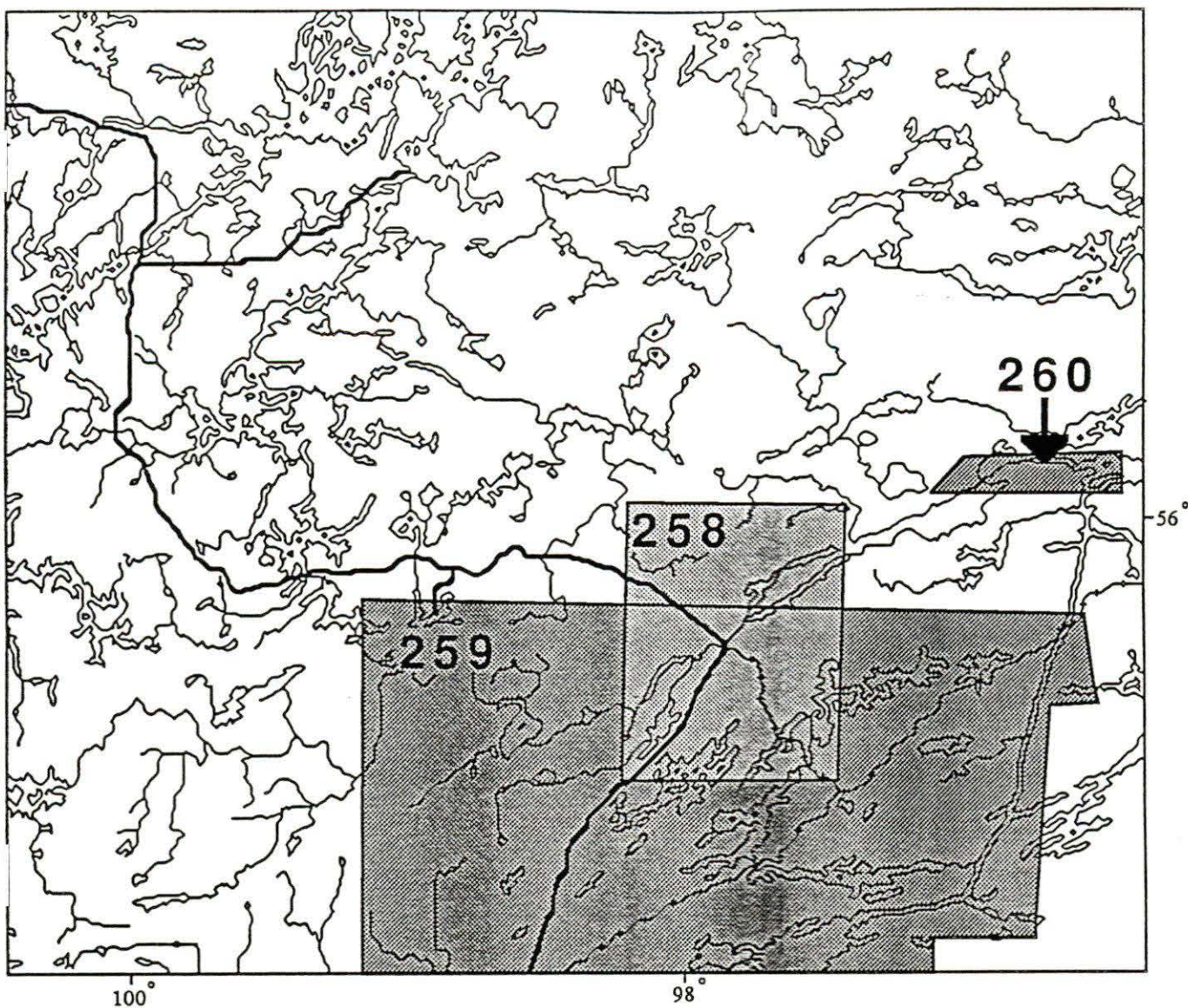
Block	Type	Scale	Altitude	Format	Date
256	BW	12000	6000 AGL	9X9	OCT 81



**Rat River**  
(post 1978 base map)



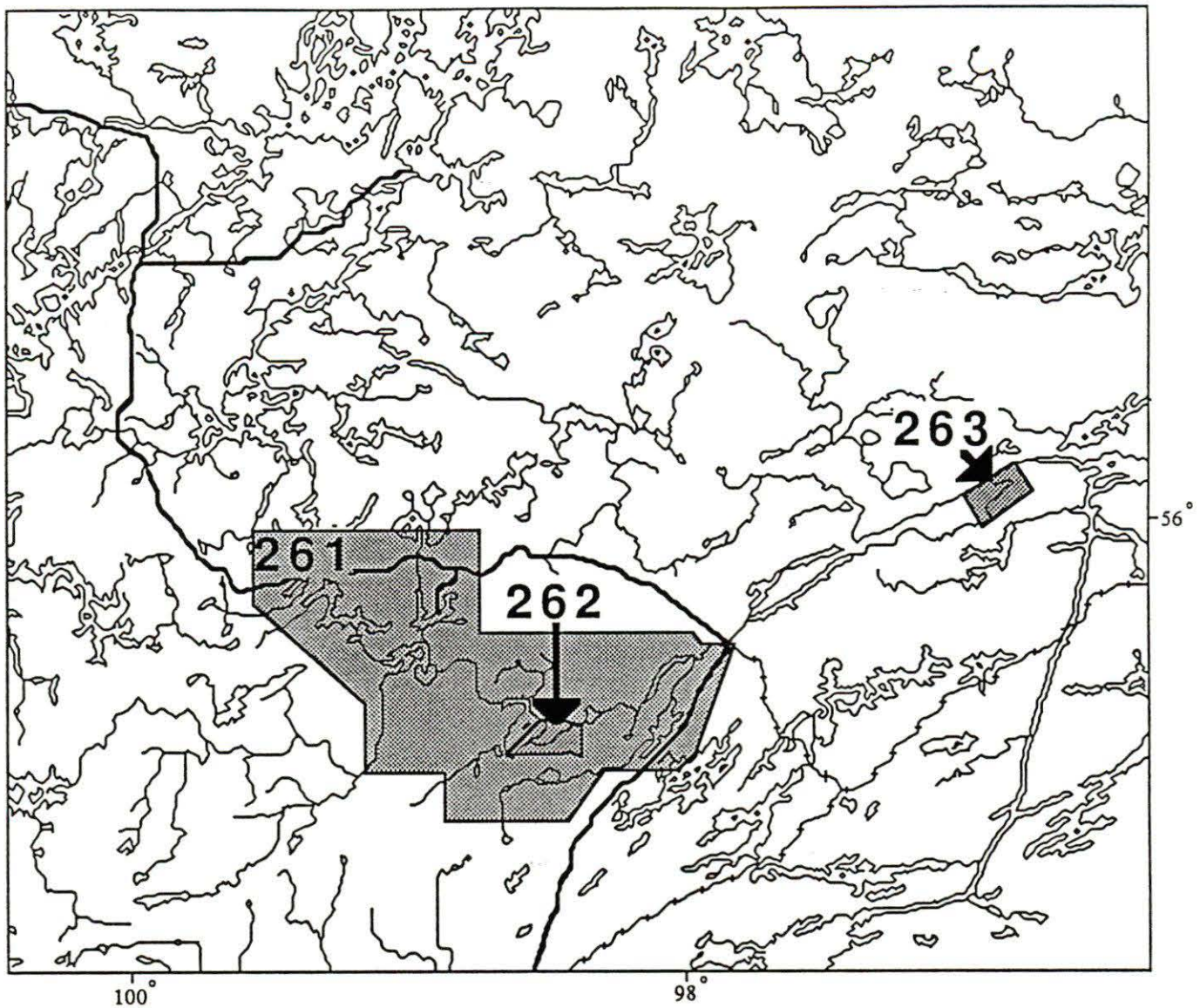
Block	Type	Scale	Altitude	Format	Date
257	BW	20000	10000 AGL	9X9	JUN 86
257.1	BW	20000	10000 AGL	9X9	JUN 86



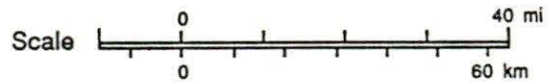
**Rat River**  
(post 1978 base map)



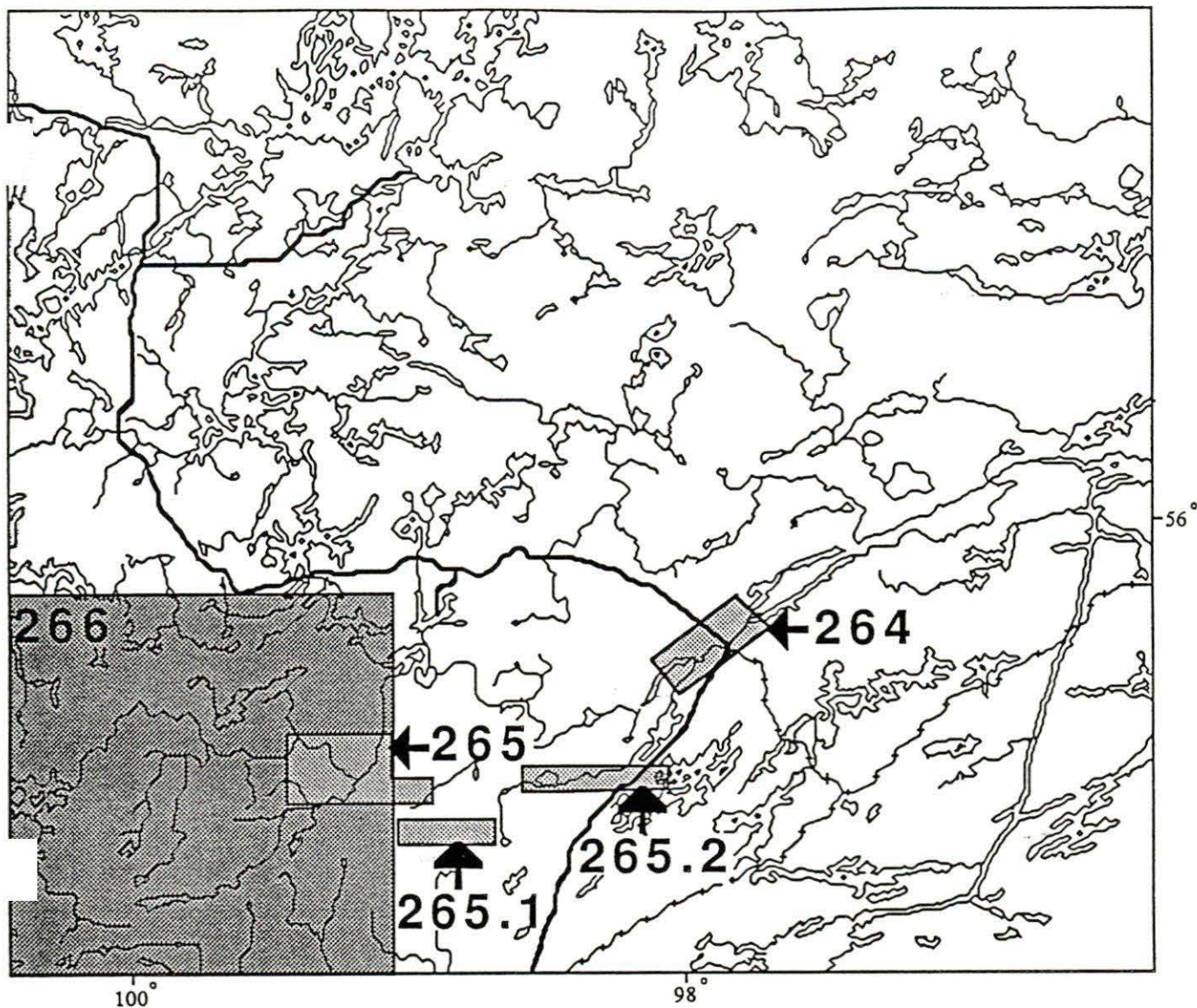
Block	Type	Scale	Altitude	Format	Date
258	BW	50000	15283	9X9	JUN 83
259	BW	15840	7740 AGL	9X9	JUN 85
260	BW	20000	10000 AGL	9X9	SEPT-OCT 85



**Rat River**  
(post 1978 base map)



Block	Type	Scale	Altitude	Format	Date
261	BW	20000	10000 AGL	9X9	SEPT 85
262	BW	10000	5000 AGL	9X9	JUN 86
263	BW	10000	5000 AGL	9X9	JUN 86



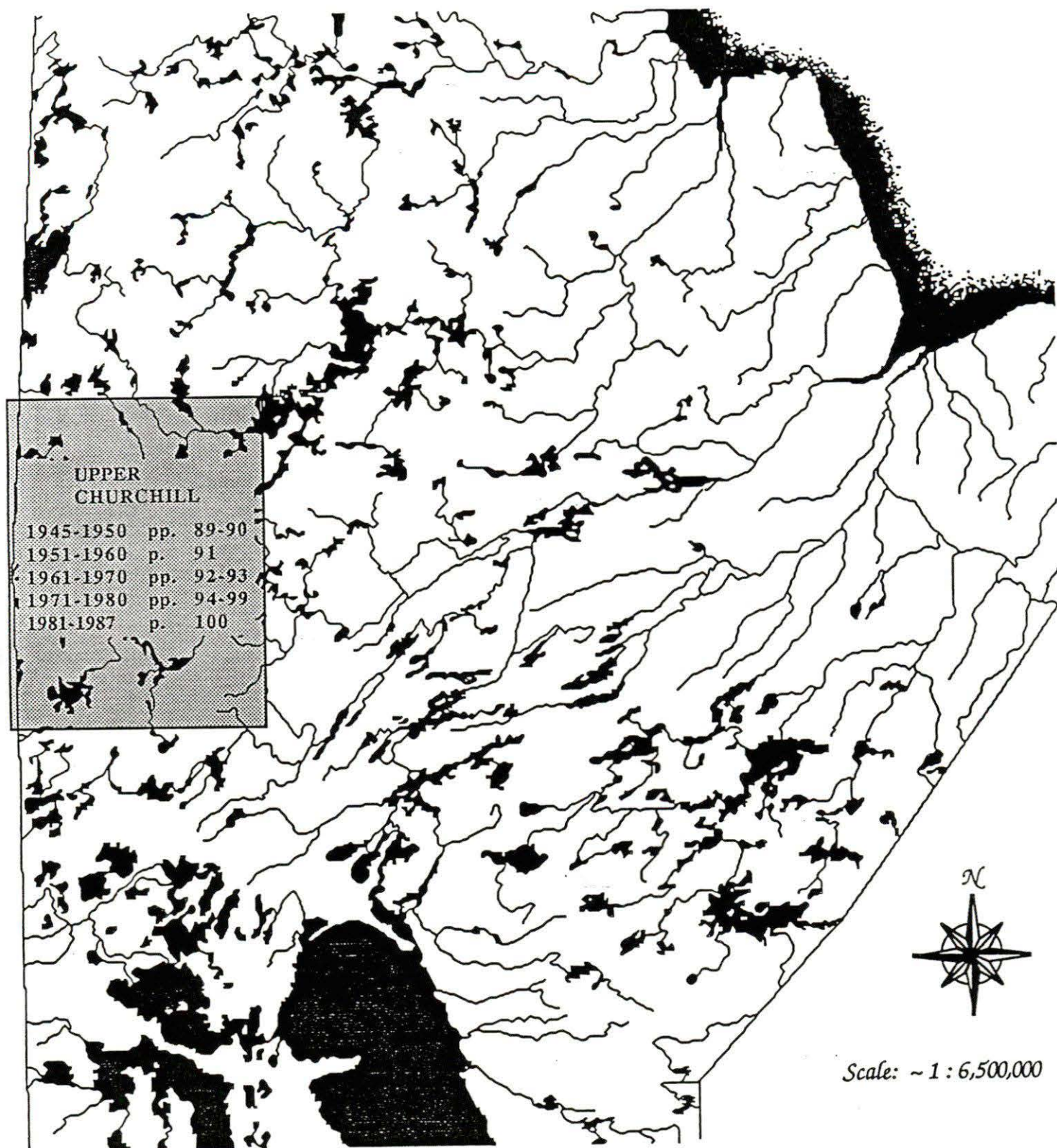
## Rat River

(post 1978 base map)



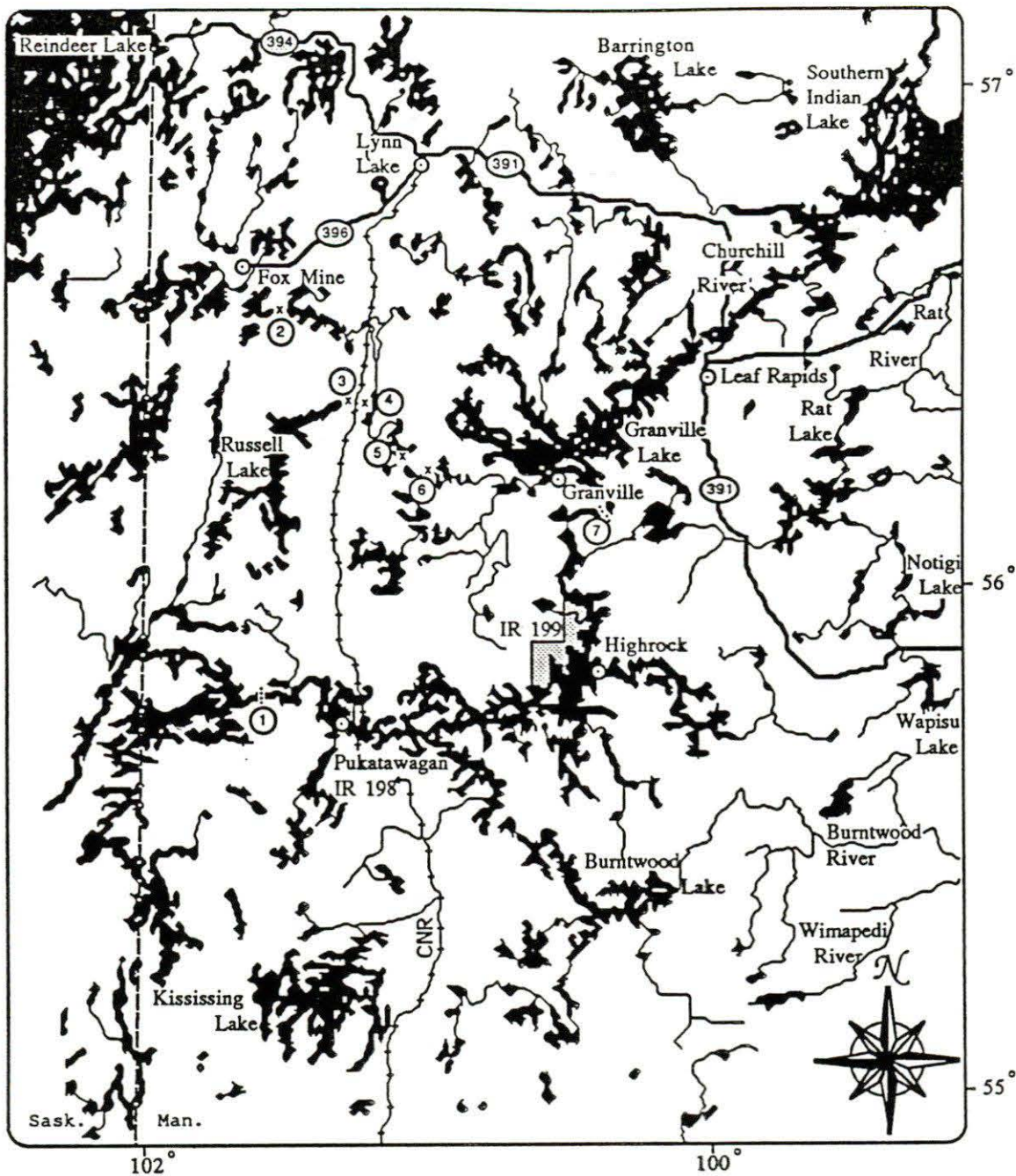
Block	Type	Scale	Altitude	Format	Date
264	BW	10000	5000 AGL	9X9	JUN 86
265	BW	20000	10000 AGL	9X9	JUN 86
265.1	BW	20000	10000 AGL	9X9	JUN 86
265.2	BW	20000	10000 AGL	9X9	JUN 86
266	BW	15840	7920 AGL	9X9	1987

Aerial Photography Index Map:  
Upper Churchill

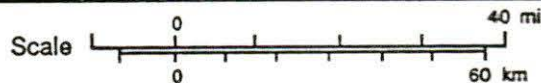




# Geographical Reference Map: Upper Churchill



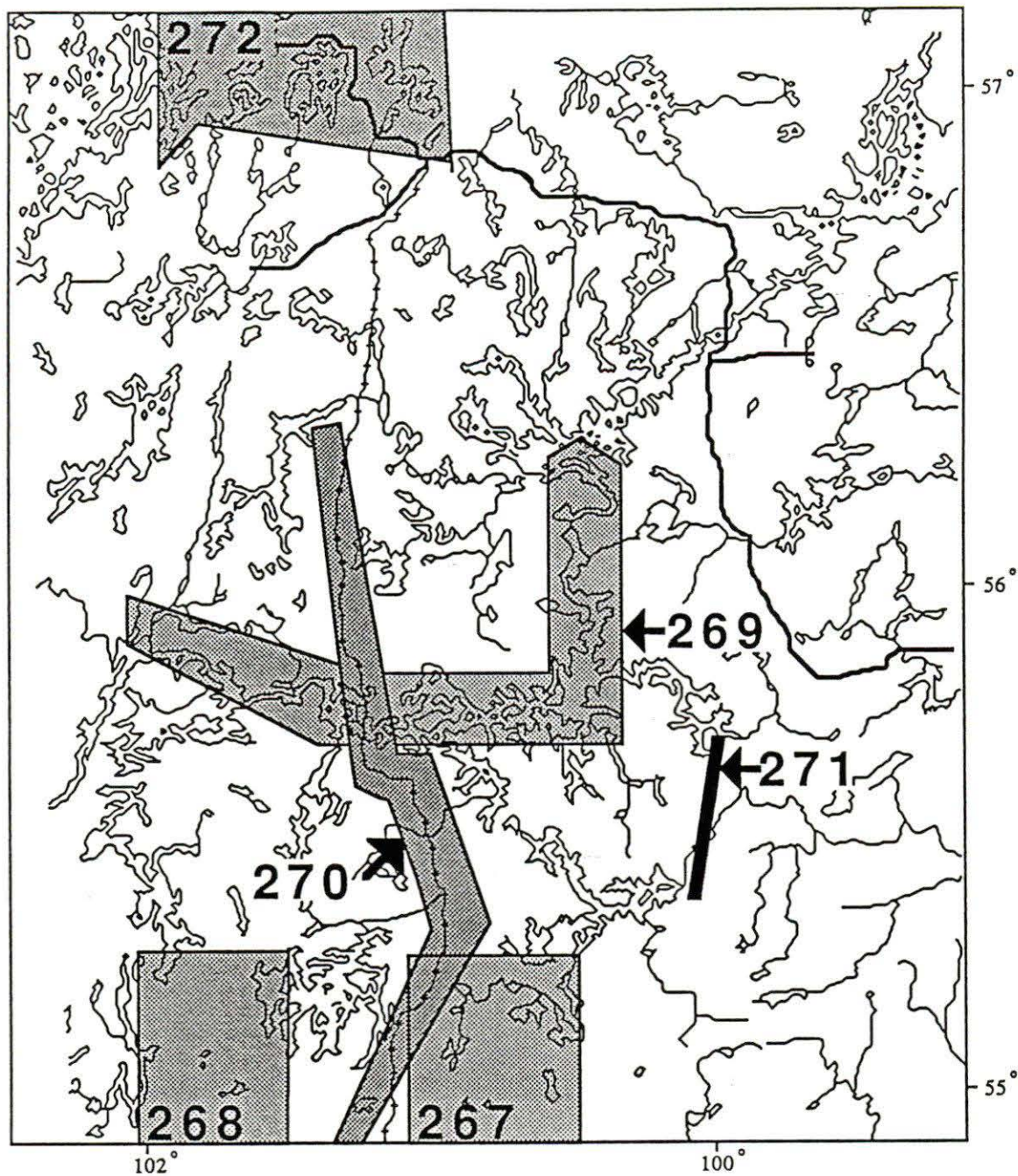
## LEGEND



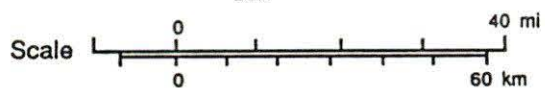
- ① Bloodstone Generating Station
- ② Eager Dam
- ③ Russell Dam
- ④ dam

- ⑤ dam
- ⑥ dam
- ⑦ Granville Generating Station

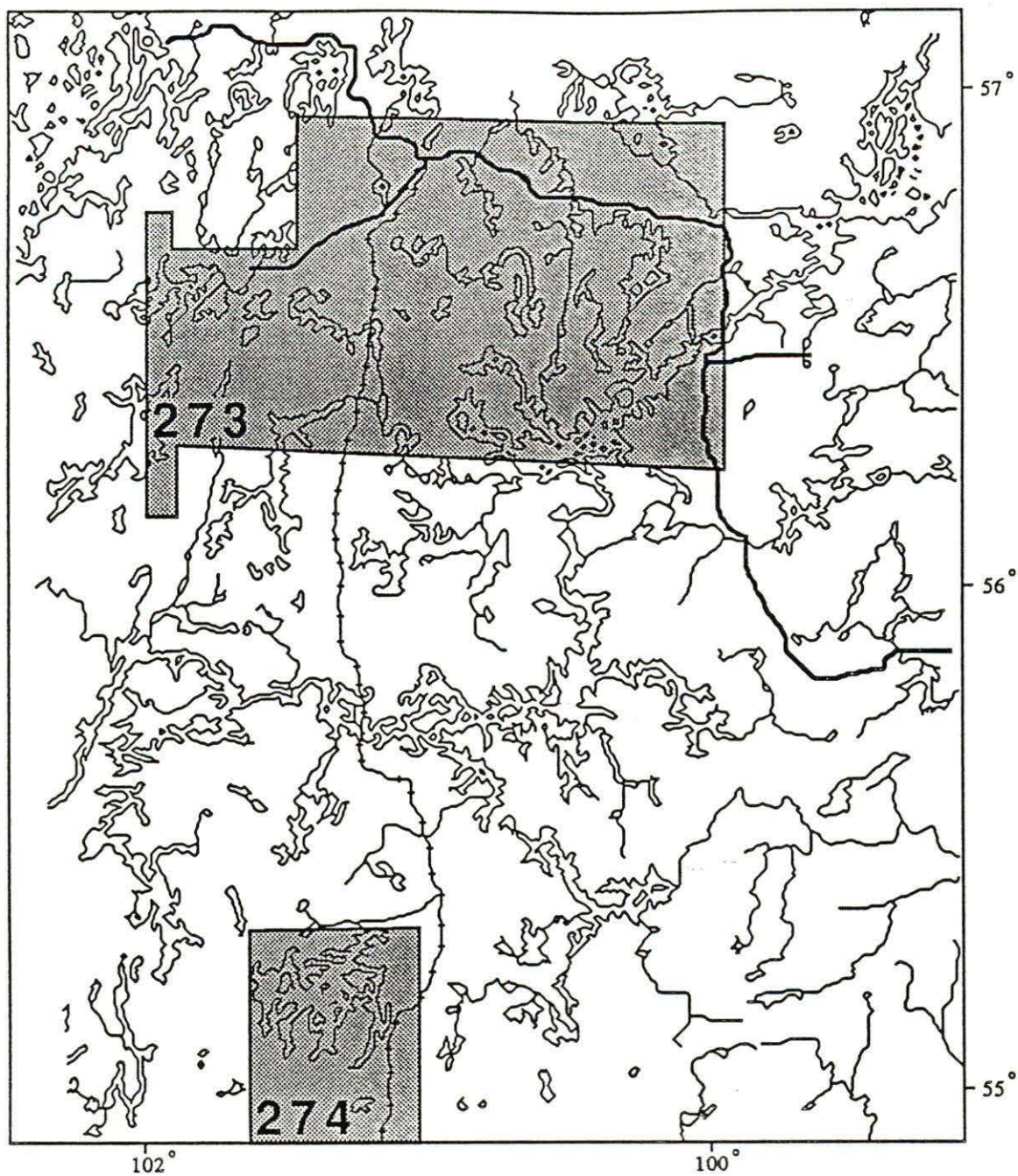
- +— railroads
- roads
- towns
- ▣ Indian reservations
- channels
- x dams/dykes
- ▲ control structures
- generating stations
- .... proposed structures



## Upper Churchill



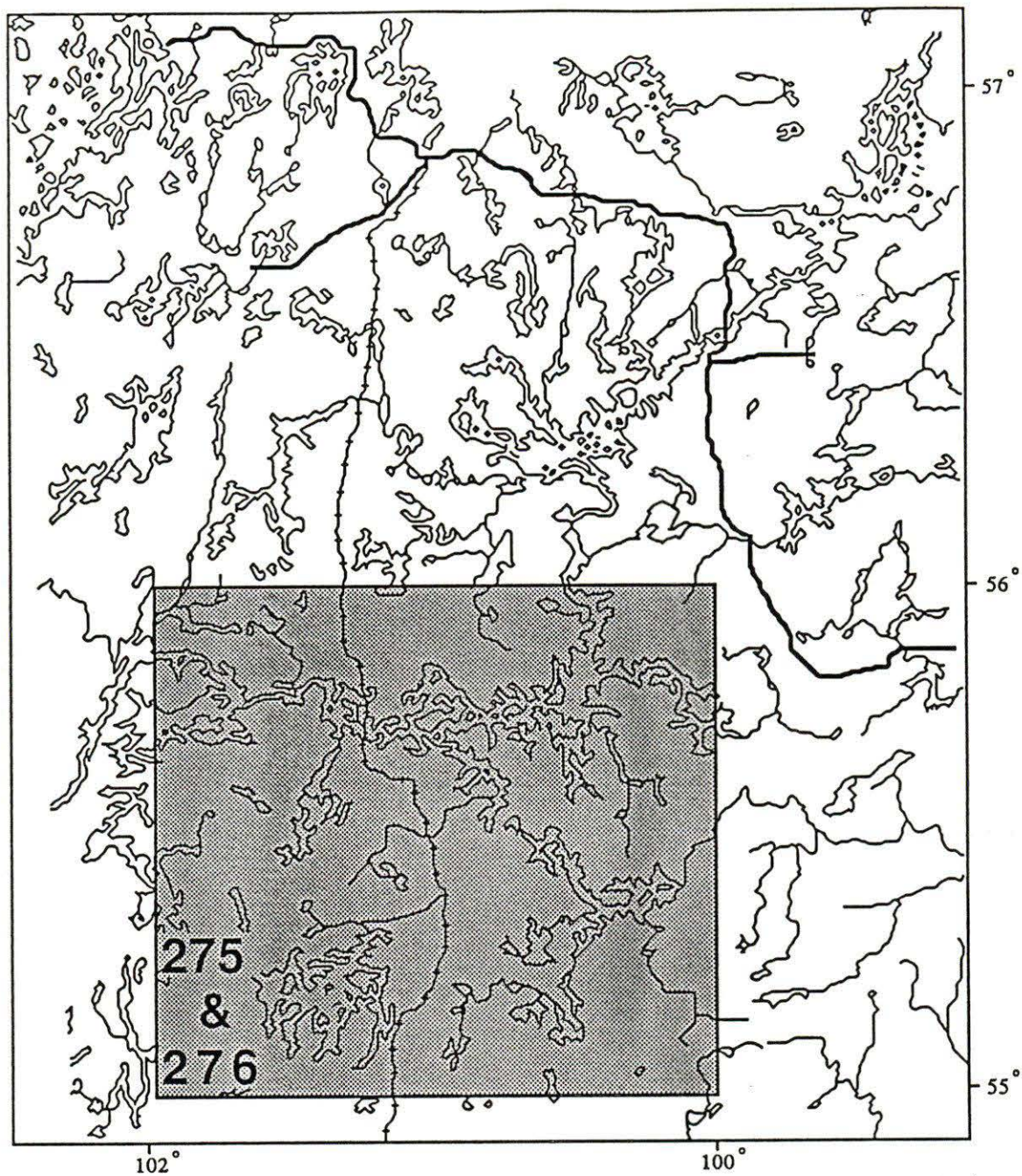
Block	Type	Scale	Altitude	Format	Date
267	BW	NA	12000	9X9	1945
268	BW	16000	11870	9X9	MAY 46
269	BW	Various	11500-17300	9X9	JUN 47
270	BW	32000	17000	9X9	SEPT 49
271	BW	36000	18500	9X9	MAY 50
272	BW	Various	15000-20000	9X9	1946



## Upper Churchill



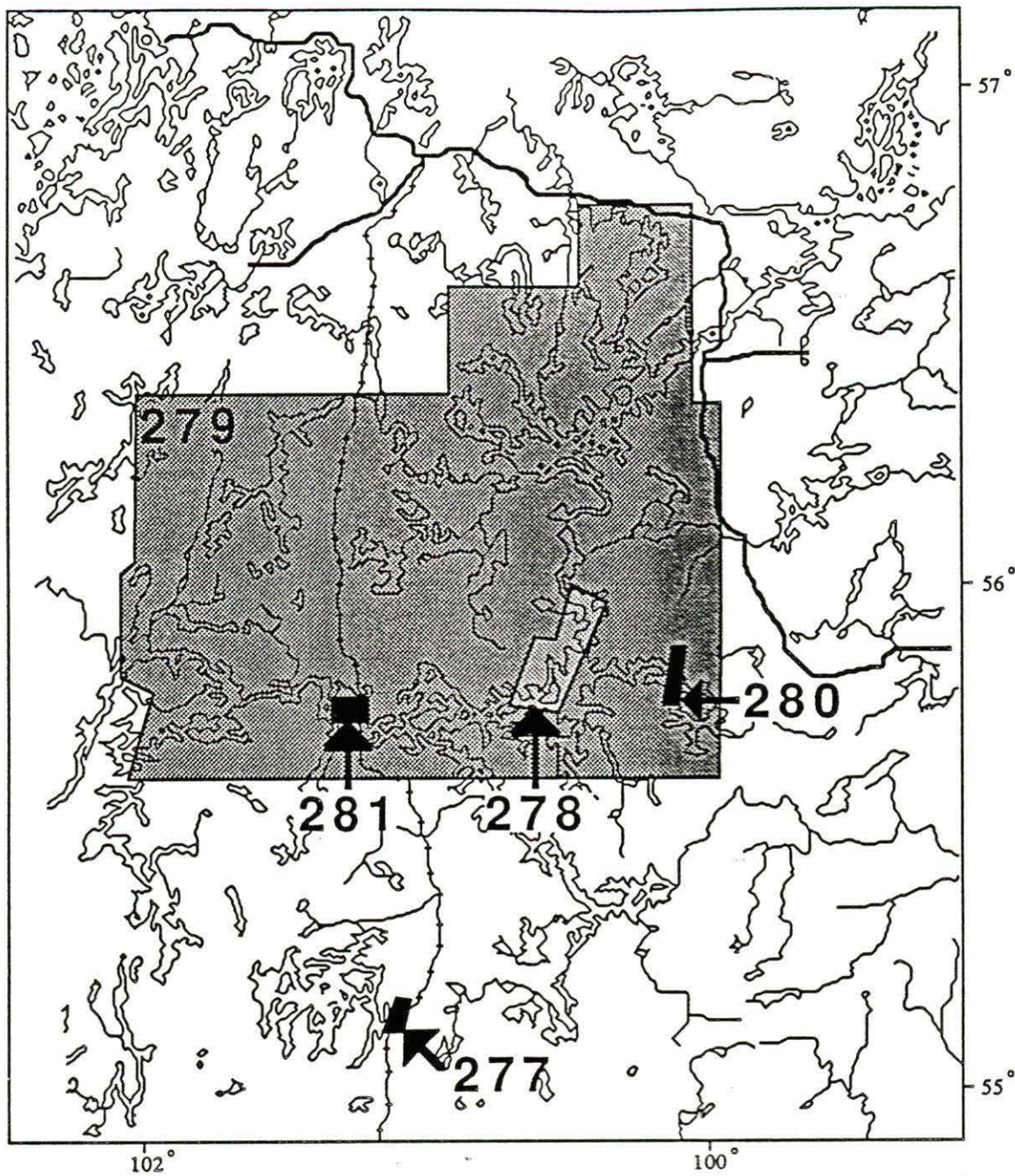
Block	Type	Scale	Altitude	Format	Date
273	BW	Various	NA	9X9	1928-45
274	BW	31600	17000	9X9	MAY-SEPT 47



## Upper Churchill



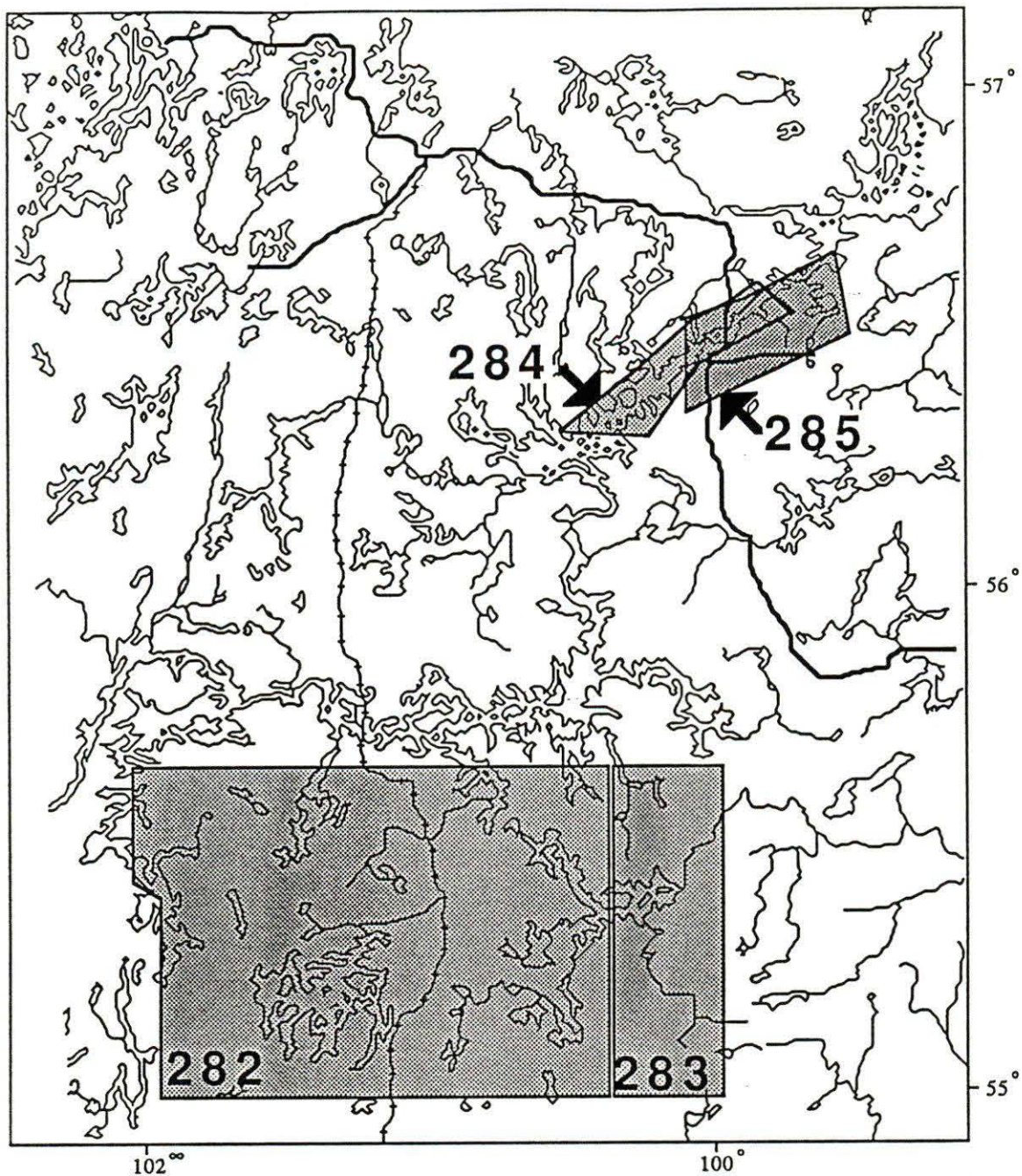
Block	Type	Scale	Altitude	Format	Date
275	BW	31680	16700	9X9	JULY-SEPT 52
276	BW	58000	30000	9X9	MAY 55-56



## Upper Churchill



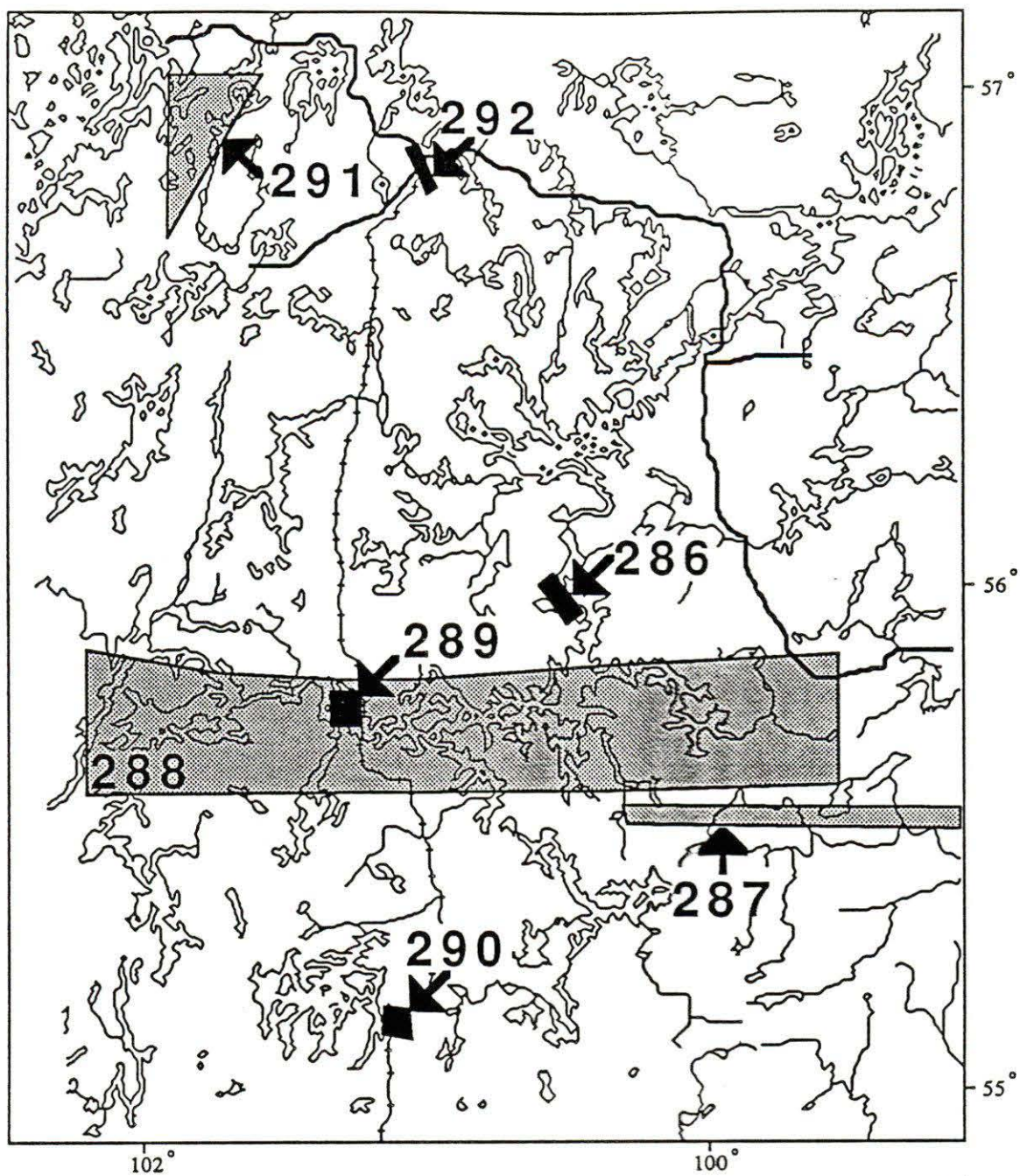
Block	Type	Scale	Altitude	Format	Date
277	BW	6000&12000	Various	9X9	SEPT 69
278	BW	12000	6900	9X9	SEPT 69
279	BW	16000	~9000	9X9	JUL-SEPT 69
280	BW	~16000	8920	9X9	OCT 70
281	BW	12000	6900	9X9	MAR 67



## Upper Churchill



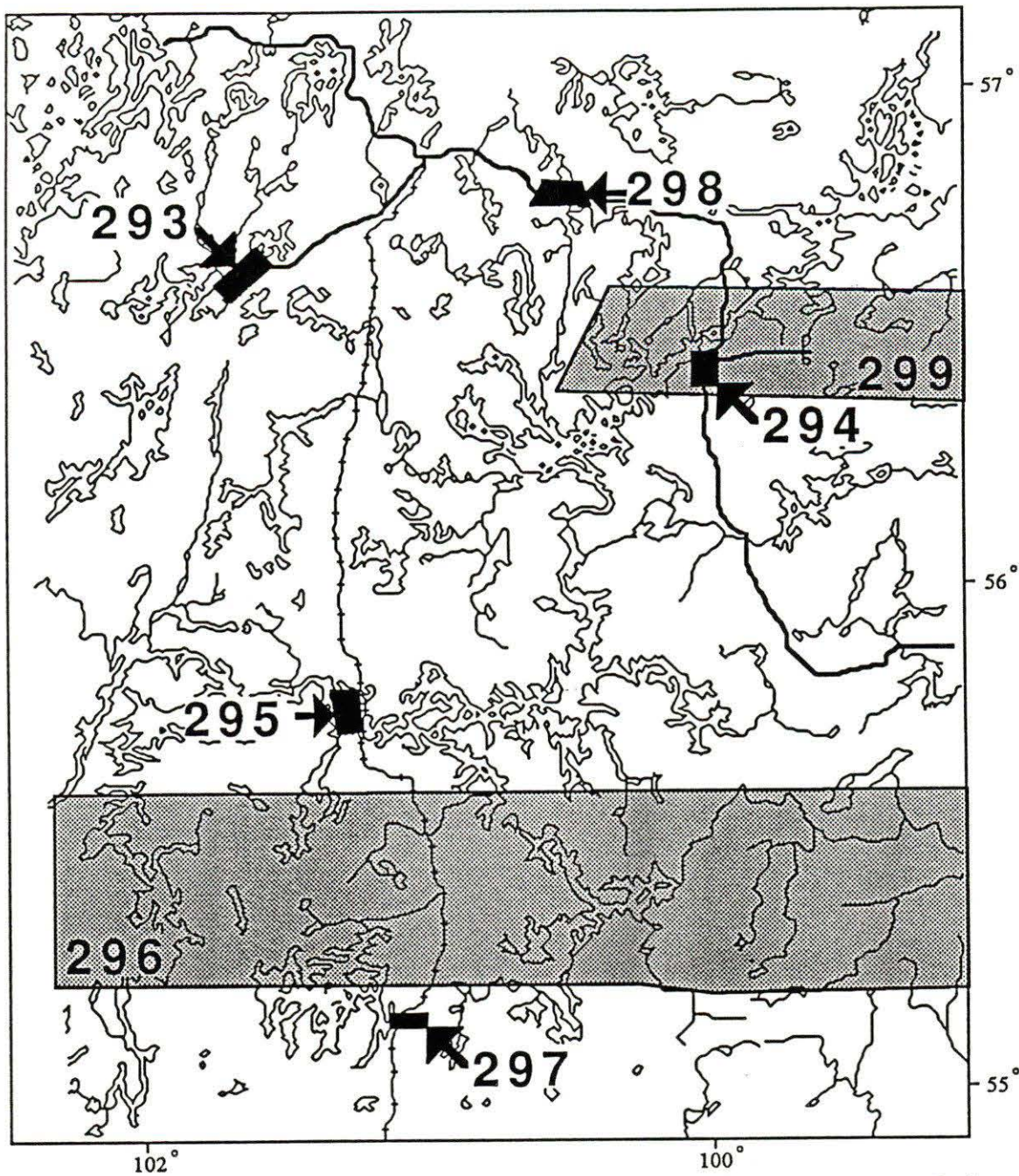
Block	Type	Scale	Altitude	Format	Date
282	BW	~16000	9200	9X9	JUL 68
283	BW	~16000	8700	9X9	SEPT 70
284	BW	16000	8870	9X9	JUL 69
285	BW	12000	7000	9X9	OCT 69



## Upper Churchill



Block	Type	Scale	Altitude	Format	Date
286	BW	18000	10000	9X9	JUN 71
287	BW	18000	10000	9X9	JUN 71
288	CLR	120000	36000	9X9	JUN 72
289	BW	6000	4000	9X9	MAY 73
290	BW	6000	3000 AGL	9X9	JUN 77
291	BW	24000	Various	9X9	MAY 73
292	BW	15840	7920 AGL	9X9	JUL 71

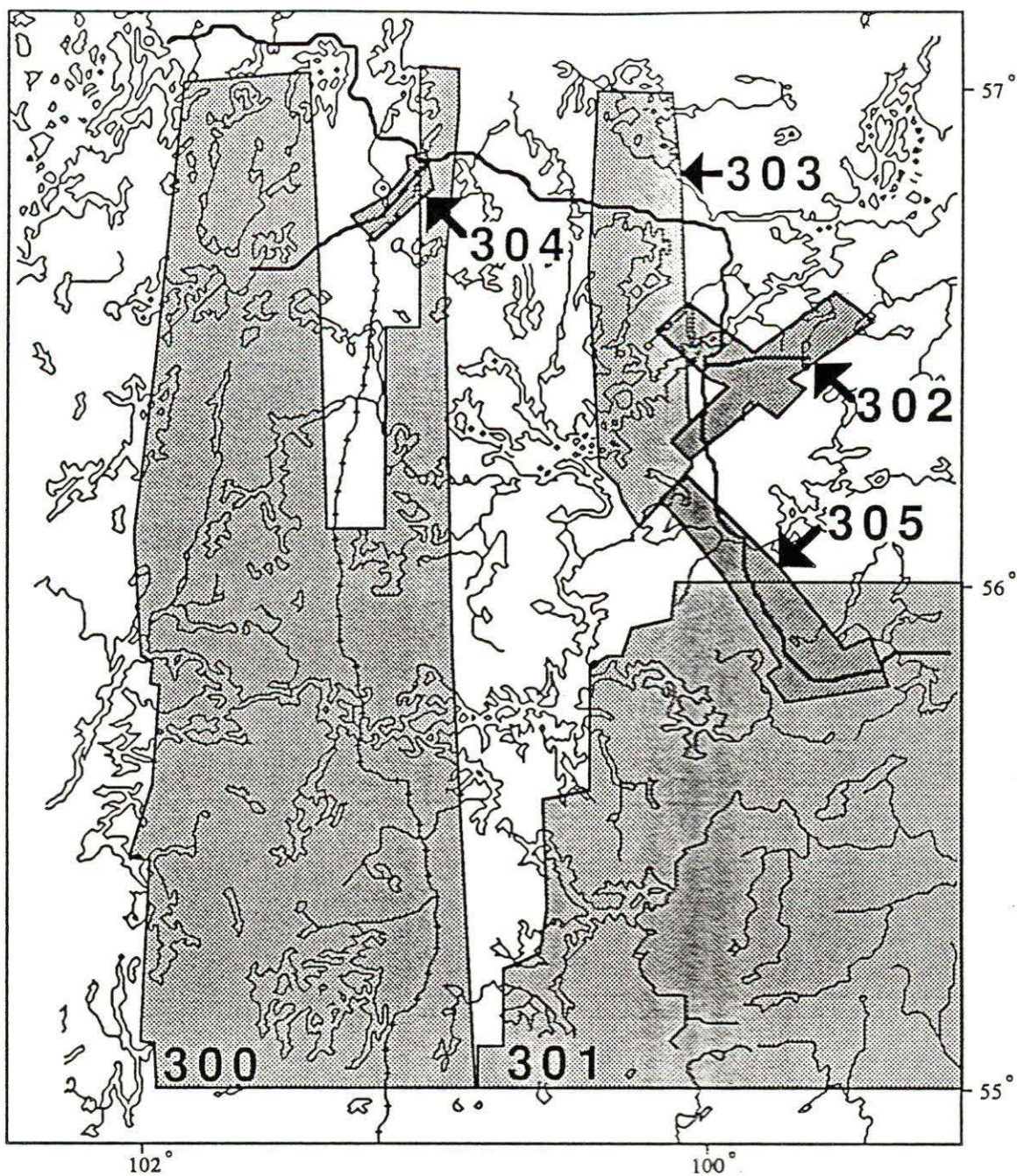


### Upper Churchill



Block	Type	Scale	Altitude	Format	Date
293	BW	15840	7920 AGL	9X9	JUL 71
294	BW	6000	3900	9X9	OCT 71
295	BW	12000	6900	9X9	JUN 73
296	CLR	120000	35000	9X9	MAY 73
297	BW	6000	4100	9X9	MAY 73
298	BW	12000	6000 AGL	9X9	MAY 72
299	CLR	123400	37000	9X9	MAY 73

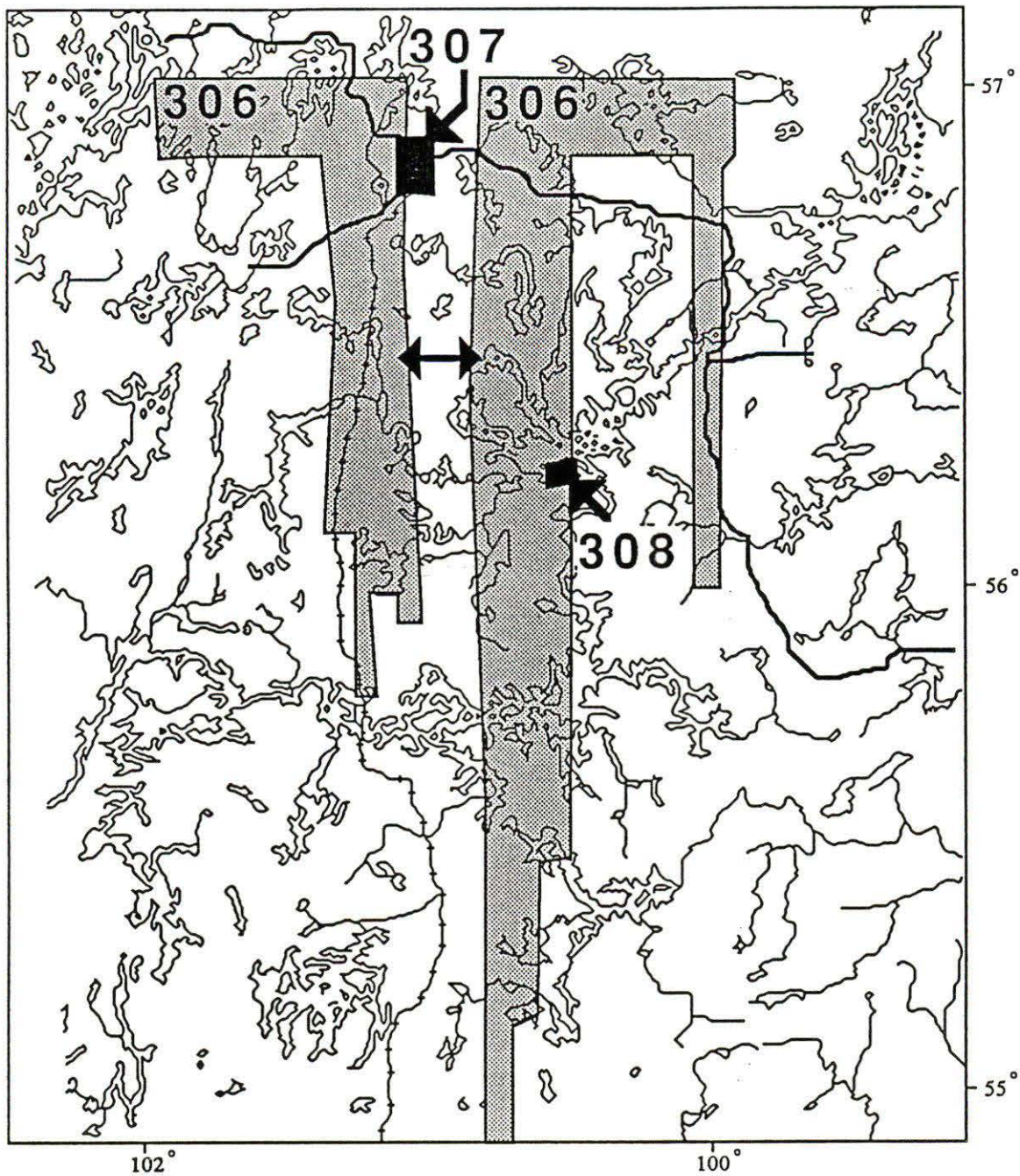




## Upper Churchill



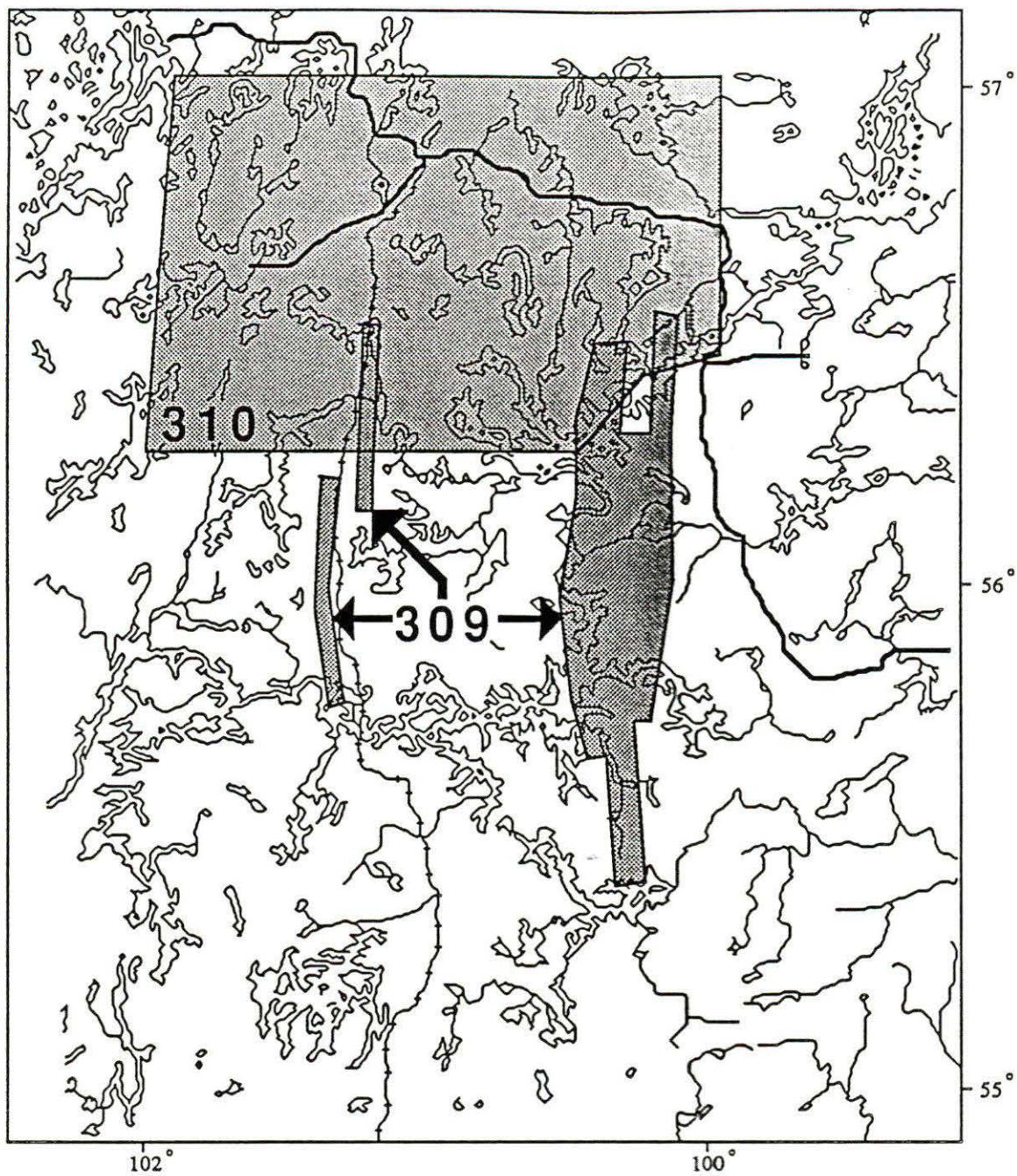
Block	Type	Scale	Altitude	Format	Date
300	BW	50000	26000	9X9	JUN-JUL 77
301	BW	50000	26000	9X9	AUG-SEPT 79
302	CLR	44600	14000	9X9	JUN 73
303	BW	50000	26000	9X9	SEPT 77
304	BW	3840	NA	70 mm	JUN 71
305	CLR	44600	14000	9X9	JUN 73



## Upper Churchill



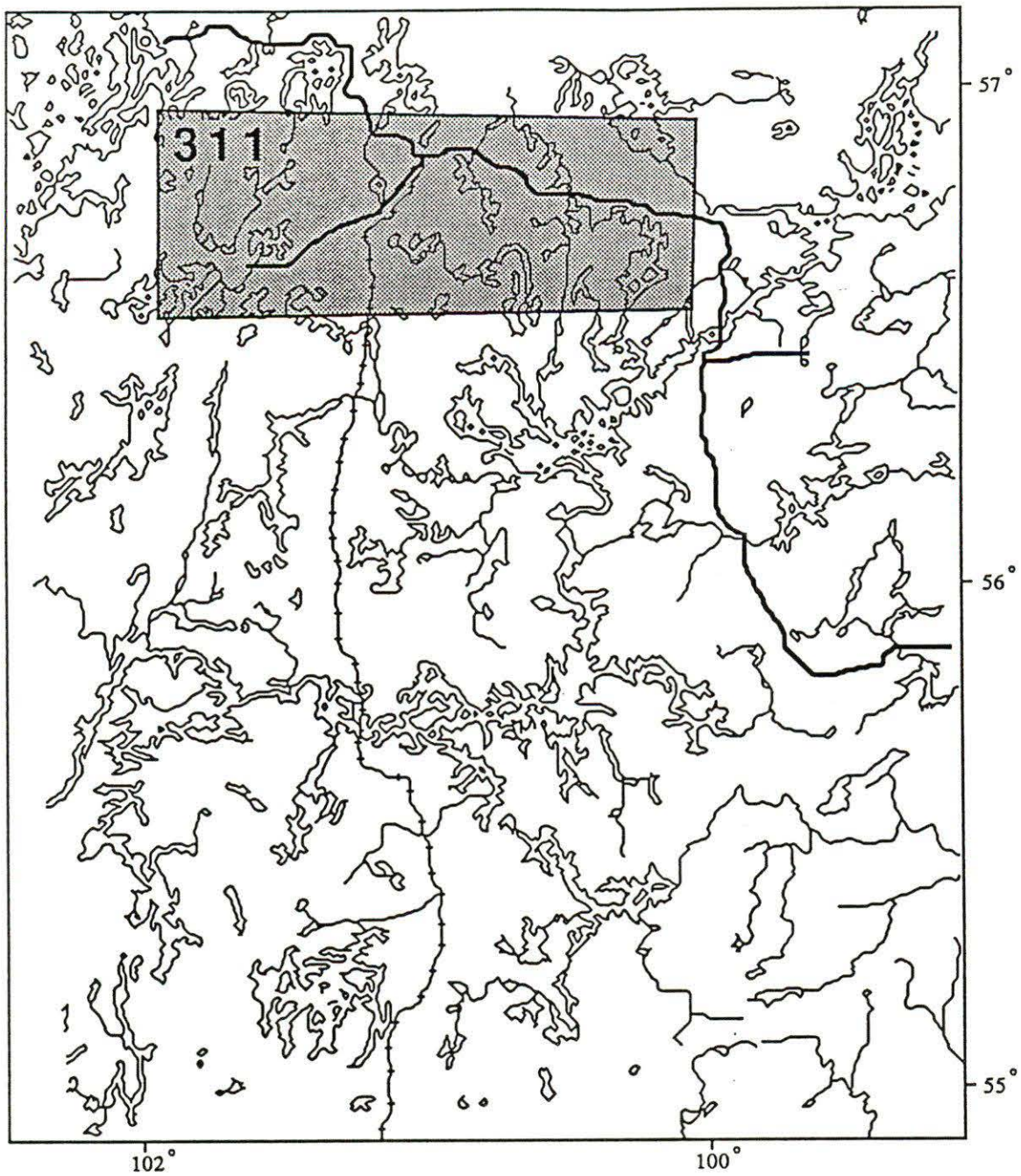
Block	Type	Scale	Altitude	Format	Date
306	BW	50000	26000	9X9	1978-79
307	BW	6000	3000 AGL	9X9	JUN 75
308	BW	6000	3000 AGL	9X9	1973, 74



## Upper Churchill



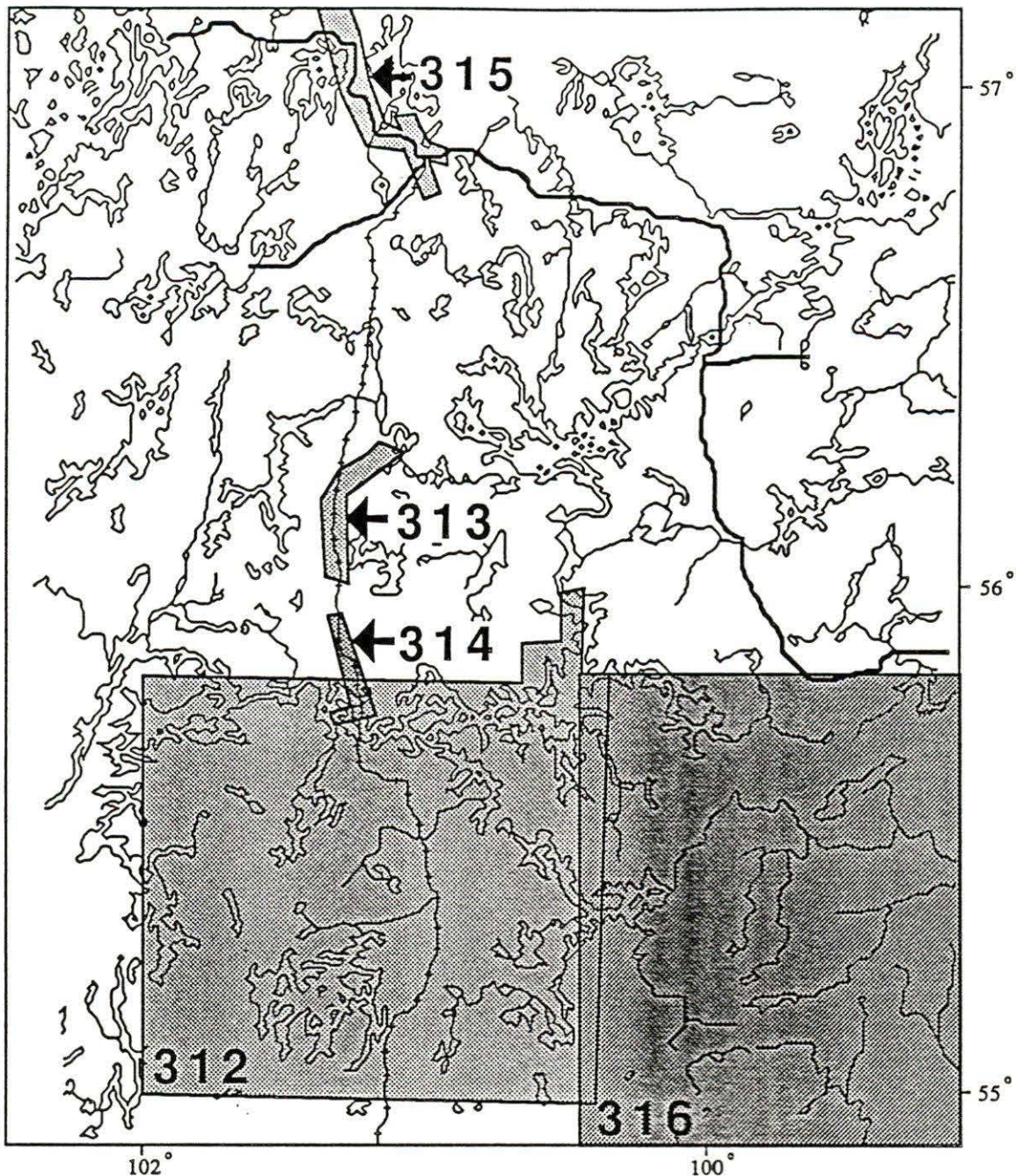
Block	Type	Scale	Altitude	Format	Date
309	BW	50000	26000	9X9	JUN 80
310	BW	30000	15000 AGL	9X9	SEPT 75



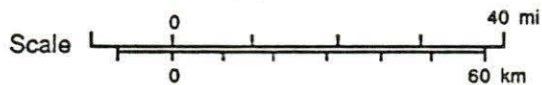
## Upper Churchill



Block	Type	Scale	Altitude	Format	Date
311	CLR IR	121037	36000	9X9	MAY 76

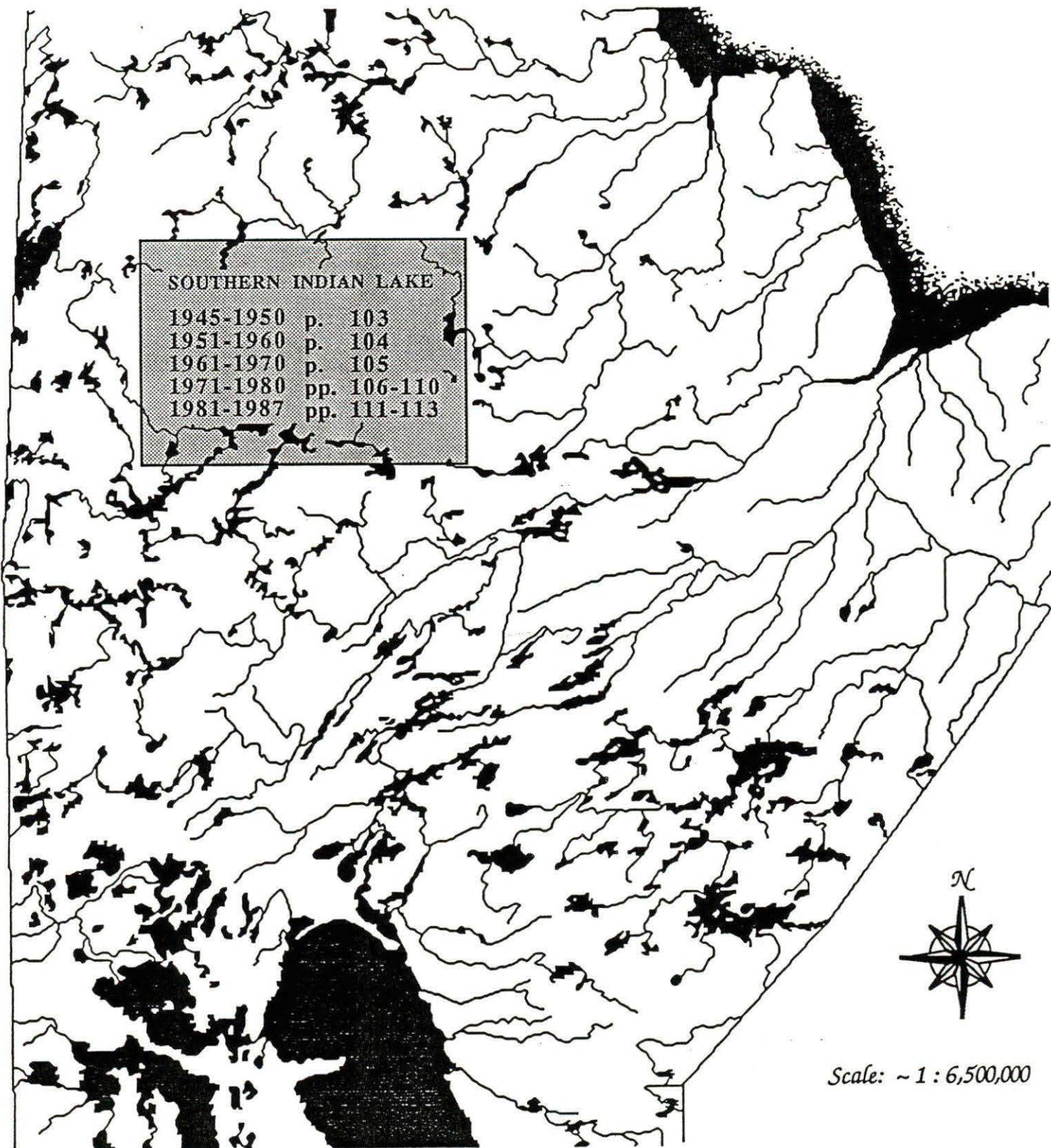


## Upper Churchill

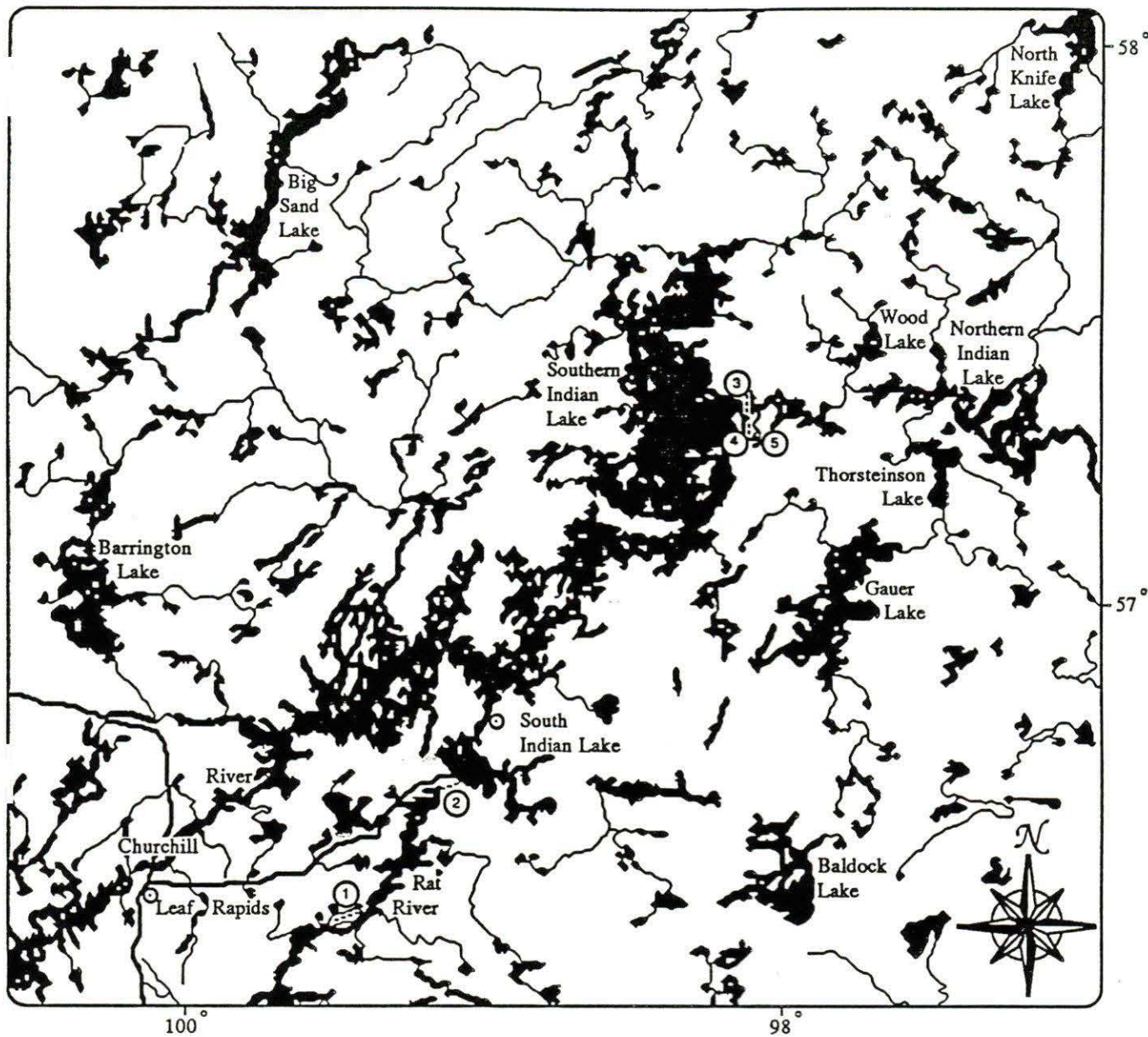


Block	Type	Scale	Altitude	Format	Date
312	BW	15840	9000	9X9	AUG 83
313	BW	12000	7000	9X9	JUN 84
314	BW	12000	7150	9X9	JUN 84
315	BW	20000	10100 AGL	9X9	MAY 85
316	BW	15840	7920 AGL	9X9	1987

# Aerial Photography Index Map: Southern Indian Lake



# Geographical Reference Map: Southern Indian Lake



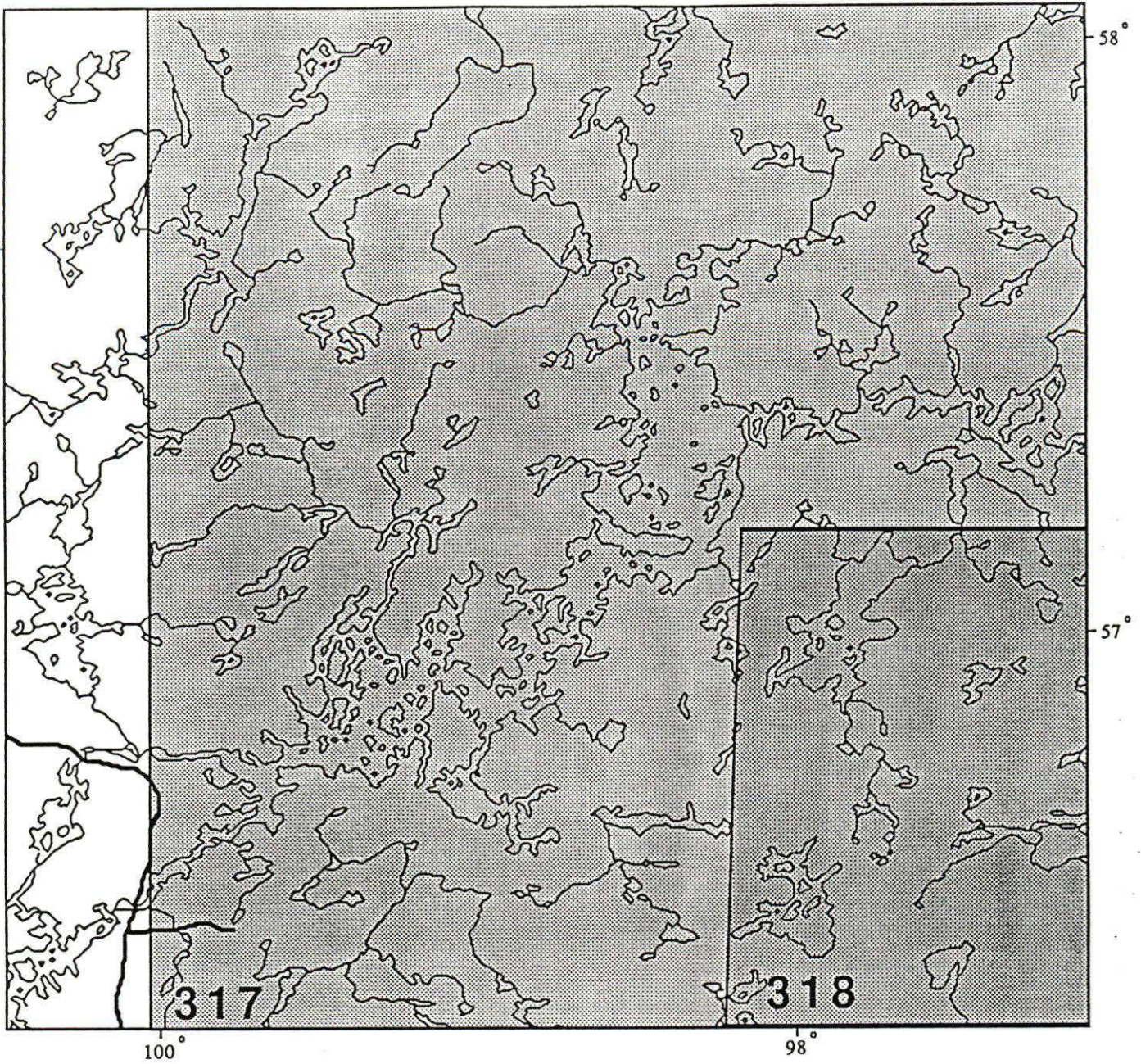
## LEGEND



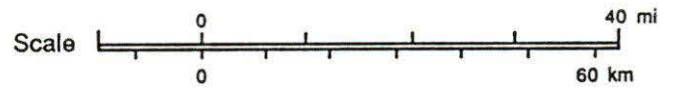
- ① Karsakuwigamak Bypass Channel
- ② South Bay Channel
- ③ Missi Falls North Channel

- ④ Missi Falls South Channel
- ⑤ Missi Falls Control Structure

- roads
- towns
- channels
- ▲ control structures

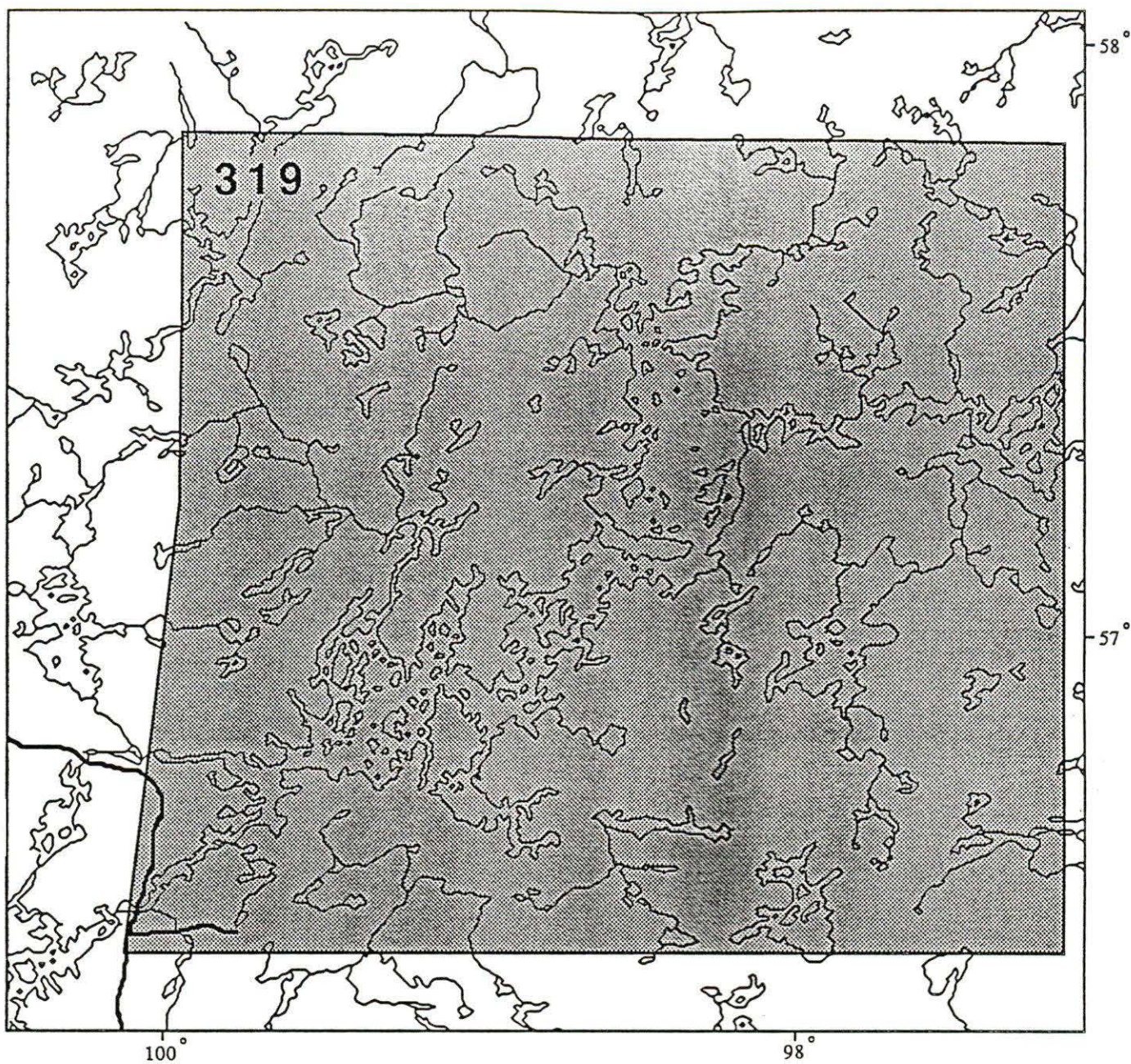


**Southern Indian Lake**  
(pre 1978 base map)



Block	Type	Scale	Altitude	Format	Date
317	BW	39000	20000	9X9	1946-47
318	BW	36000	19000	9X9	1950-51

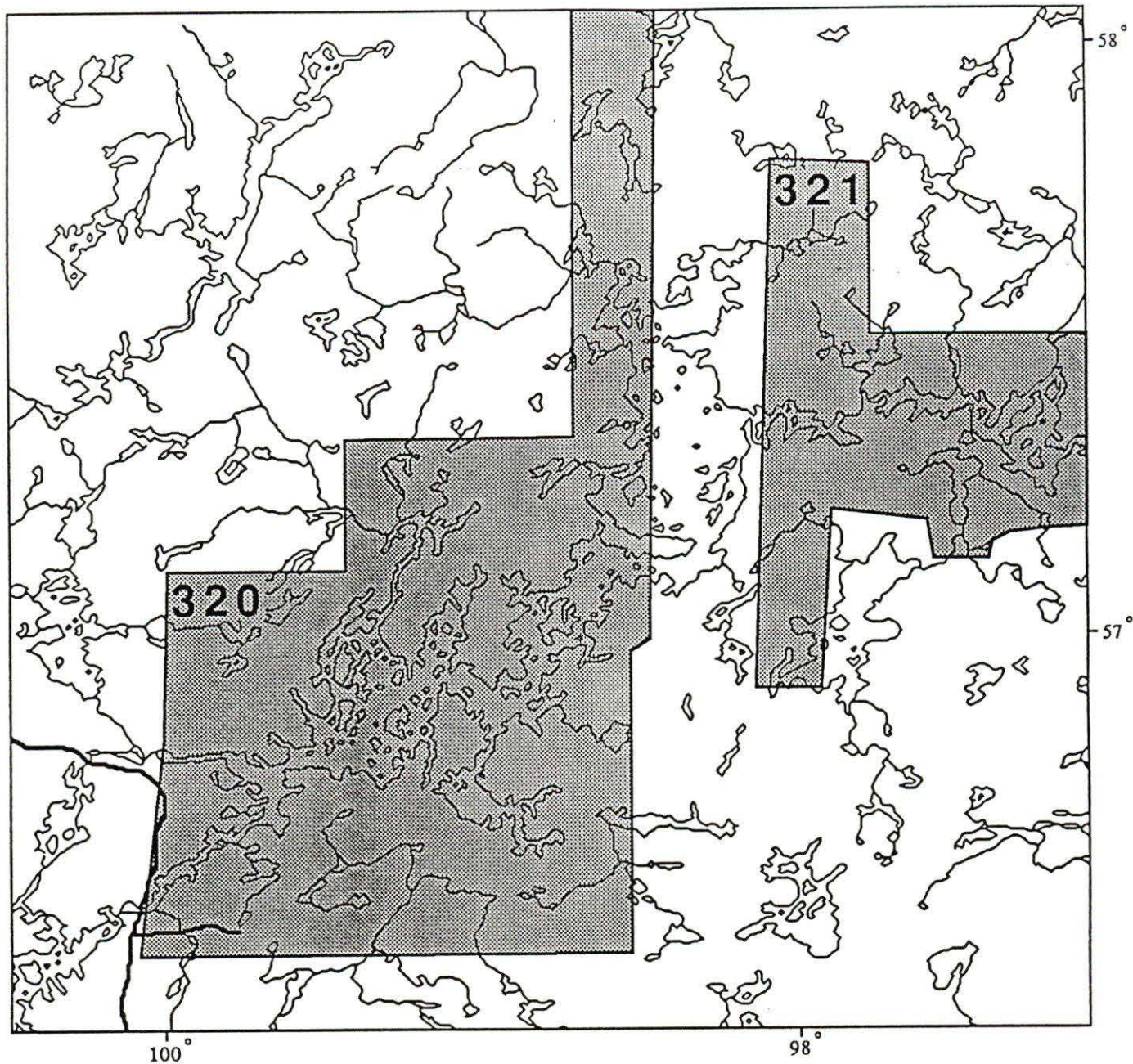




**Southern Indian Lake**  
(pre 1978 base map)



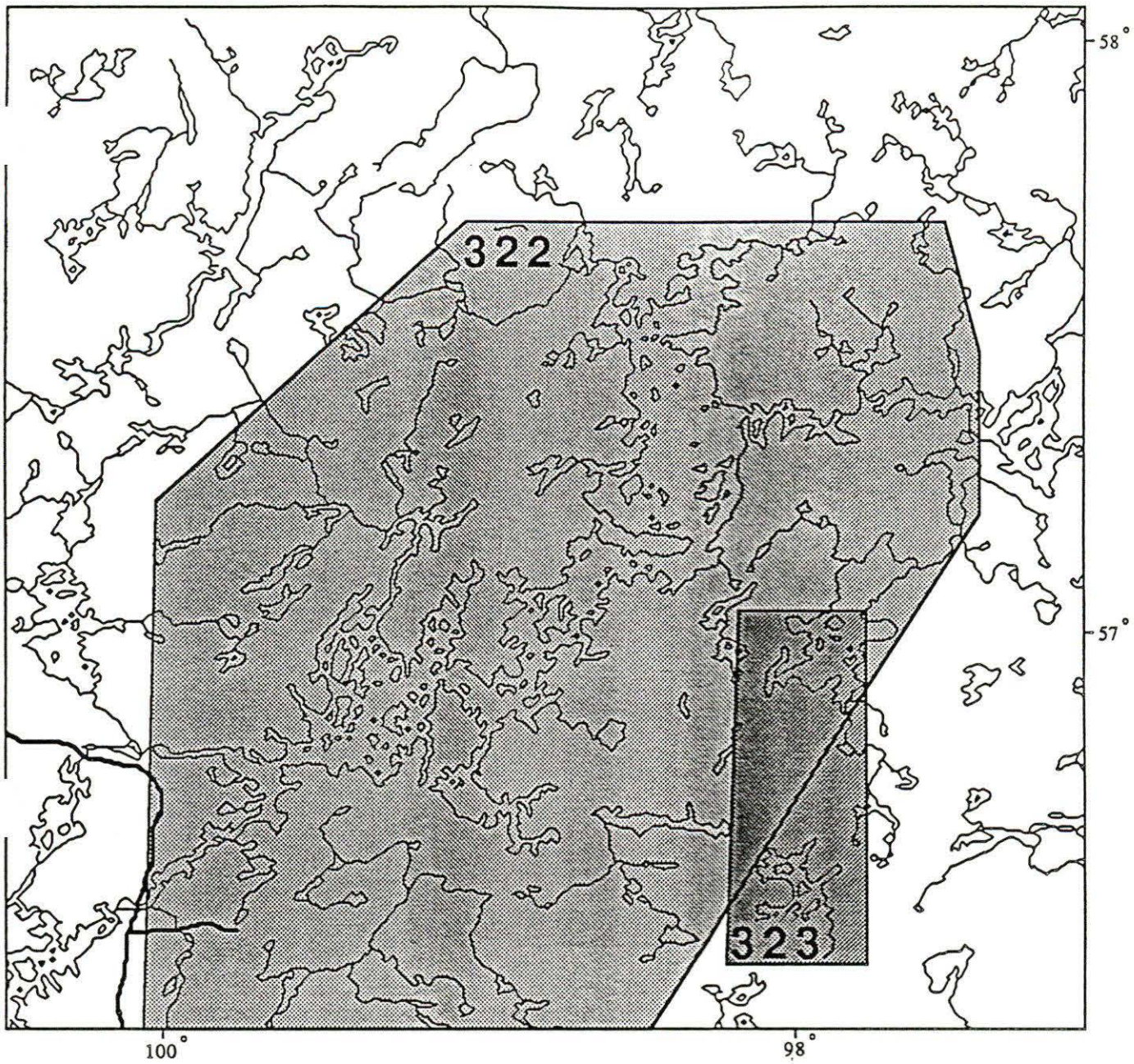
Block	Type	Scale	Altitude	Format	Date
319	BW	58000	30000	9X9	1954-56



**Southern Indian Lake**  
(pre 1978 base map)



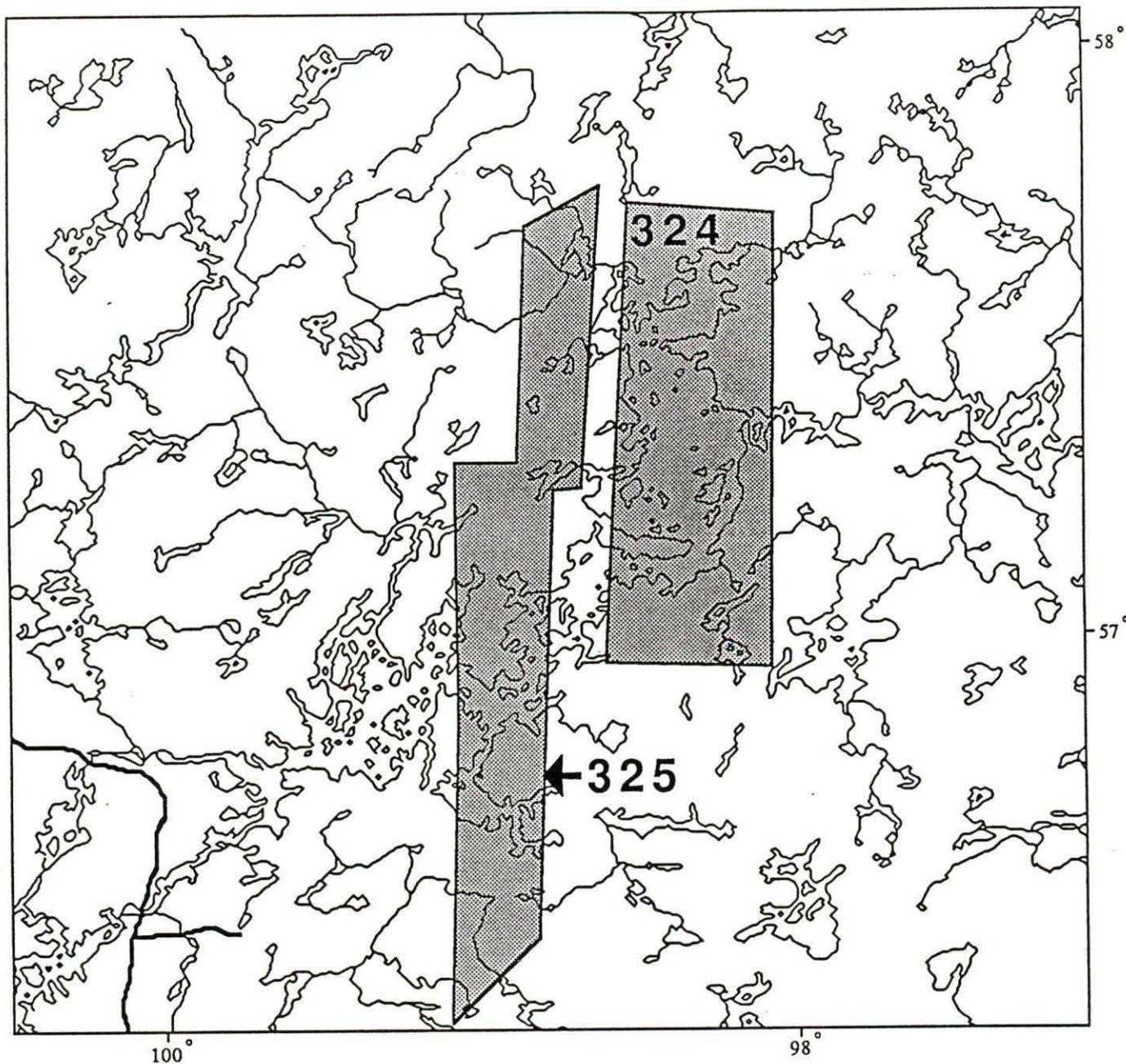
Block	Type	Scale	Altitude	Format	Date
320	BW	32000	16840	9X9	AUG 69
321	BW	31000	16740	9X9	AUG 69



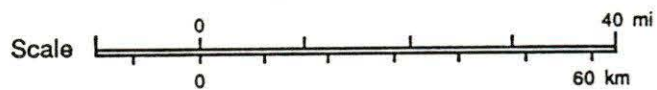
**Southern Indian Lake**  
(pre 1978 base map)



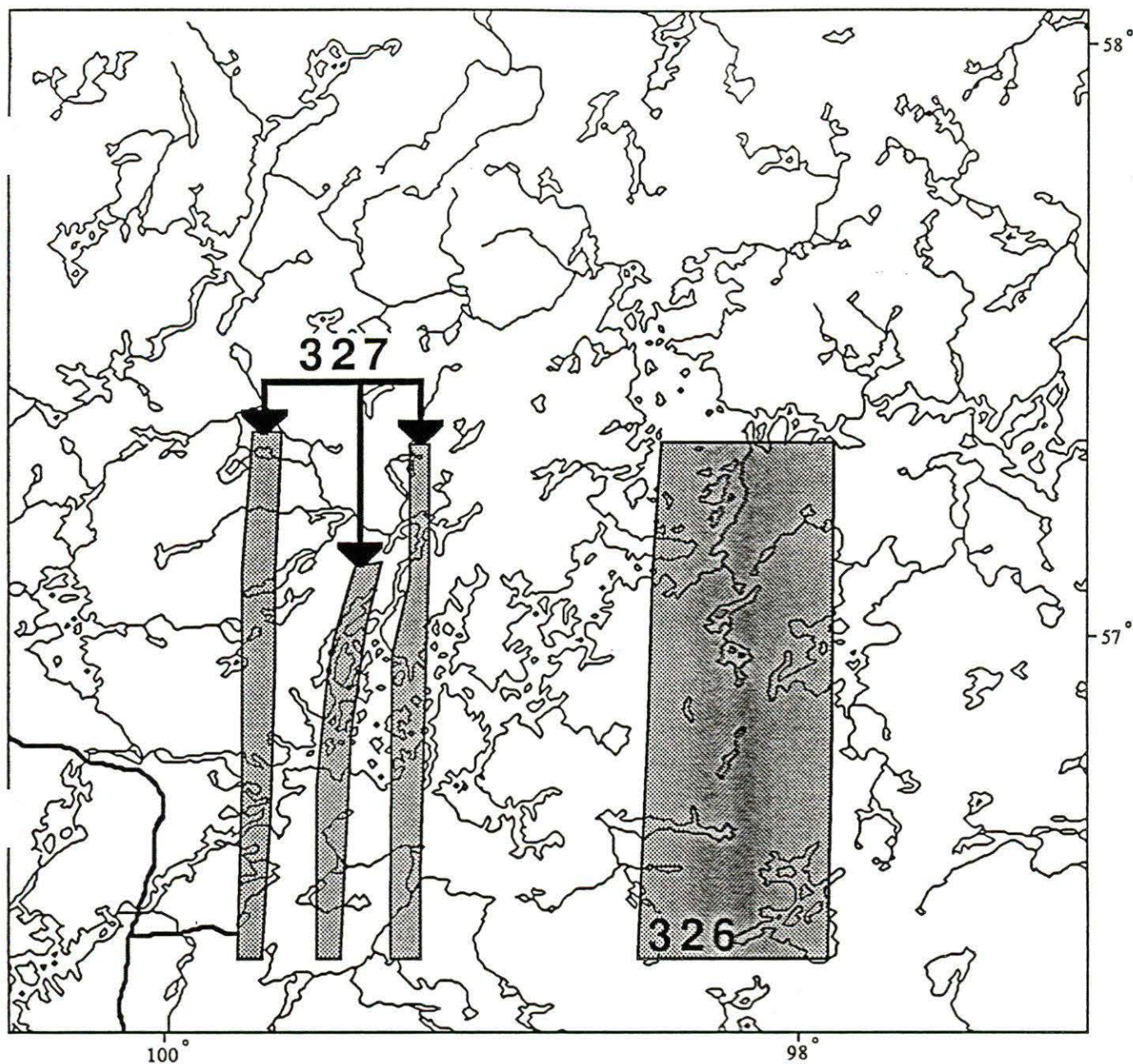
Block	Type	Scale	Altitude	Format	Date
322	CLR IR	116600	35000	9X9	SEPT 73
323	BW	32000	16850	9X9	AUG 74



**Southern Indian Lake**  
(pre 1978 base map)



Block	Type	Scale	Altitude	Format	Date
324	BW	31700	16840	9X9	JUL,OCT 71
325	BW	31700	16840	9X9	JUL,OCT 71



**Southern Indian Lake**  
(pre 1978 base map)



Block	Type	Scale	Altitude	Format	Date
326	BW	50000	26000	9X9	JUL 77
327	BW	50000	26000	9X9	JUL 77

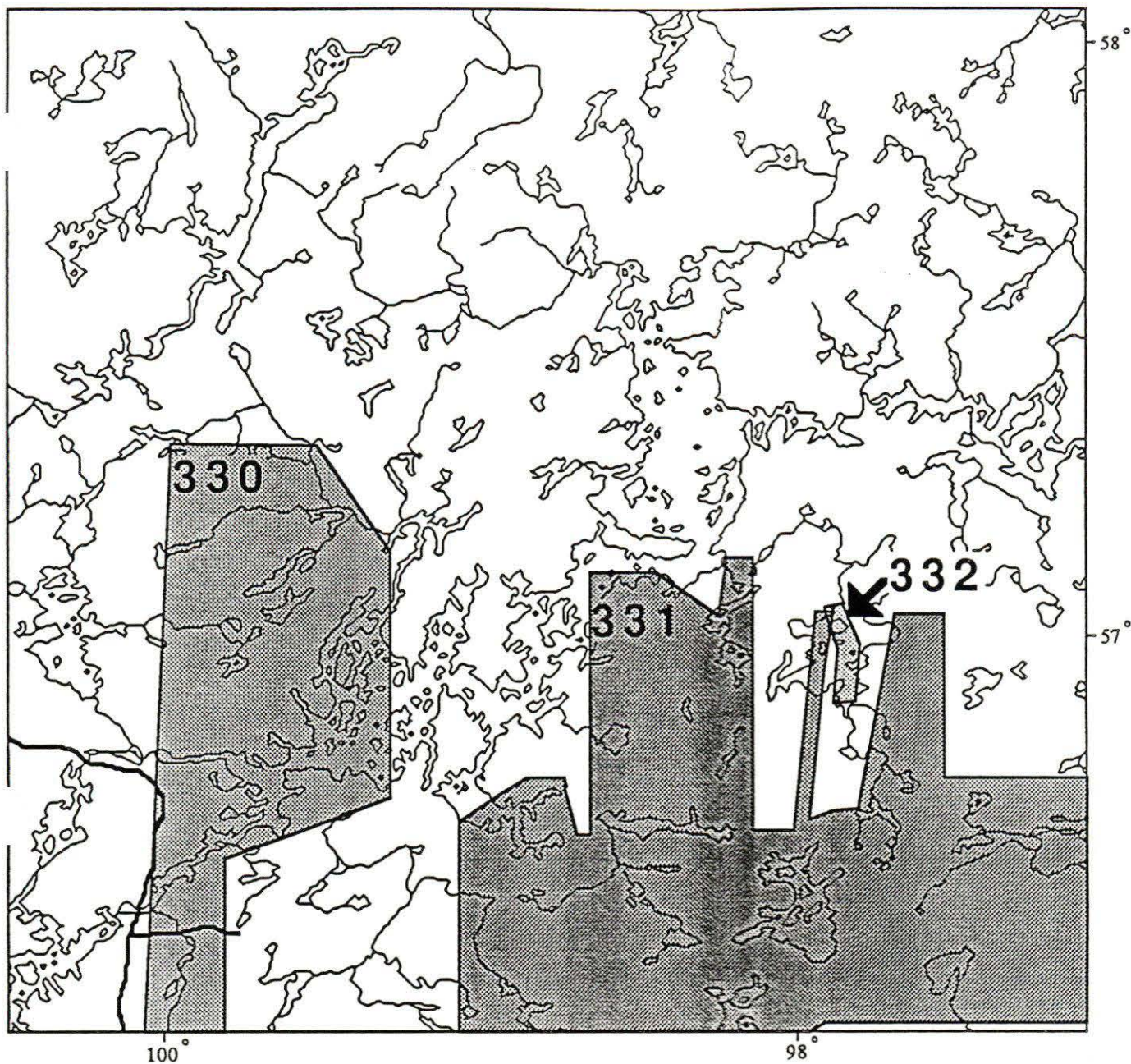


### Southern Indian Lake

(pre 1978 base map)



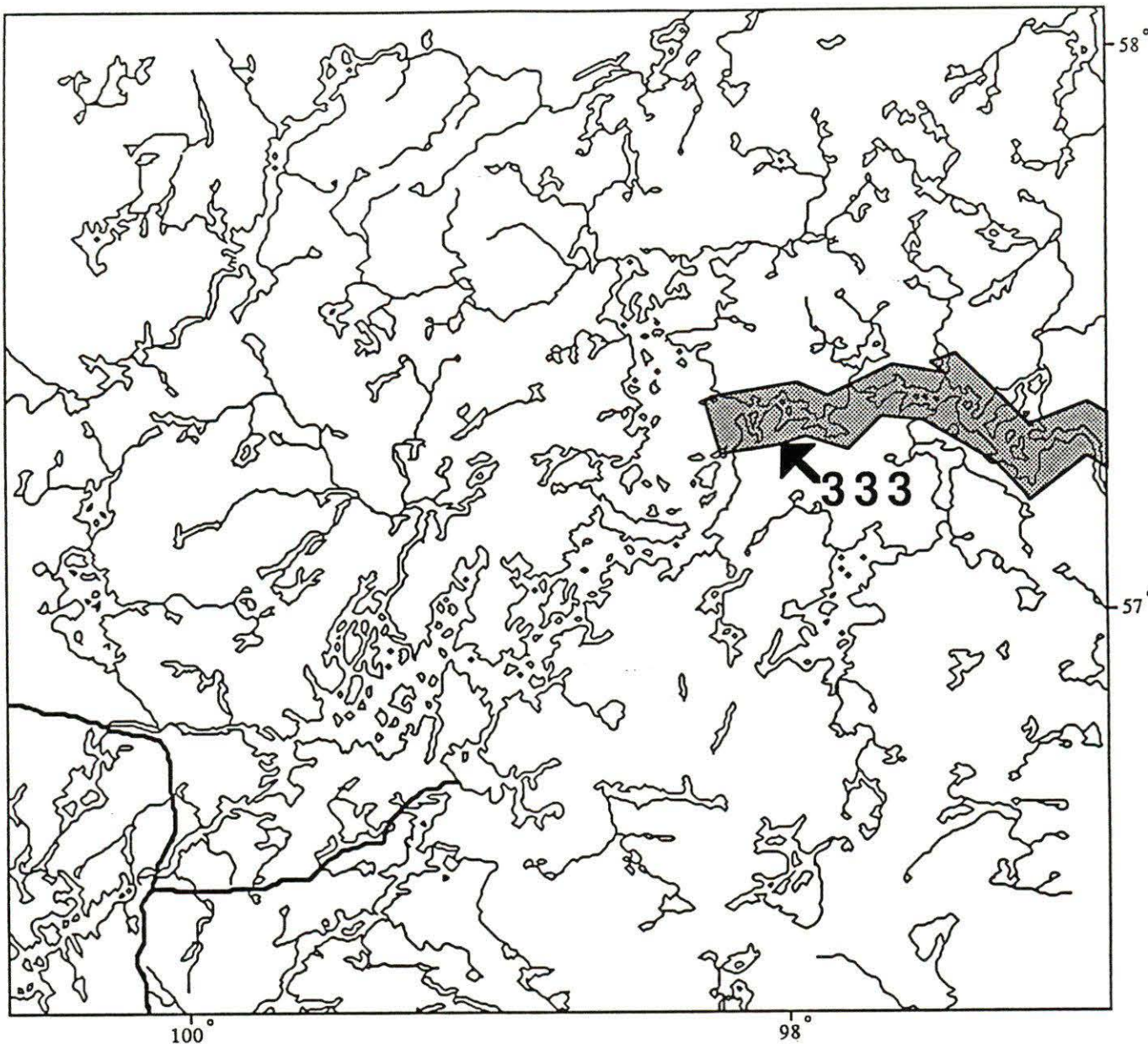
Block	Type	Scale	Altitude	Format	Date
328	BW	50000	26000	9X9	JUN 78
329	BW	50000	26000	9X9	JUN 78



**Southern Indian Lake**  
(pre 1978 base map)



Block	Type	Scale	Altitude	Format	Date
330	BW	50000	26000	9X9	JUN 79
331	BW	31800	16850	9X9	JUL 75
332	BW	32800	1680	9X9	MAR 76

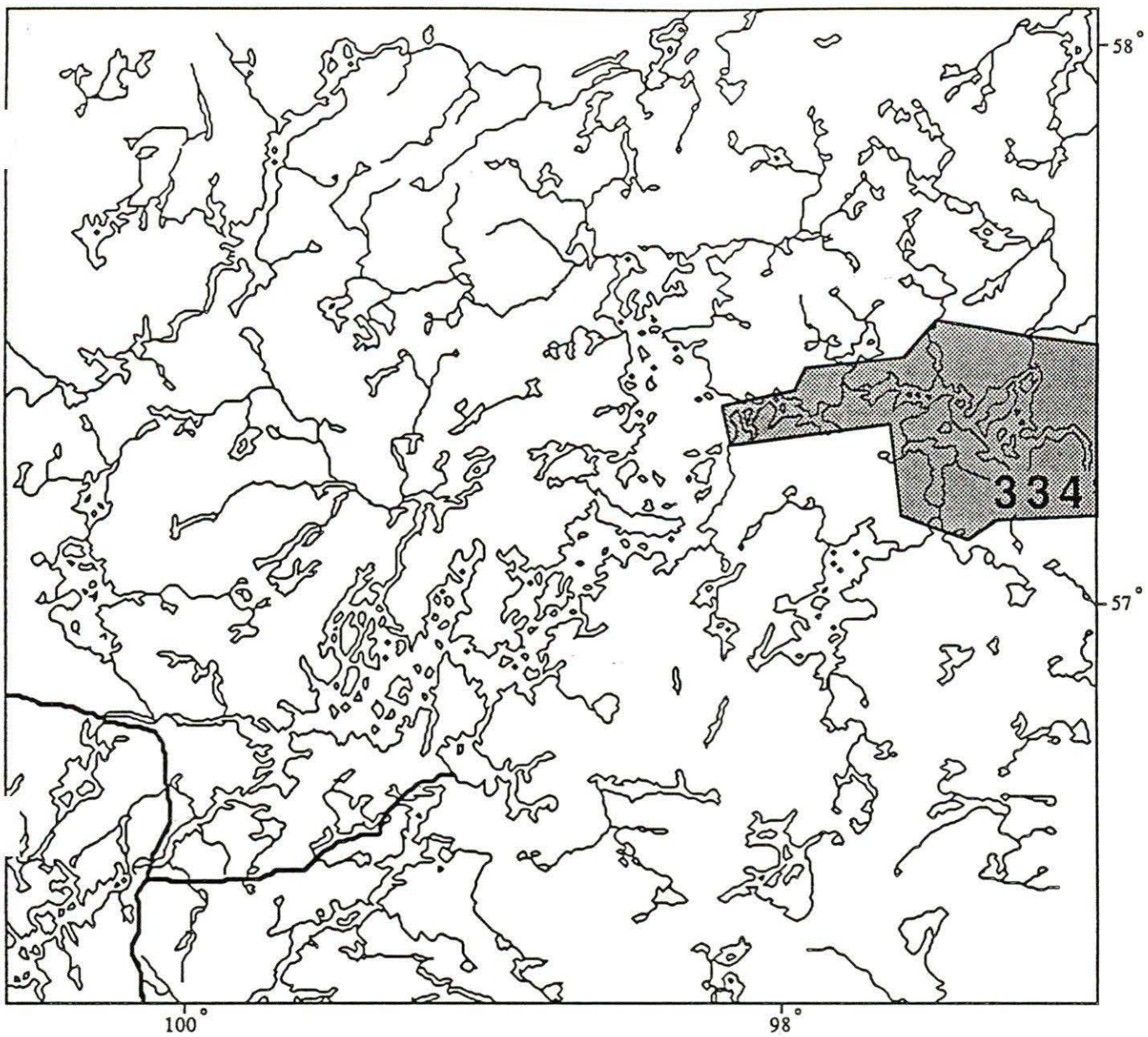


**Southern Indian Lake**  
(post 1978 base map)



Block	Type	Scale	Altitude	Format	Date
333	BW	12000	6800	9X9	SEPT 82

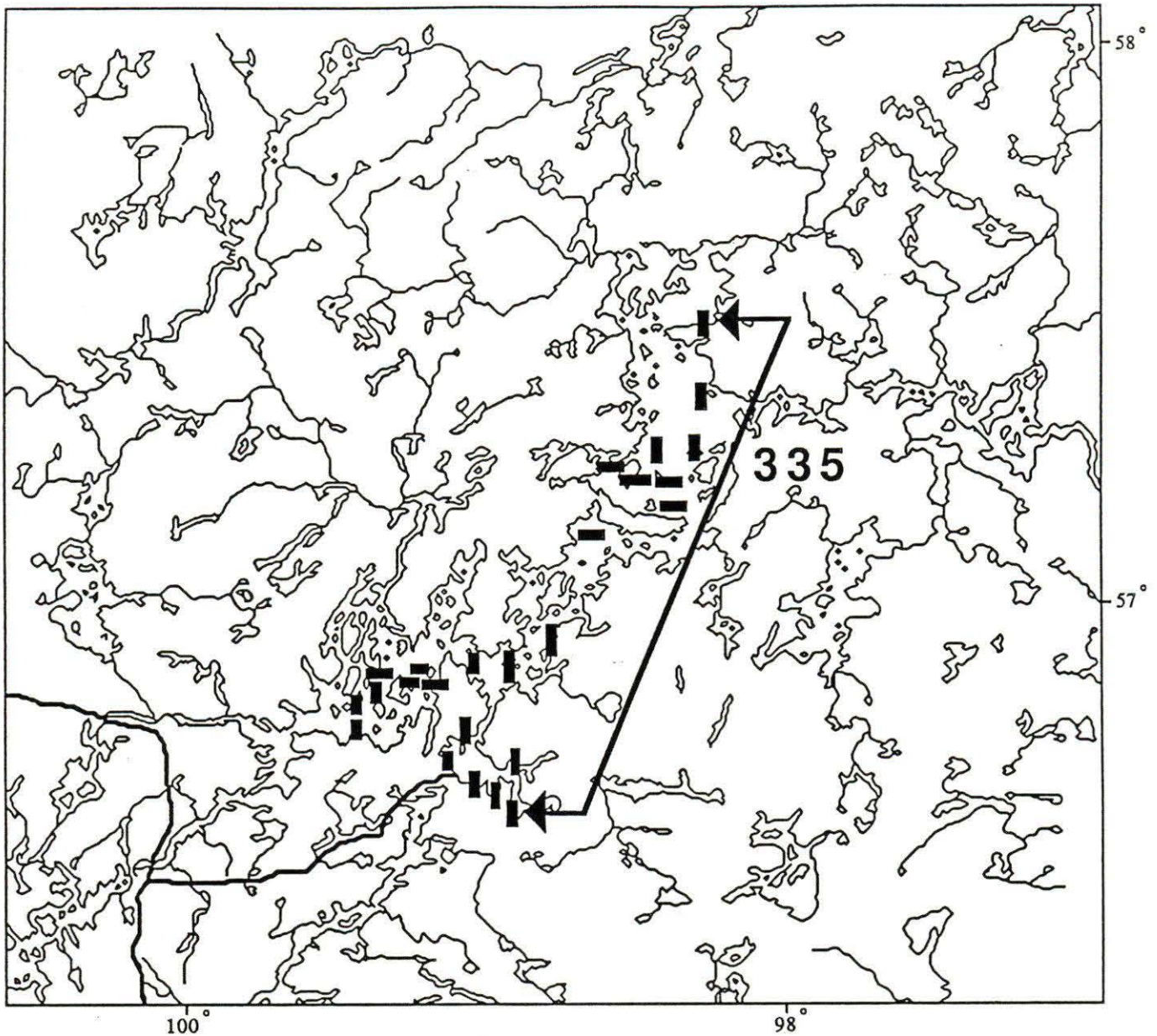




**Southern Indian Lake**  
(post 1978 base map)



Block	Type	Scale	Altitude	Format	Date
334	BW	50000	25900	9X9	SEPT 82



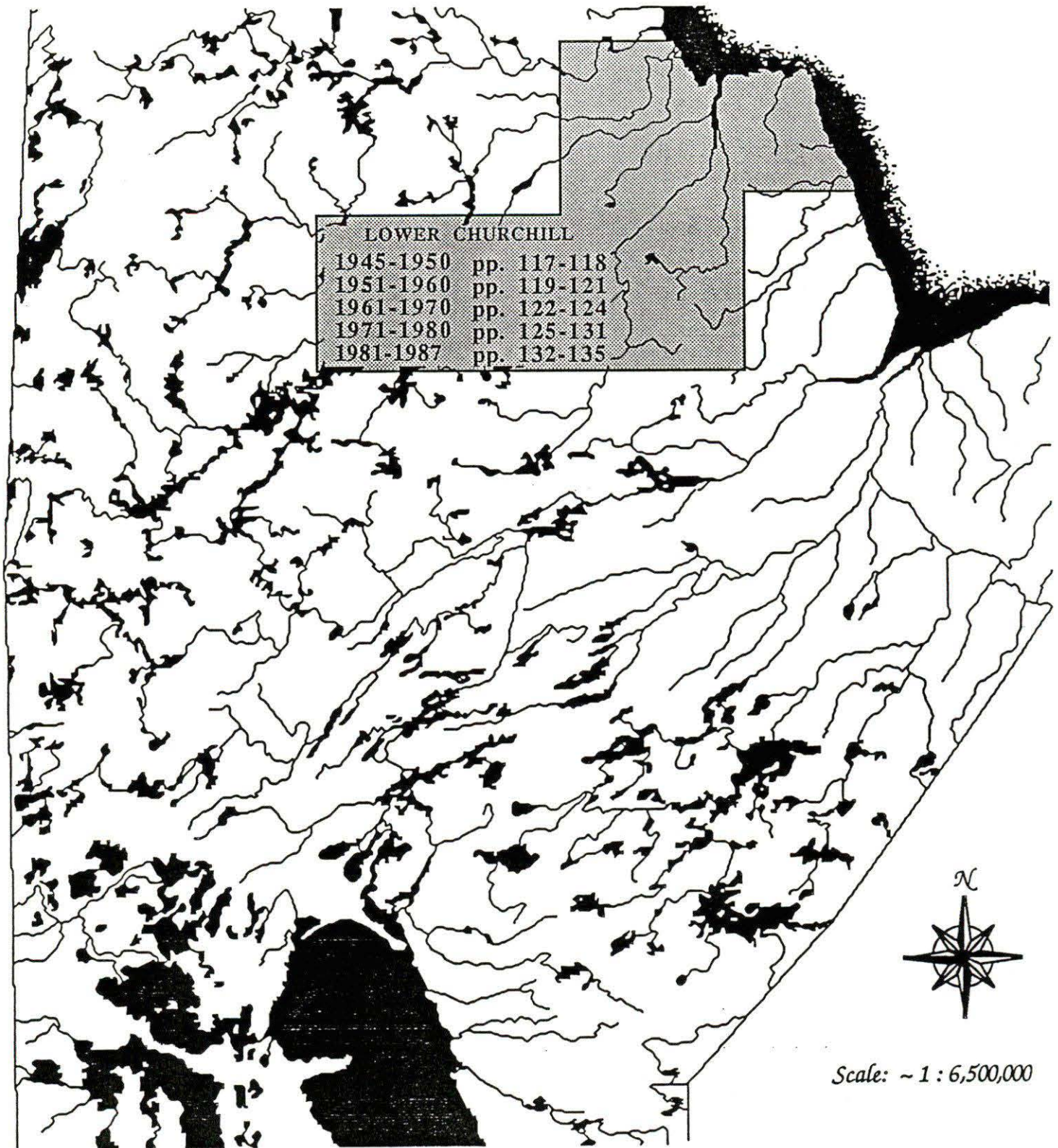
**Southern Indian Lake**  
(post 1978 base map)



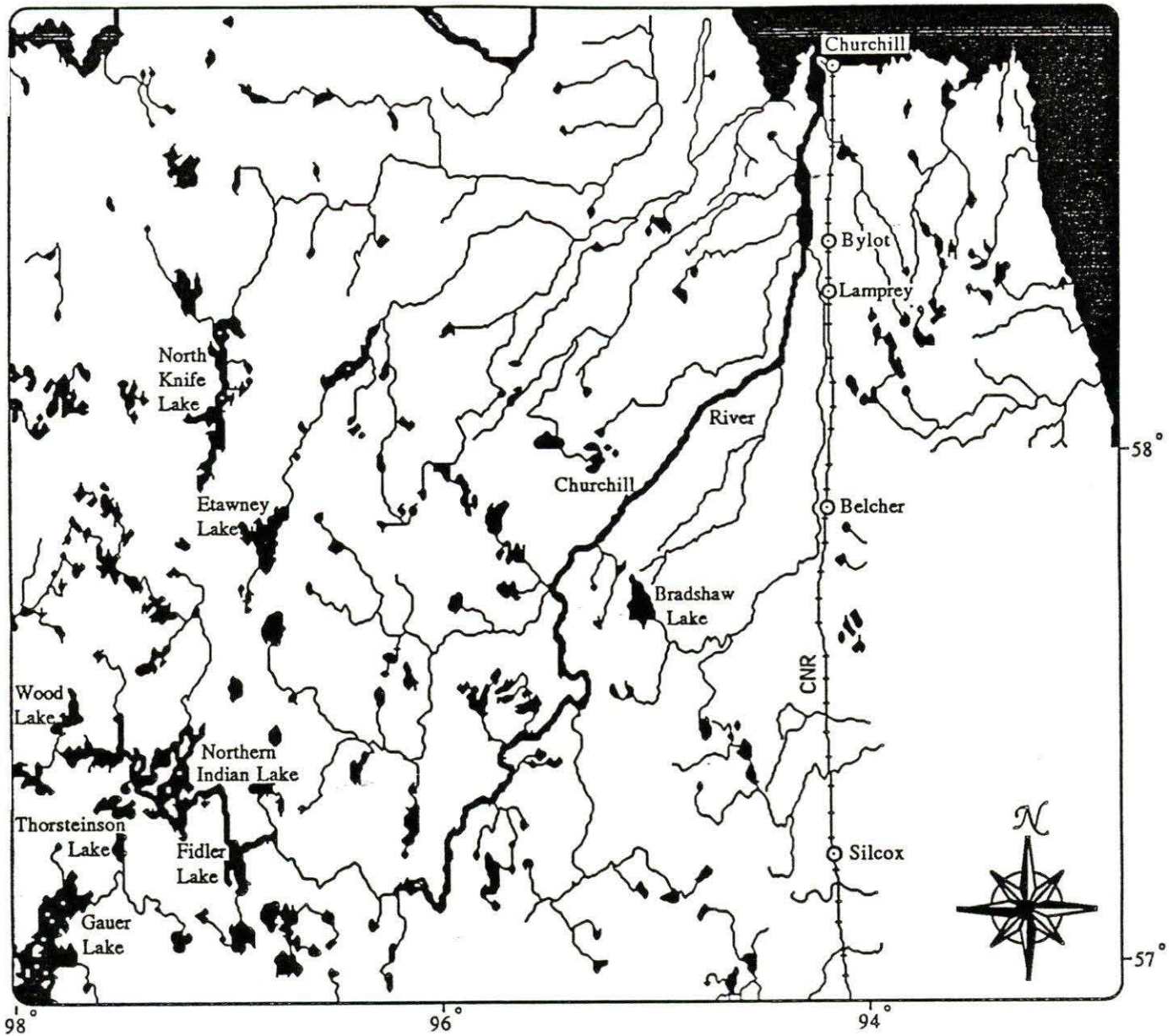
Block	Type	Scale	Altitude	Format	Date
335	BW	12000	6000 AGL	9X9	AUG 83

114

# Aerial Photography Index Map: Lower Churchill

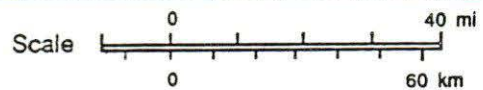


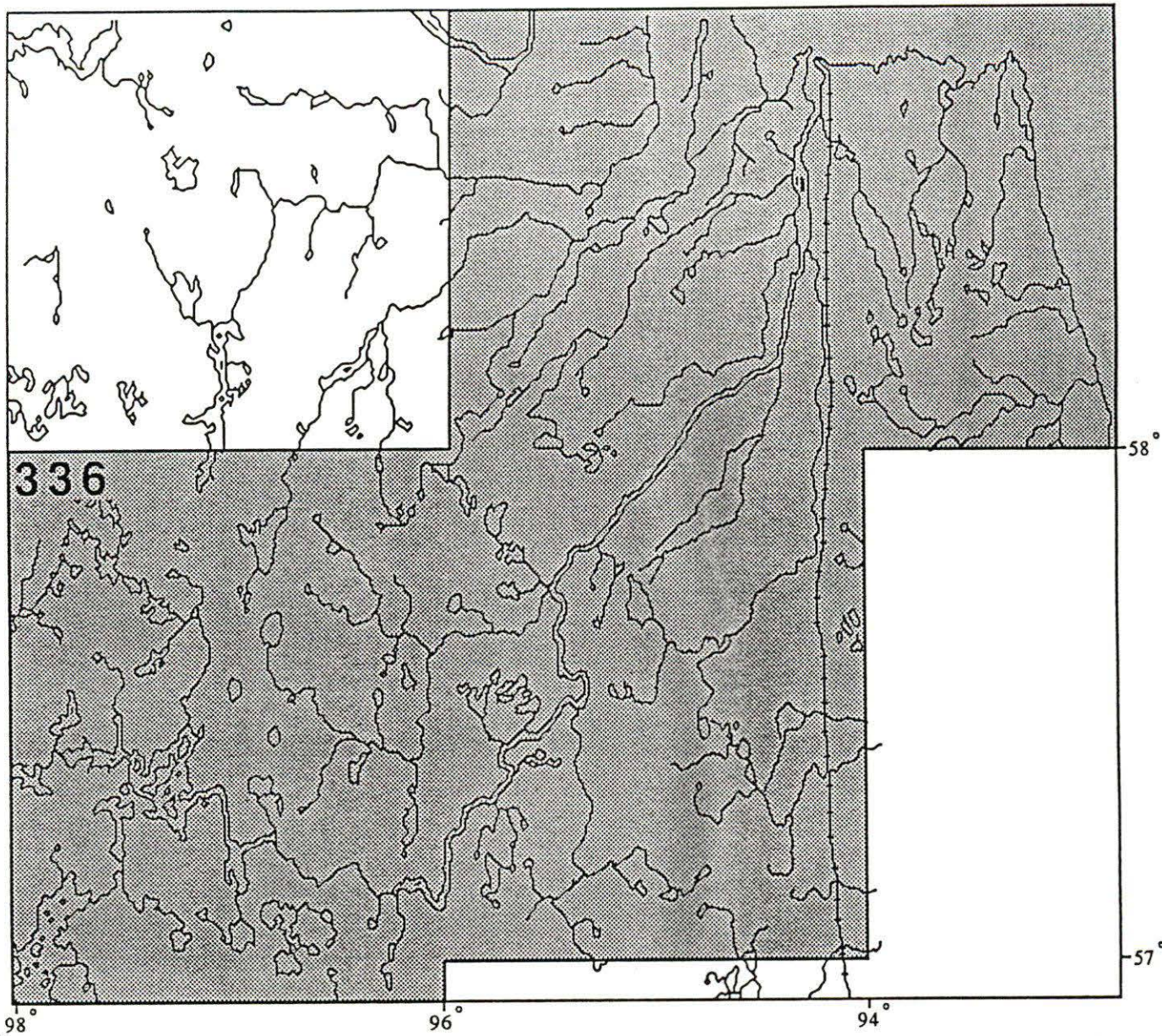
# Geographical Reference Map: Lower Churchill



## LEGEND

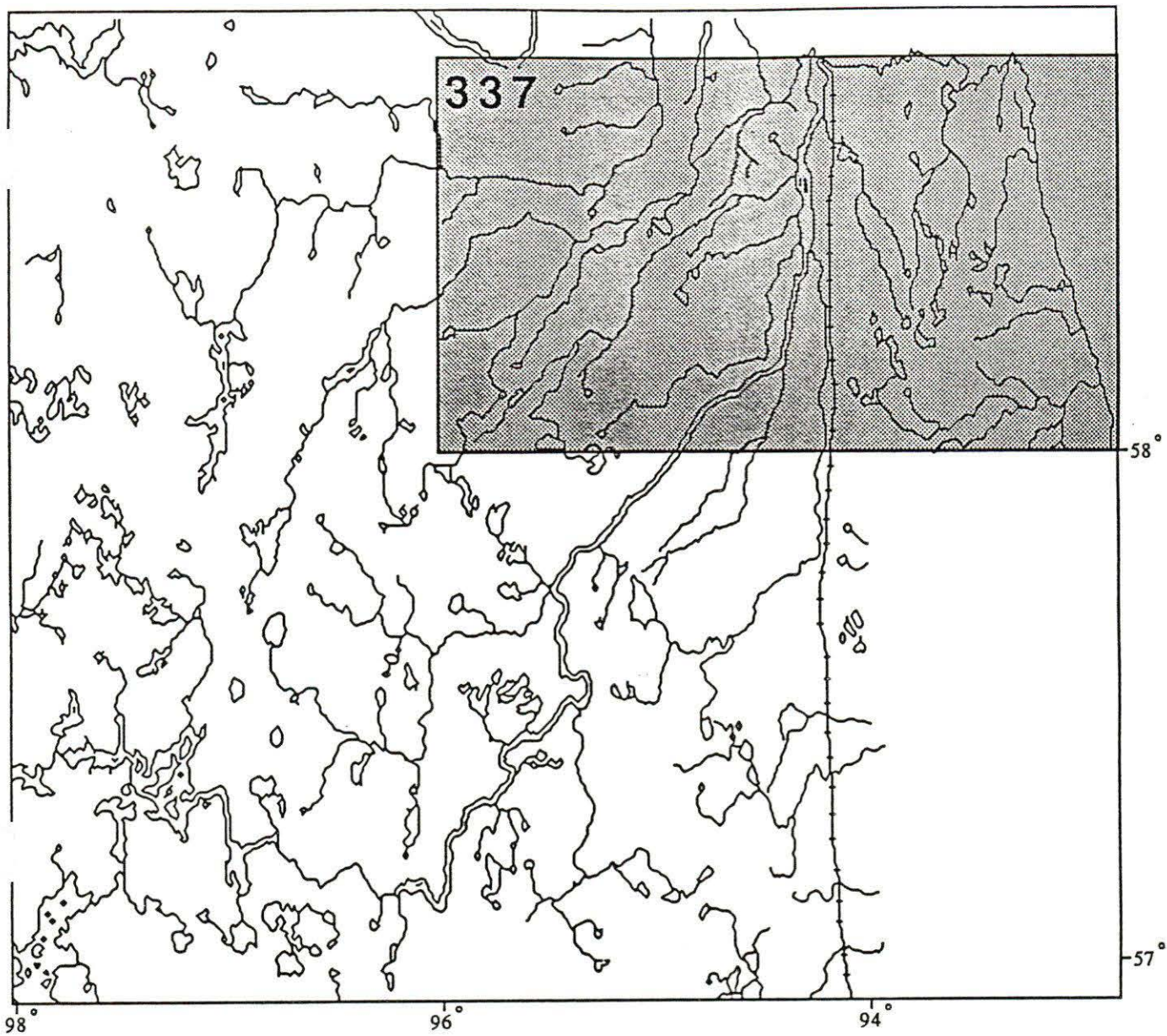
- +—+— railroads
- towns





## Lower Churchill

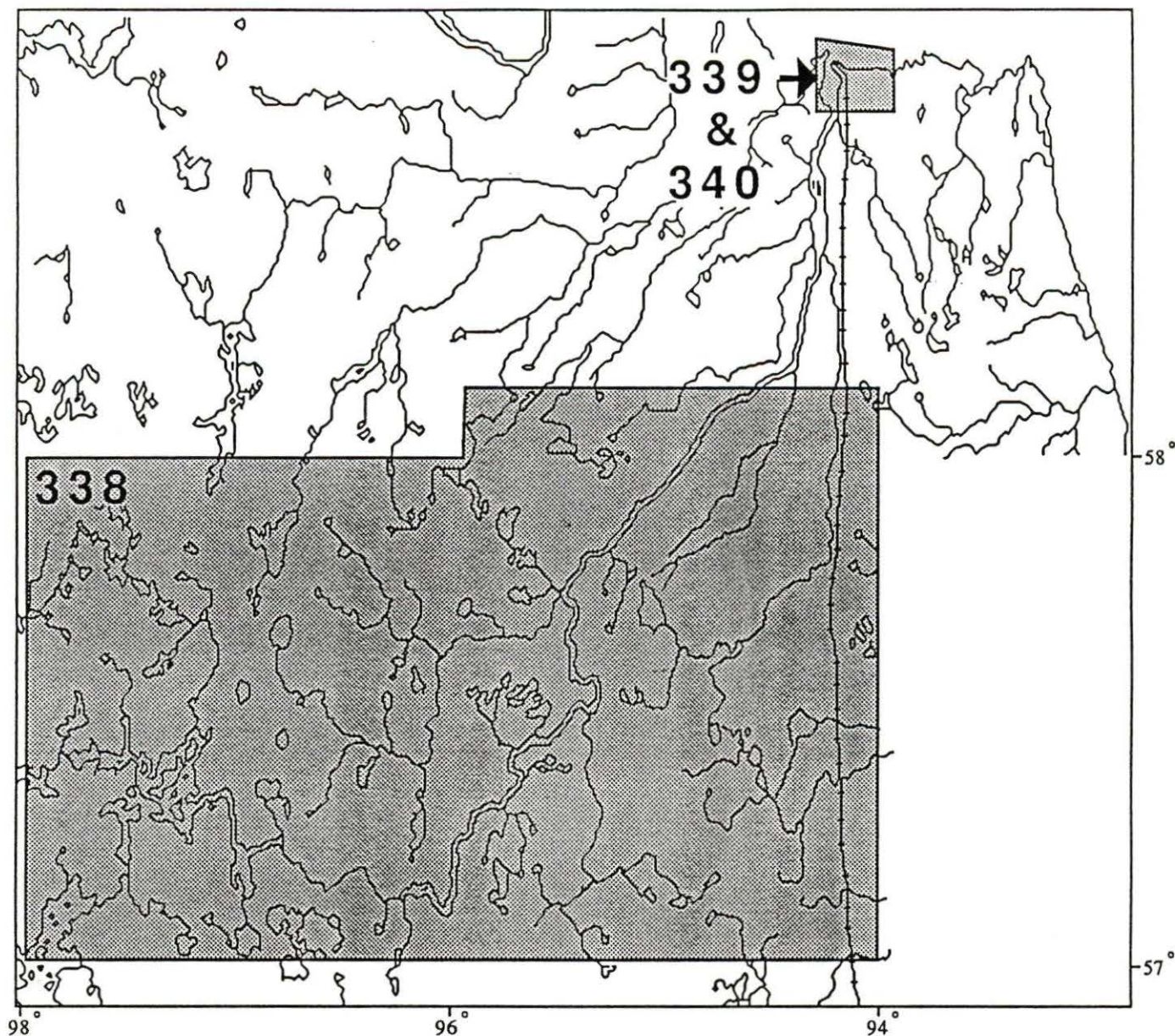
Block	Type	Scale	Altitude	Format	Date
336	BW	39000	20000	9X9	1946-47



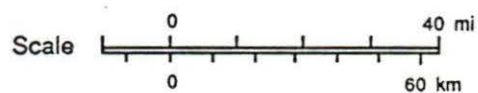
## Lower Churchill

Scale 0 40 mi  
0 60 km

Block	Type	Scale	Altitude	Format	Date
337	BW	Various	16000-20000	9X9	1947-48

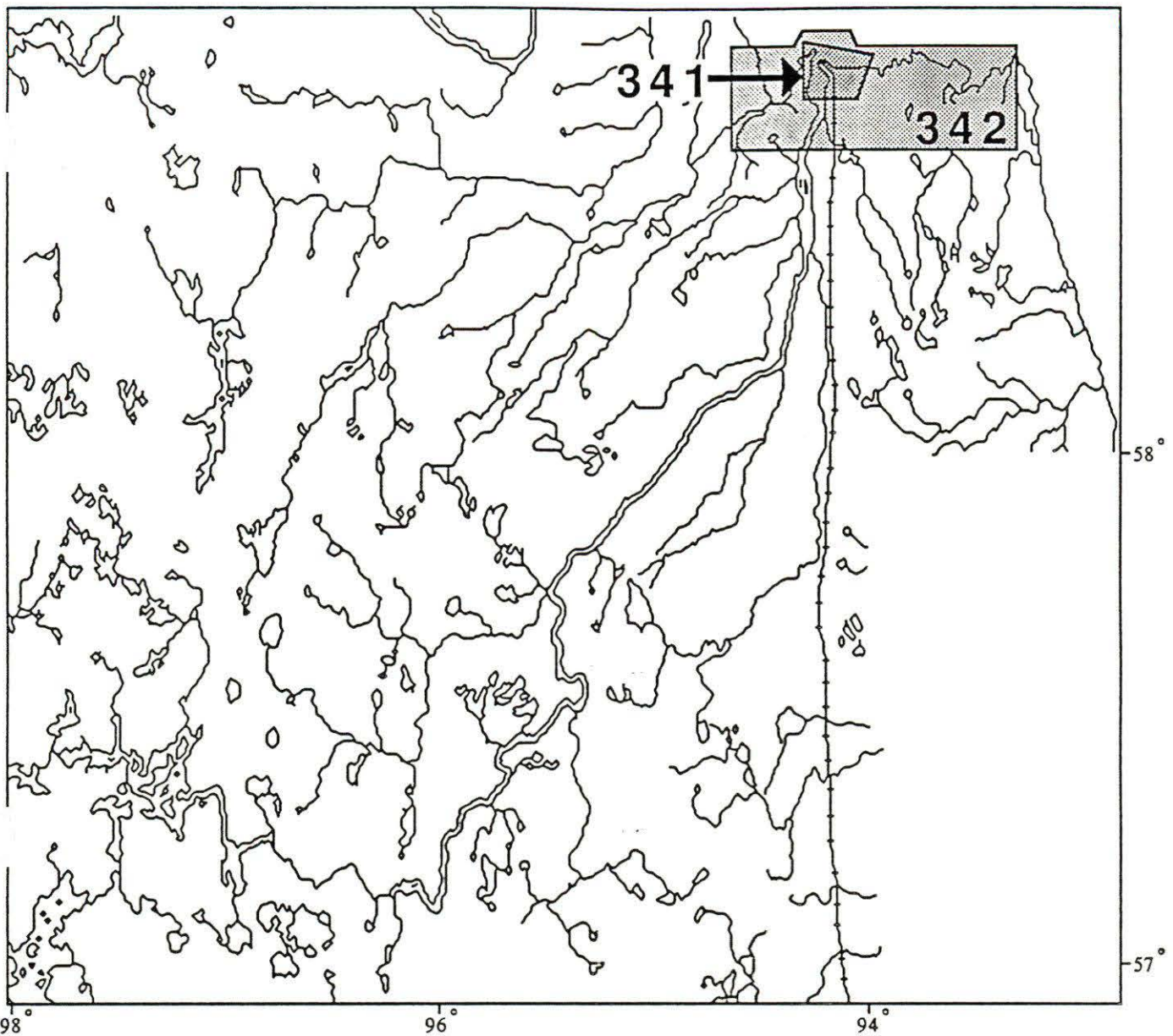


## Lower Churchill



Block	Type	Scale	Altitude	Format	Date
338	BW	60000	31000	9X9	1954-55
339	BW	16000	8100	9X9	AUG 55
340	BW	10000	5100	9X9	AUG 56

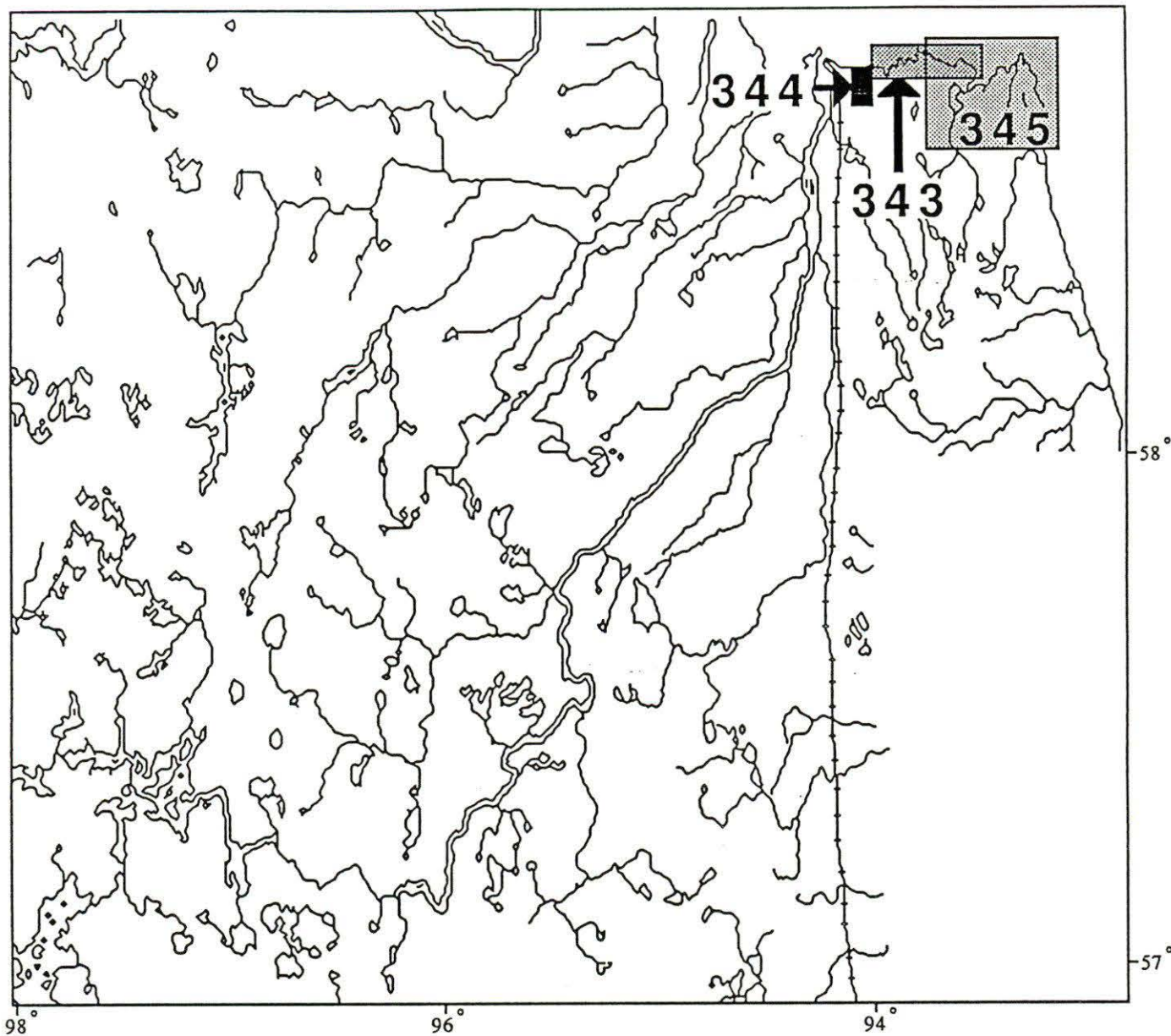




## Lower Churchill



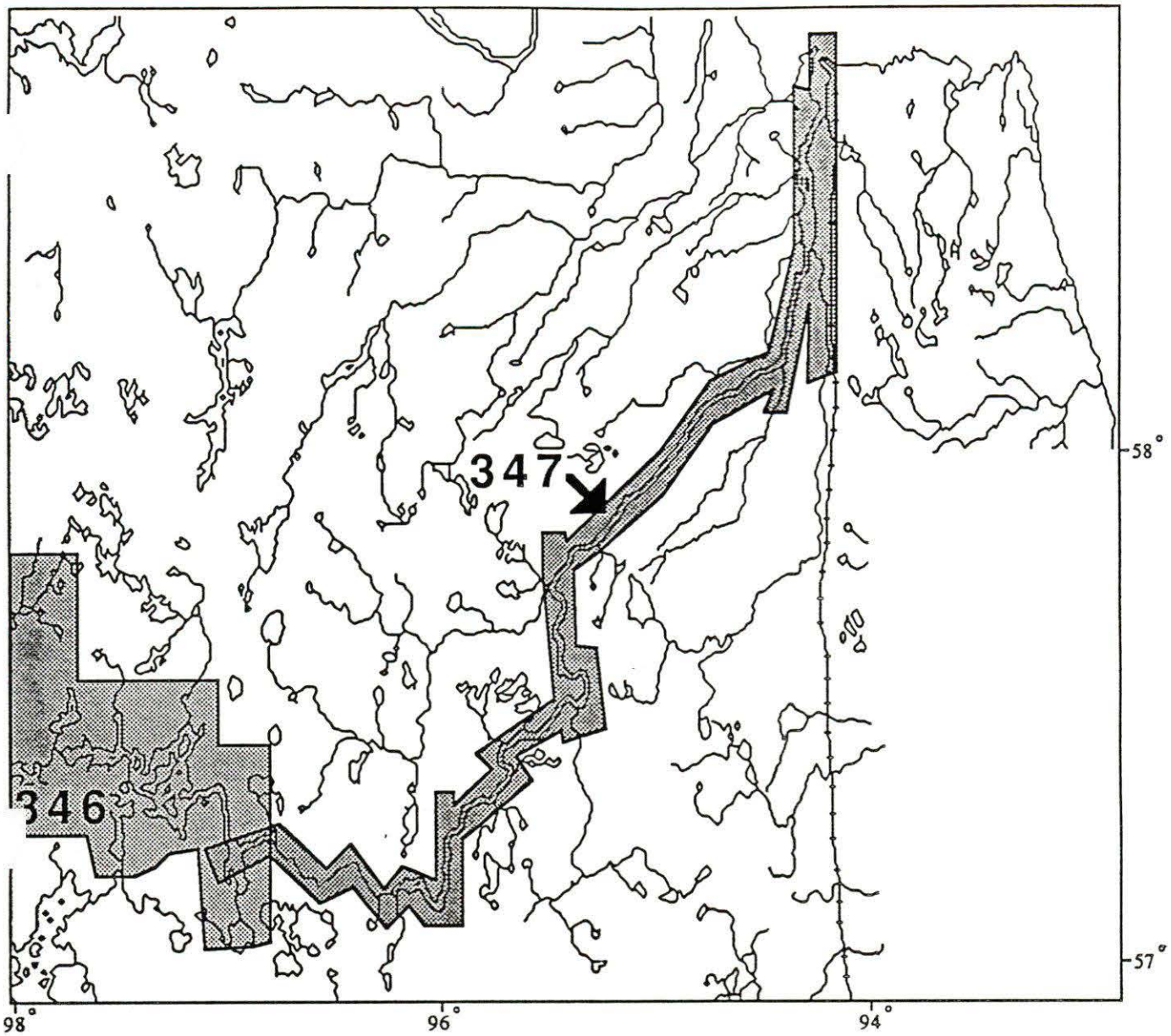
Block	Type	Scale	Altitude	Format	Date
341	BW	36000	18000	9X9	JUL 56
342	BW	10000	5000	9X9	SEPT 59



## Lower Churchill



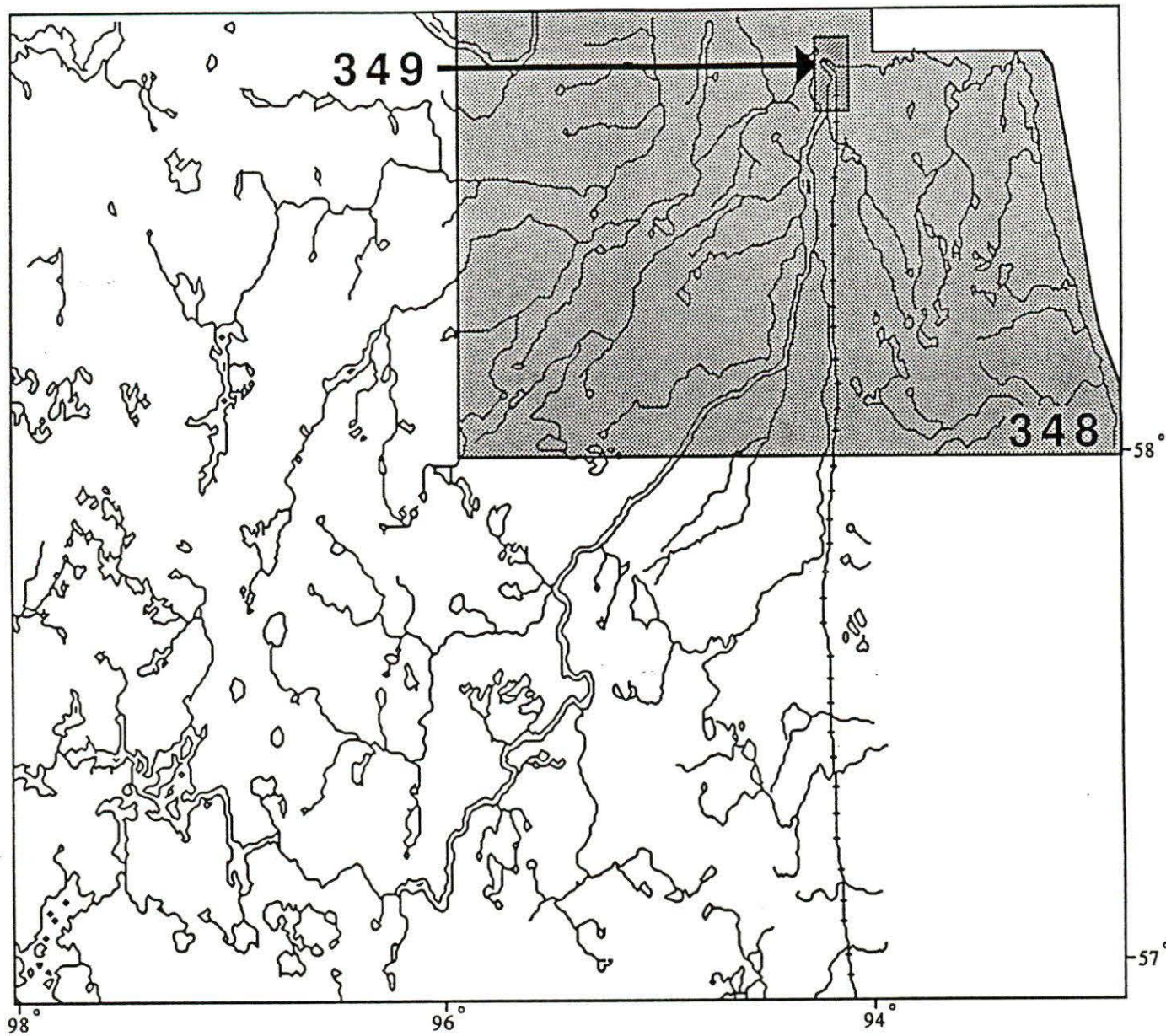
Block	Type	Scale	Altitude	Format	Date
343	BW	7600	3800 AGL	9X9	1952
344	BW	15840	7920 AGL	9X9	1955
345	BW	25000	12600	9X9	AUG 60



## Lower Churchill



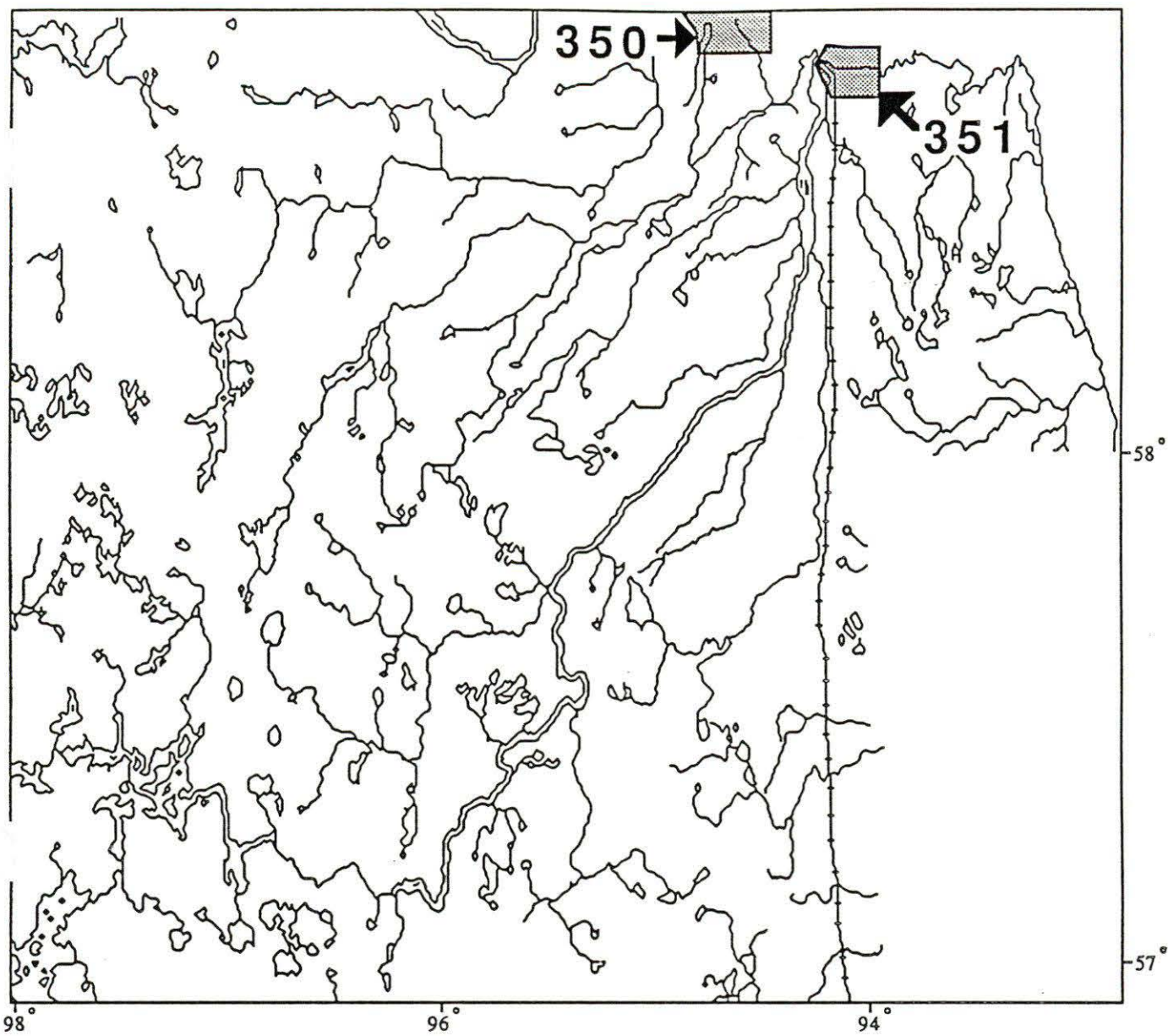
Block	Type	Scale	Altitude	Format	Date
346	BW	32000	16740	9X9	AUG 69
347	BW	31000	16440	9X9	SEPT 69



## Lower Churchill



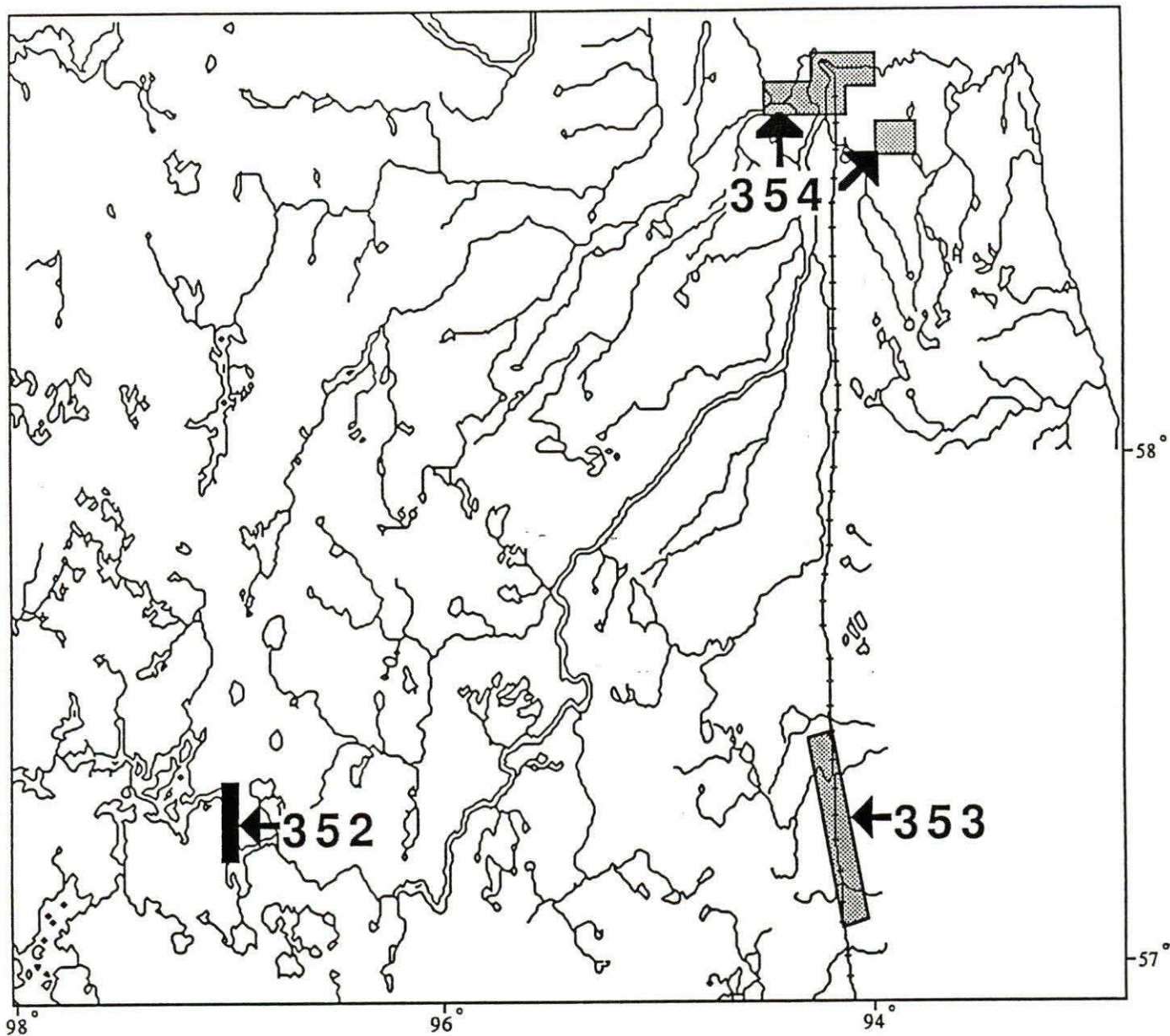
Block	Type	Scale	Altitude	Format	Date
348	BW	102000	30000	9X9	JUL 61
349	BW	12000	6000	9X9	AUG 65



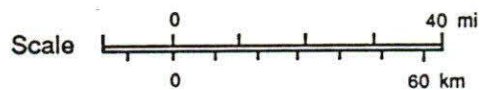
## Lower Churchill



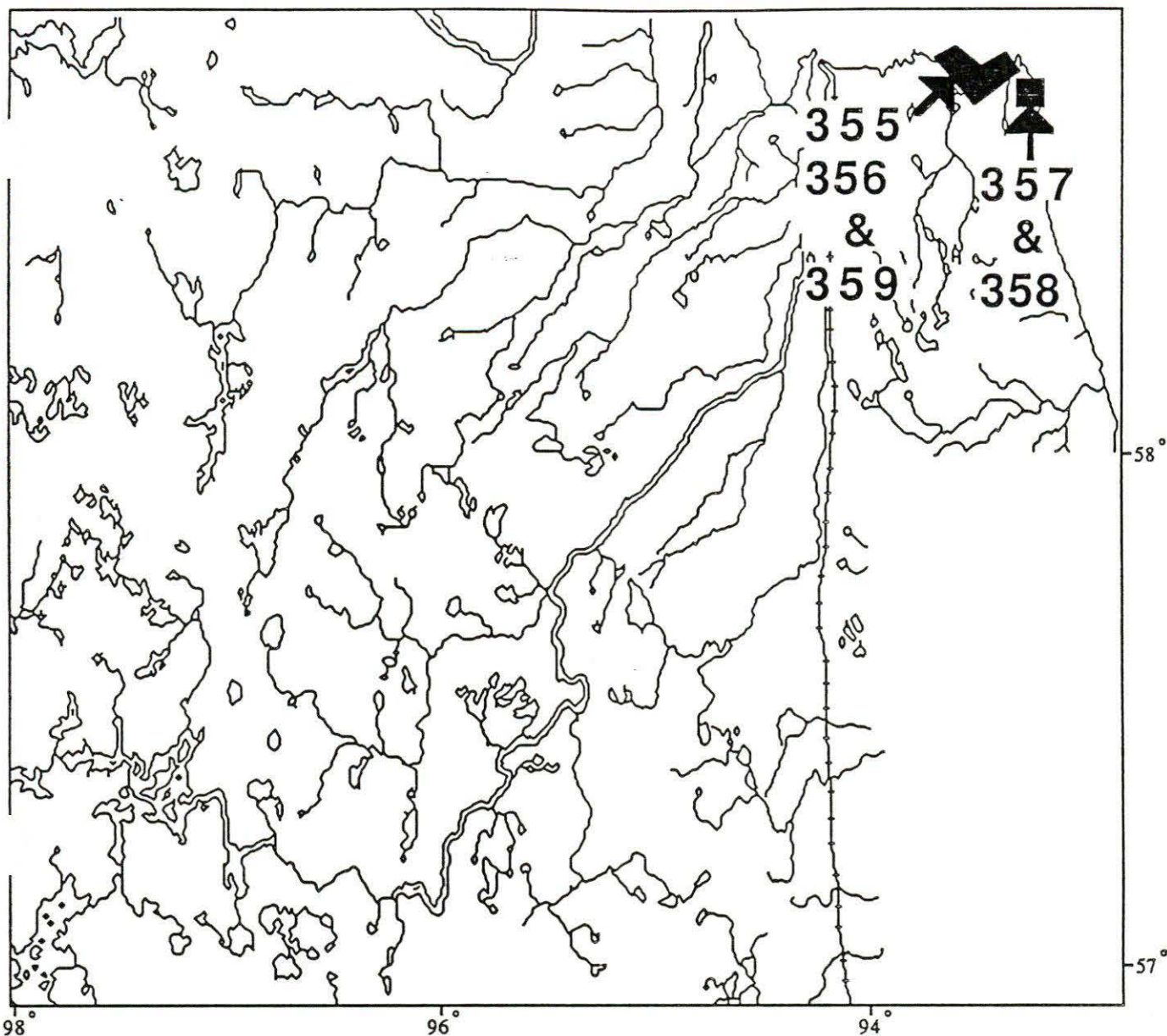
Block	Type	Scale	Altitude	Format	Date
350	BW	86000	25000	9X9	SEPT 64
351	BW	12000	6000	9X9	JUL 69



### Lower Churchill



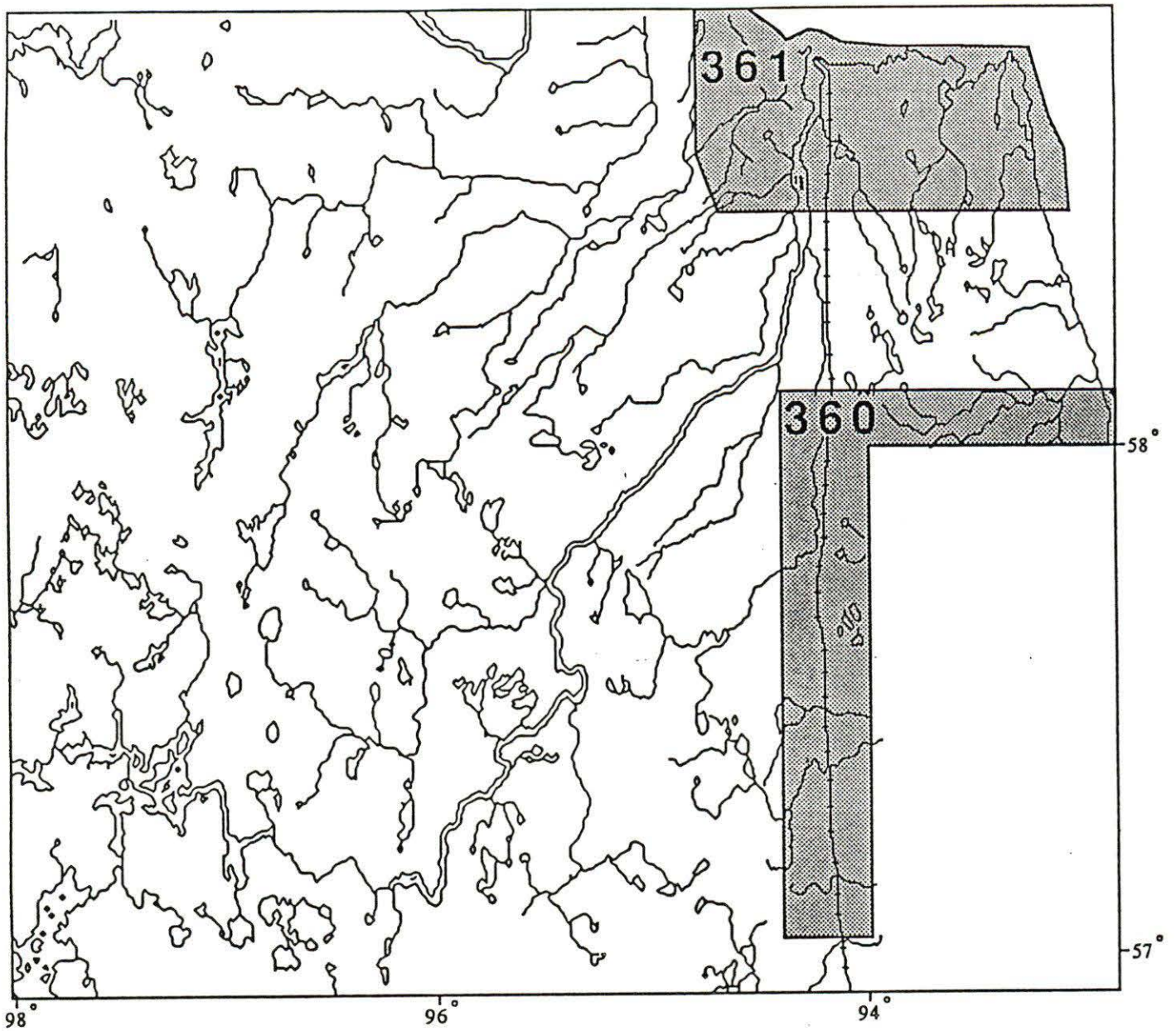
Block	Type	Scale	Altitude	Format	Date
352	BW	31700	16840	9X9	OCT 71
353	CLR IR	120000	35000	9X9	AUG 72
354	CLR	17900	5000 AGL	9X9	AUG 72



## Lower Churchill



Block	Type	Scale	Altitude	Format	Date
355	CLR IR	20000	10000 AGL	9X9	JUN 77
356	BW	2000-5000	Various	9X9	JUN 77
357	BW	2000	1000 AGL	9X9	JUN 77
358	BW	~3000	1500	9X9	JUN 73
359	BW	Various	1500-5000	9X9	JUN 73

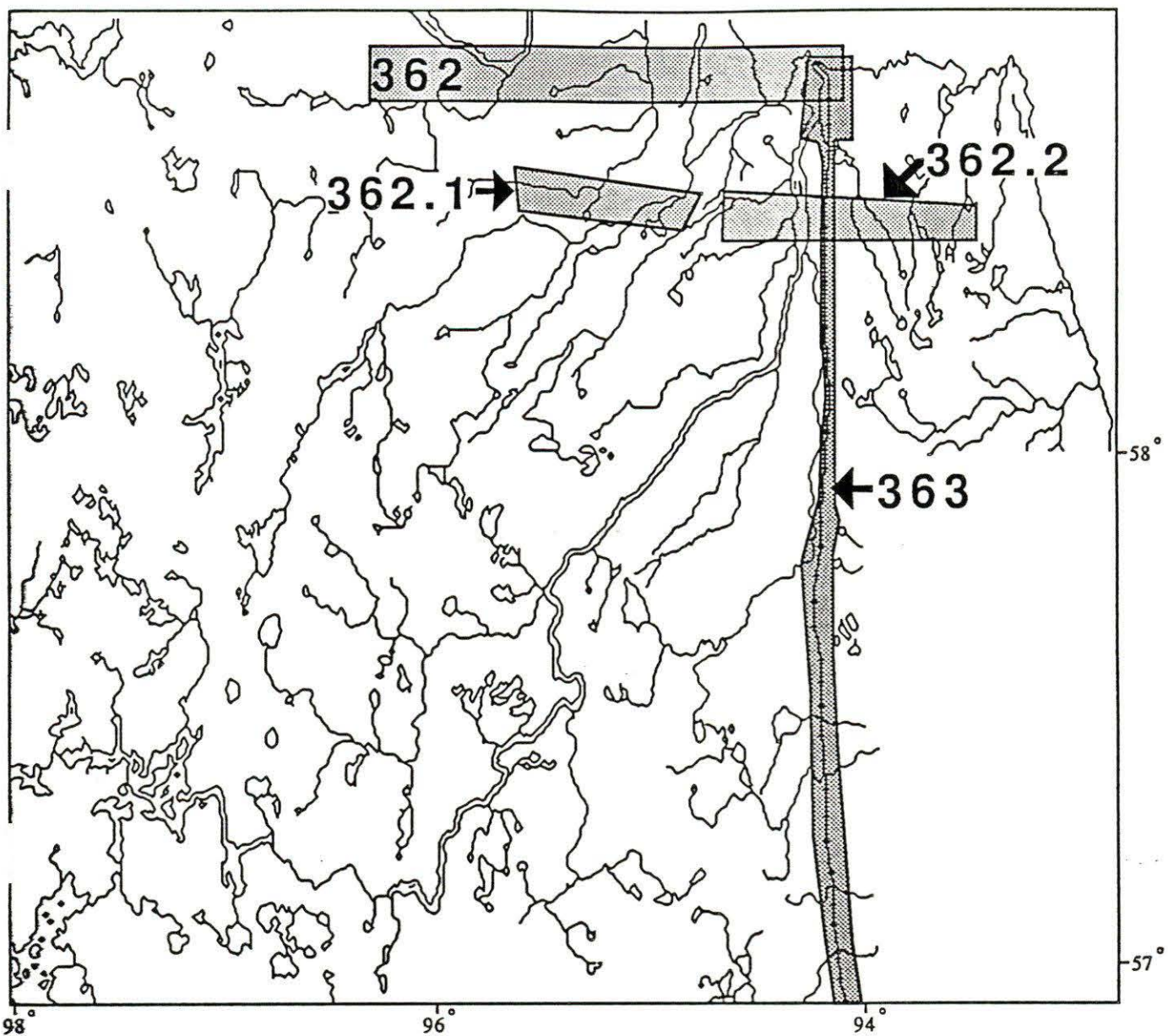


## Lower Churchill



Block	Type	Scale	Altitude	Format	Date
360	BW	50000	30000	9X9	JUN 74
361	BW	35000	17500	9X9	JUL 72

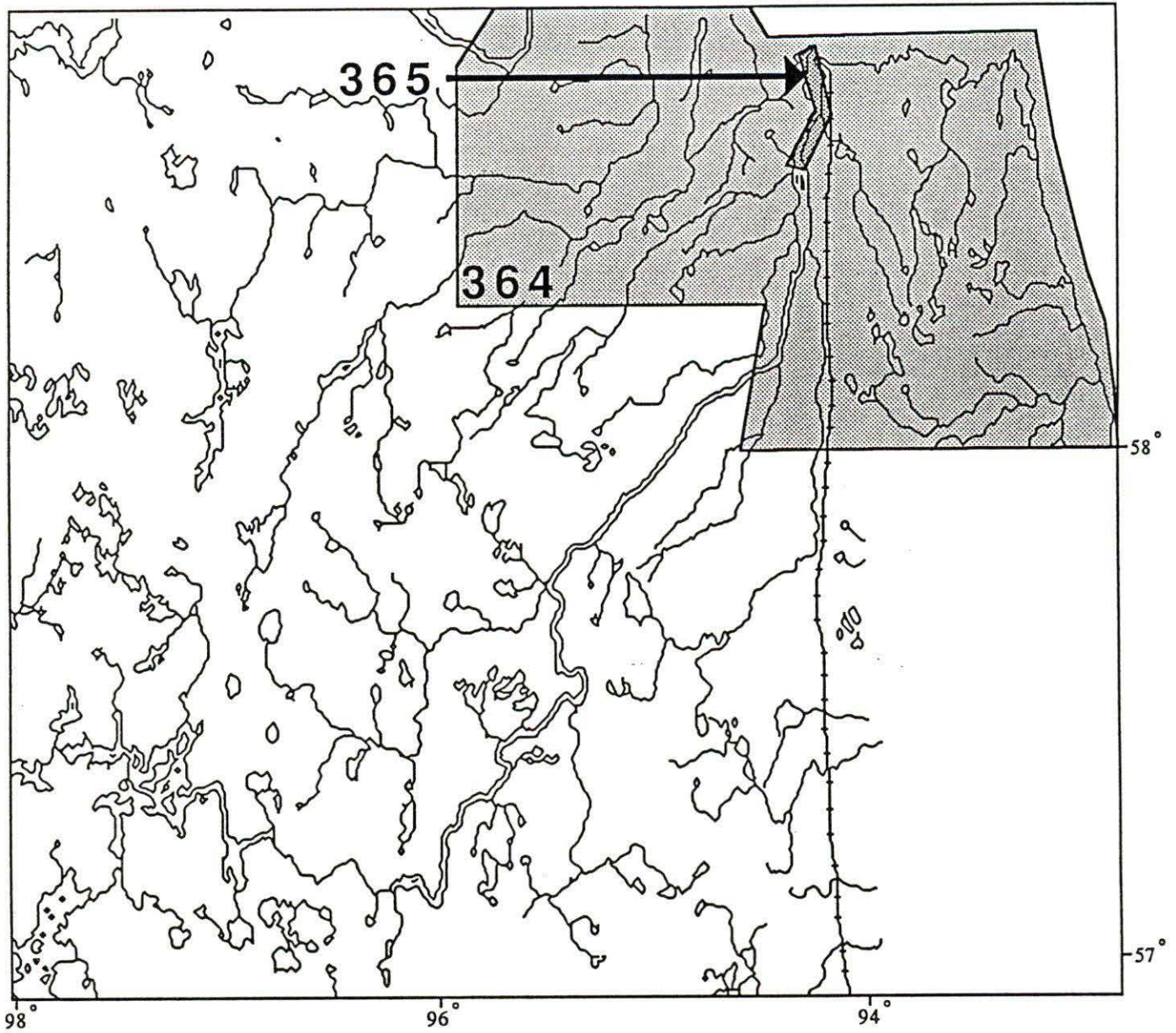




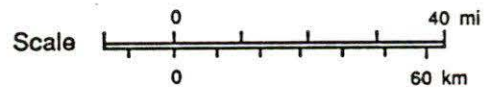
## Lower Churchill



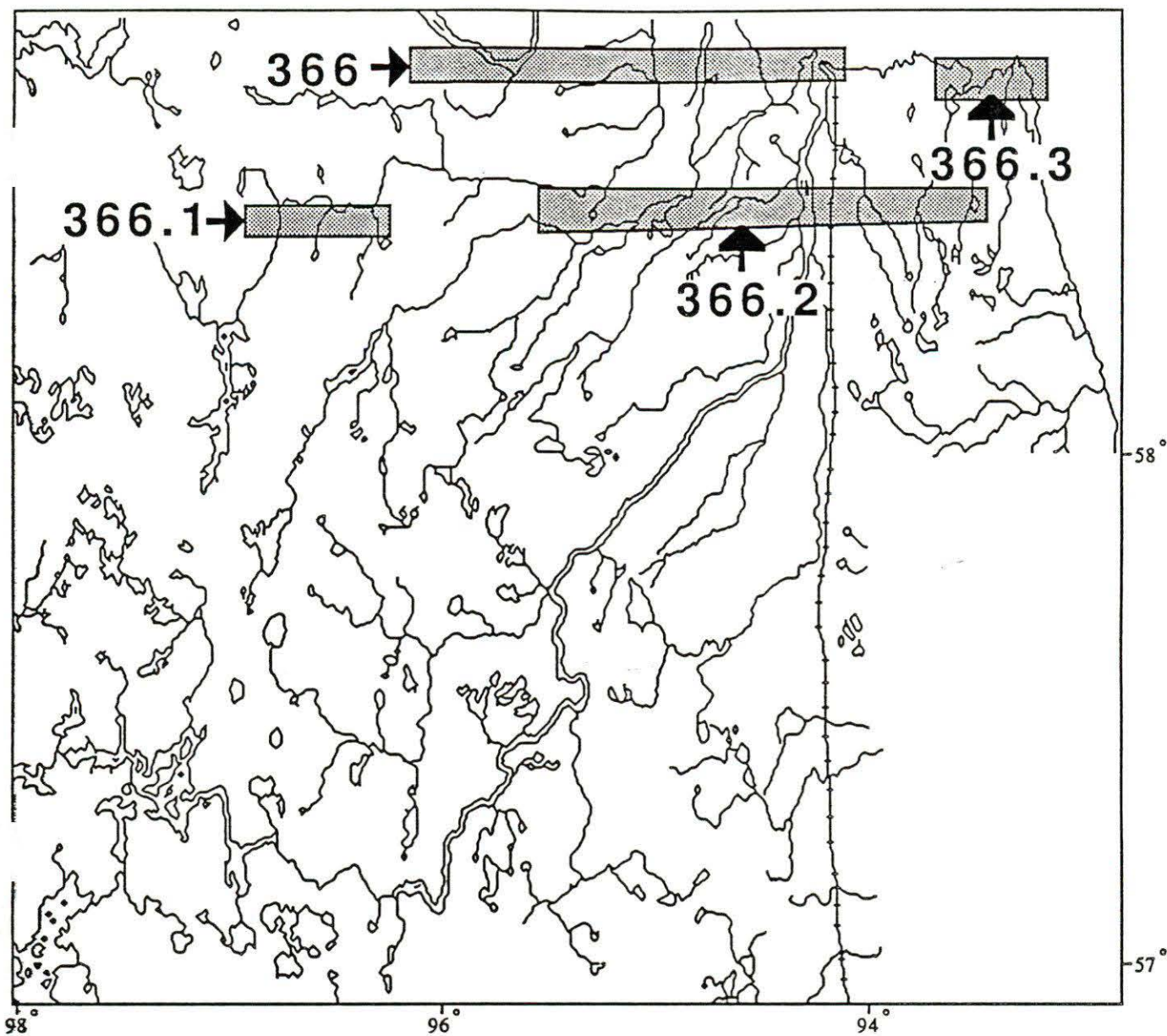
Block	Type	Scale	Altitude	Format	Date
362	CLR	33600	10000	9X9	JUN 73
362.1	CLR	33600	10000	9X9	JUN 73
362.2	CLR	33600	10000	9X9	JUN 73
363	BW	12000	6000 AGL	9X9	APR 75



### Lower Churchill



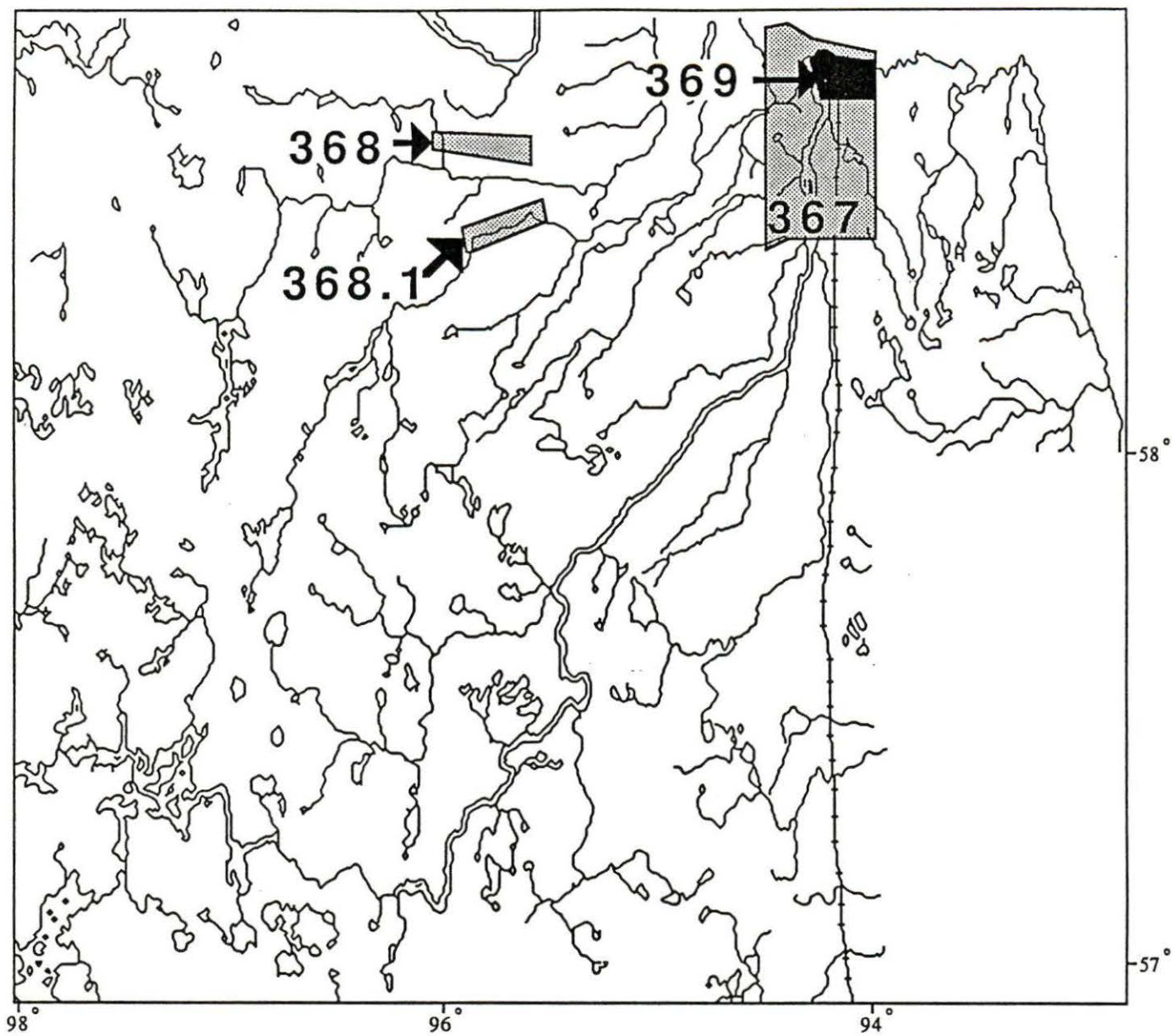
Block	Type	Scale	Altitude	Format	Date
364	CLR IR	120000	35000	9X9	JUN 73
365	BW	6000	3000 AGL	9X9	AUG 75



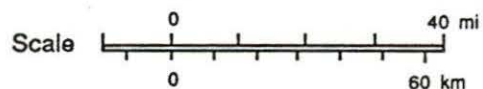
## Lower Churchill



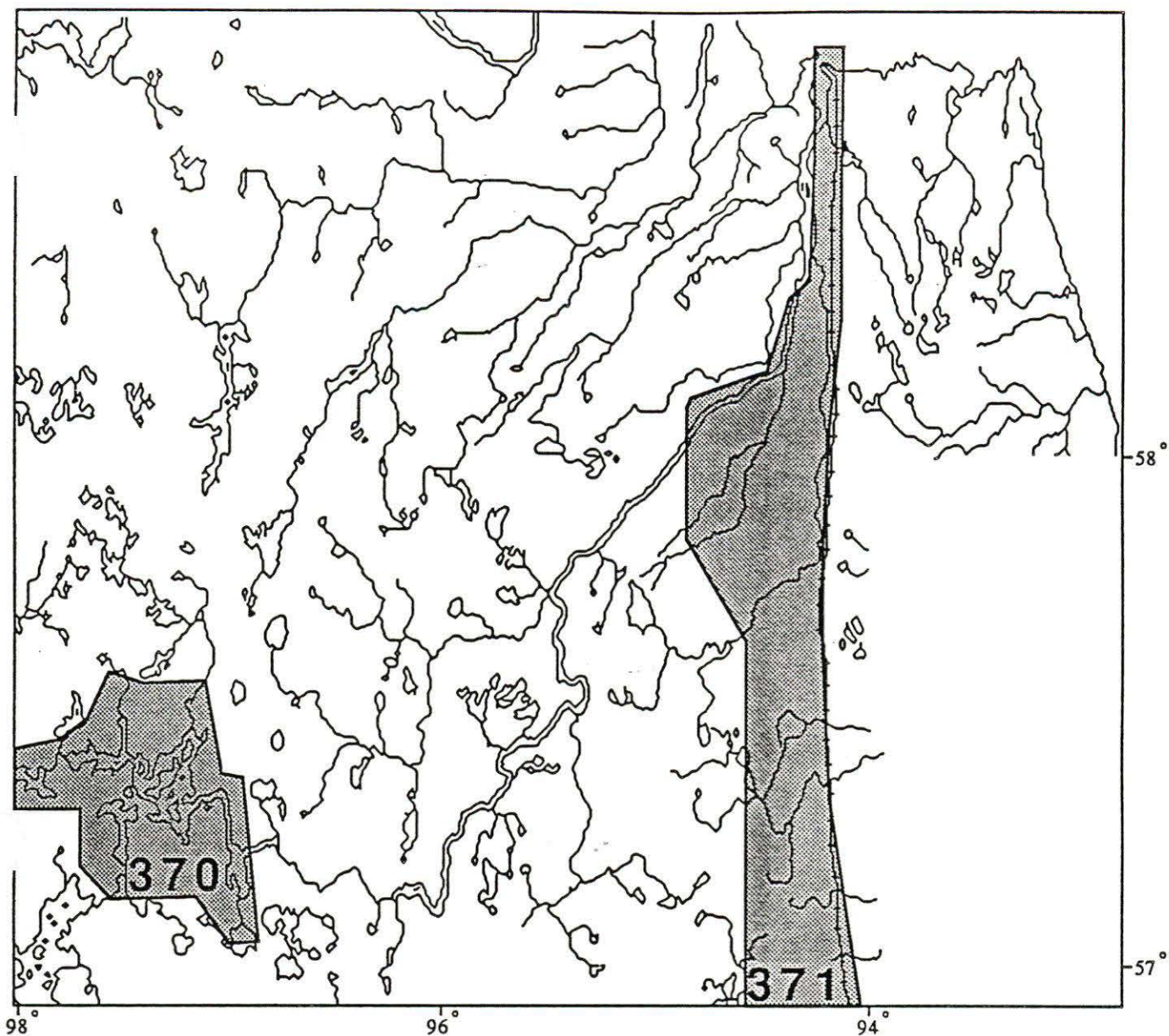
Block	Type	Scale	Altitude	Format	Date
366	CLR	33600	10000	9X9	JUL 73
366.1	CLR	33600	10000	9X9	JUL 73
366.2	CLR	33600	10000	9X9	JUL 73
366.3	CLR	33600	10000	9X9	JUL 73



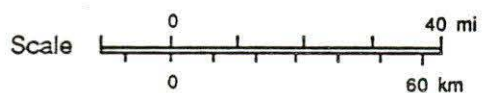
## Lower Churchill



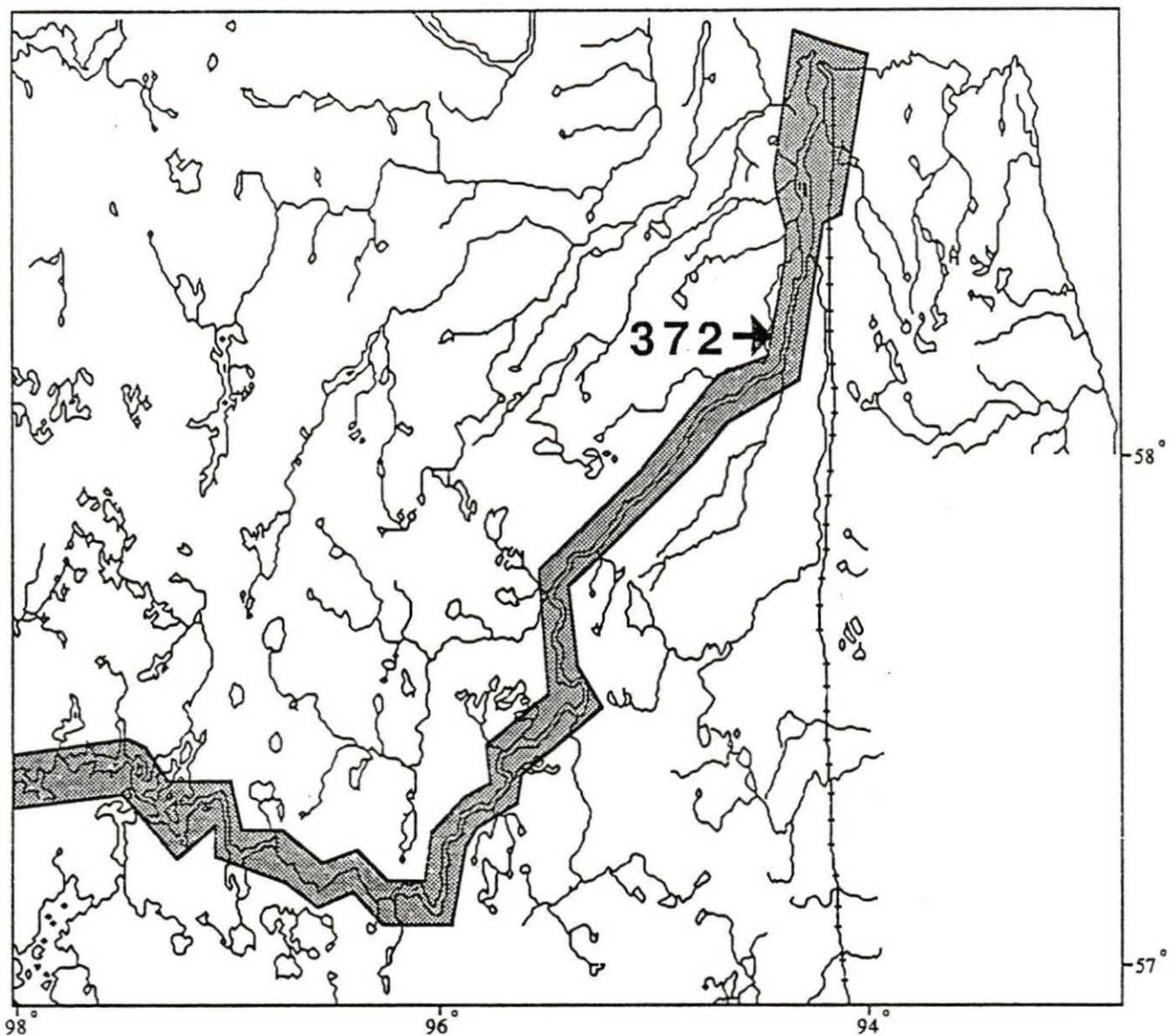
Block	Type	Scale	Altitude	Format	Date
367	BW	50000	25150	9X9	JUN 78
368	BW	13200	7000	9X9	JUN 76
368.1	BW	13200	7000	9X9	JUN 76
369	BW	6000	3000	9X9	JUN 77



## Lower Churchill



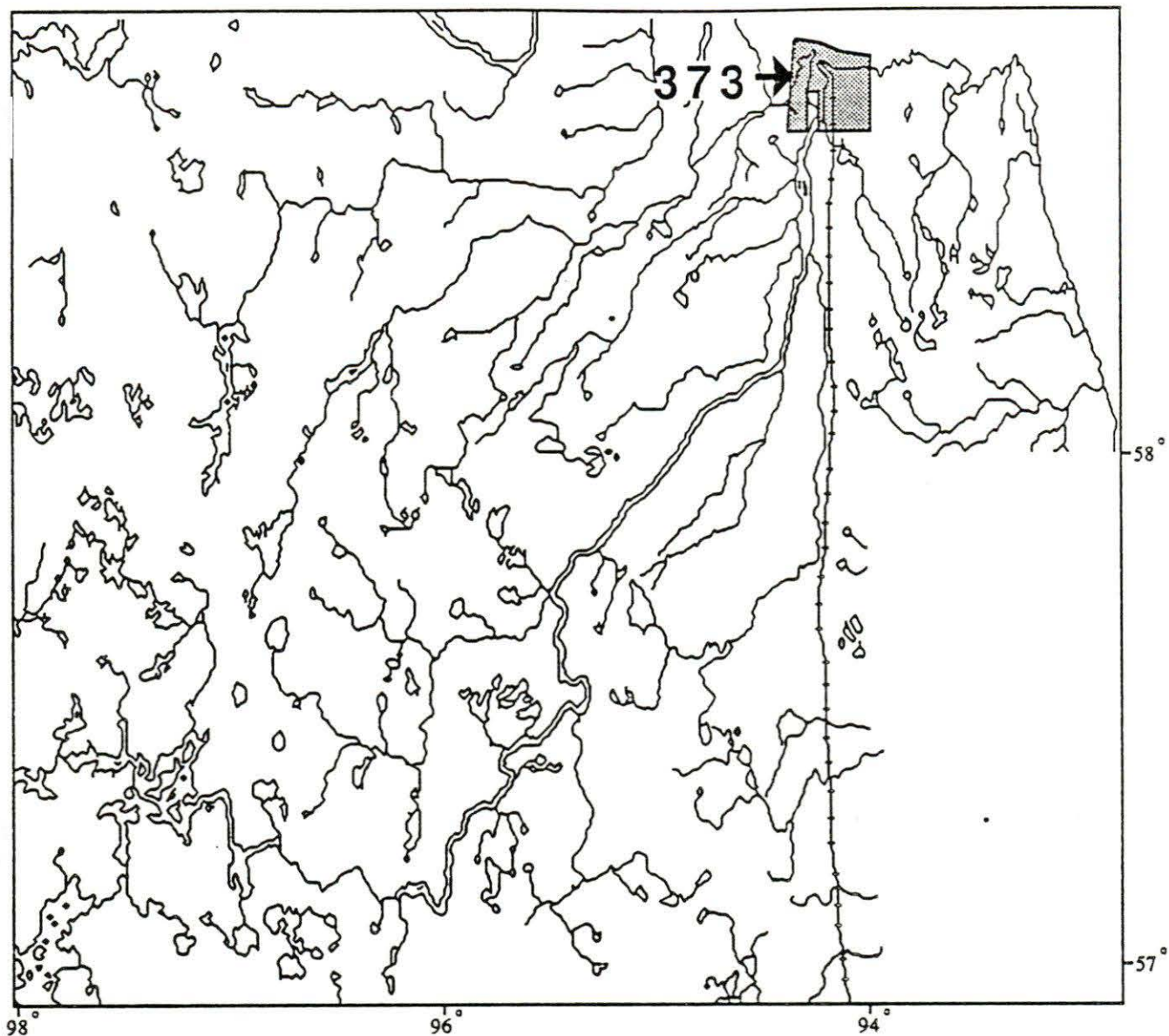
Block	Type	Scale	Altitude	Format	Date
370	BW	50000	NA	9X9	SEPT 82
371	BW	12000	NA	9X9	SEPT,OCT 82



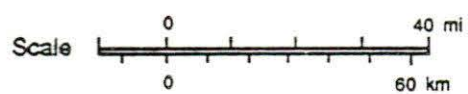
## Lower Churchill

Scale 0 40 mi  
0 60 km

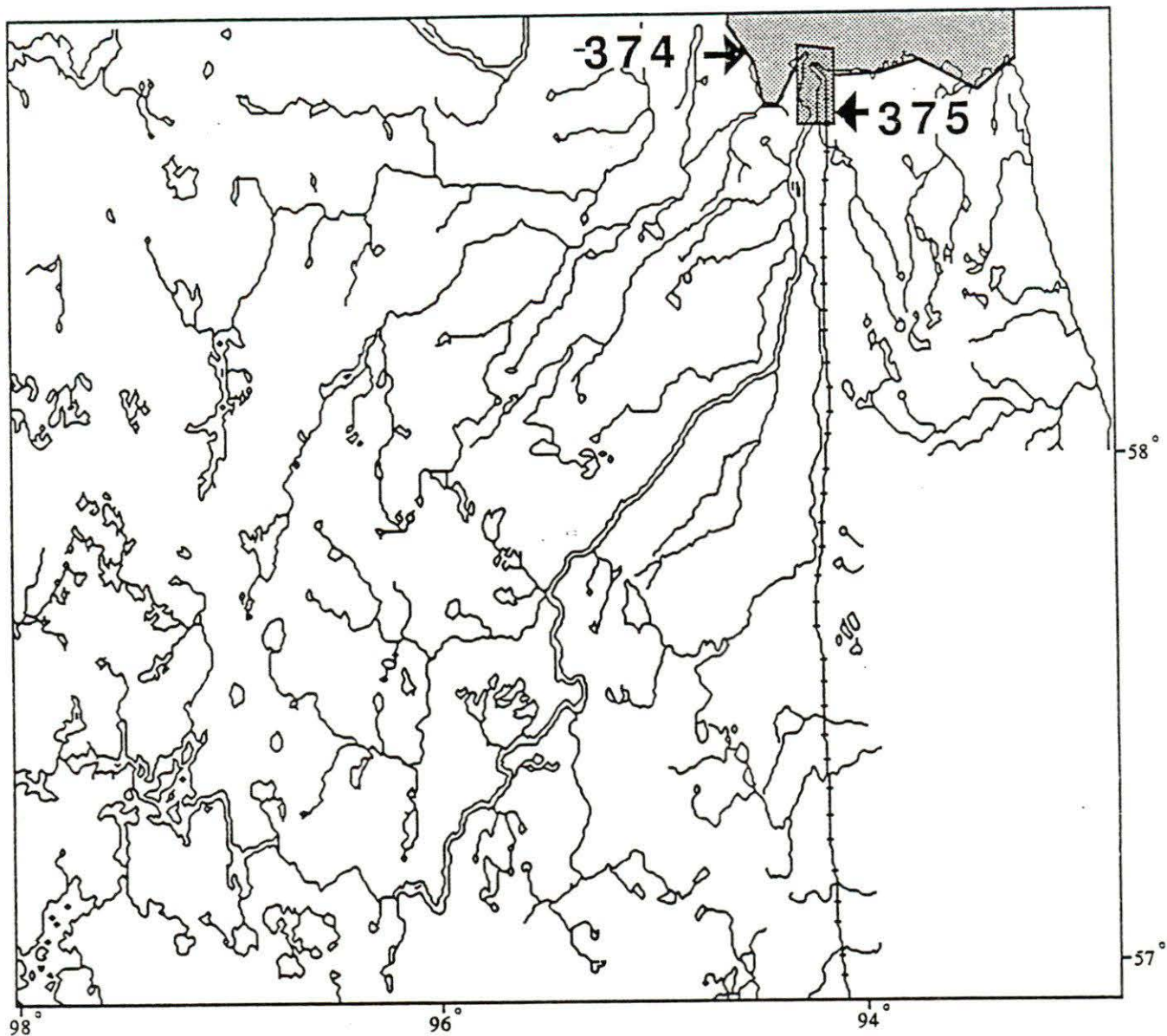
Block	Type	Scale	Altitude	Format	Date
372	BW	24000	12000 AGL	9X9	JUN 84



## Lower Churchill



Block	Type	Scale	Altitude	Format	Date
373	BW	10000	5050	9X9	JUL 86



## Lower Churchill



Block	Type	Scale	Altitude	Format	Date
374	CLR	6000	3000	9X9	JUL 87
375	CLR	Various	Various	9X9	JUL 87



## **Section 1.1**

### **High Resolution Remote Sensing Data**

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## SECTION 1.1 HIGH RESOLUTION REMOTE SENSING DATA

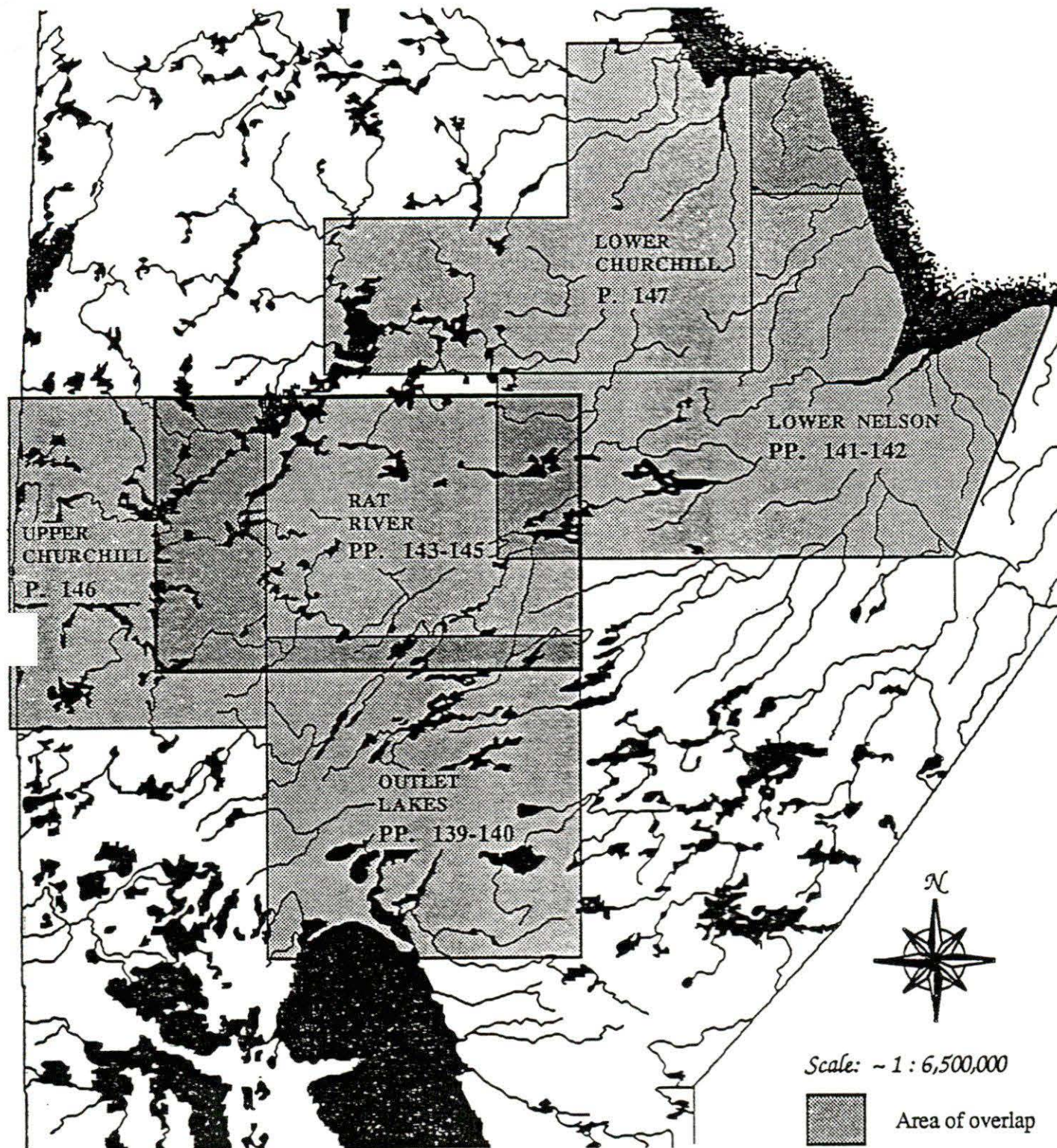
---

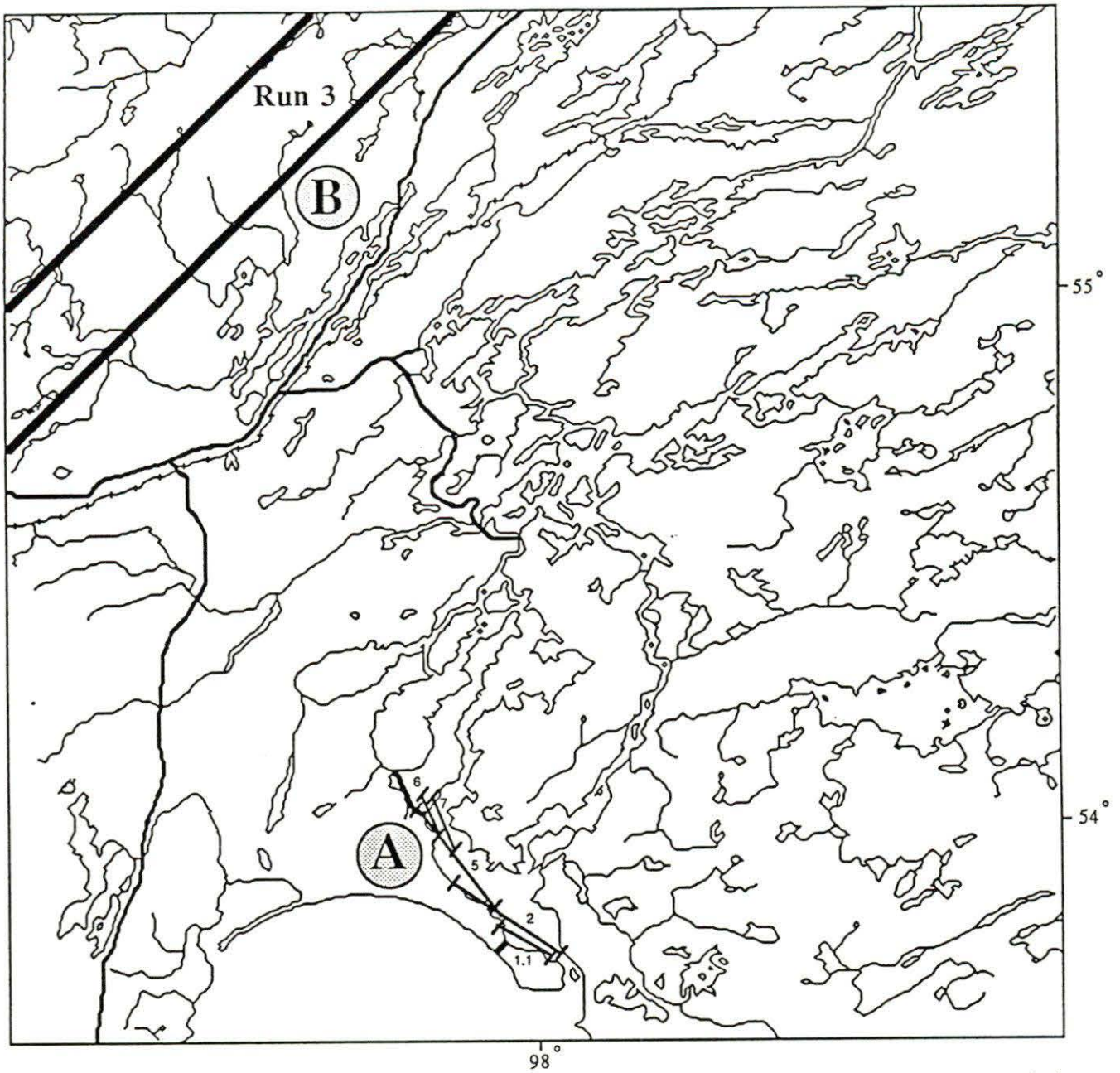
This section documents surveys conducted using high resolution non-photographic sensors. These include the use of *multispectral scanners*, *thermal scanners*, *radar* imaging devices, and video. Imagery is depicted by a polygon approximating the actual coverage. Each block of imagery is identified by a character (A, B, C, ....etc). Accompanying each block letter is data describing the imagery (Table 5). This data is presented below each base map. Further information about each block can be found in Appendix B.

Table 5. Description of data block associated with high resolution remote sensing data.

Header	Description
Block	A character (A, B, C...etc) identifying a block of imagery.
Type	Identifies the type of airborne data.
Altitude	Altitude at which the imagery was acquired.
Format	Describes format as digital or hard copy.
Date	Date imagery was acquired.
Channels	Identifies number designation(s) of channel(s). Actual wavelengths associated with each channel are listed in Appendix B.

# High Resolution Remote Sensing Data Index Map



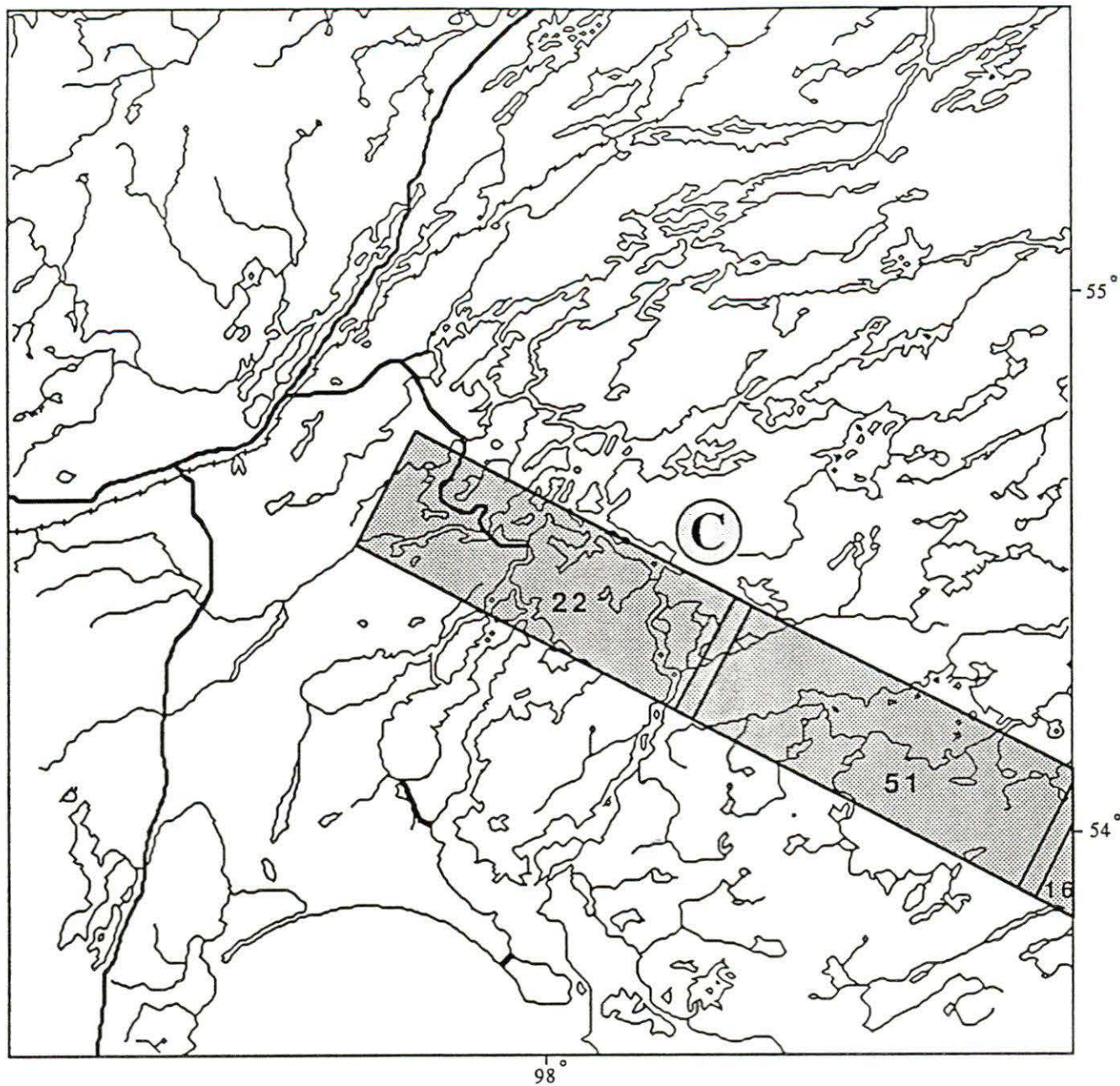


## Outlet Lakes



Block	Type	Altitude	Format	Date	Channel(s)
A *	MEIS	2000 ft	digital	JUL 84	6,0,4,1,7
B	SLAR	7500 ft	digital	SEPT 72	NA

\* Flightline Designations: 1, 2, 5, 6, 7



## Outlet Lakes

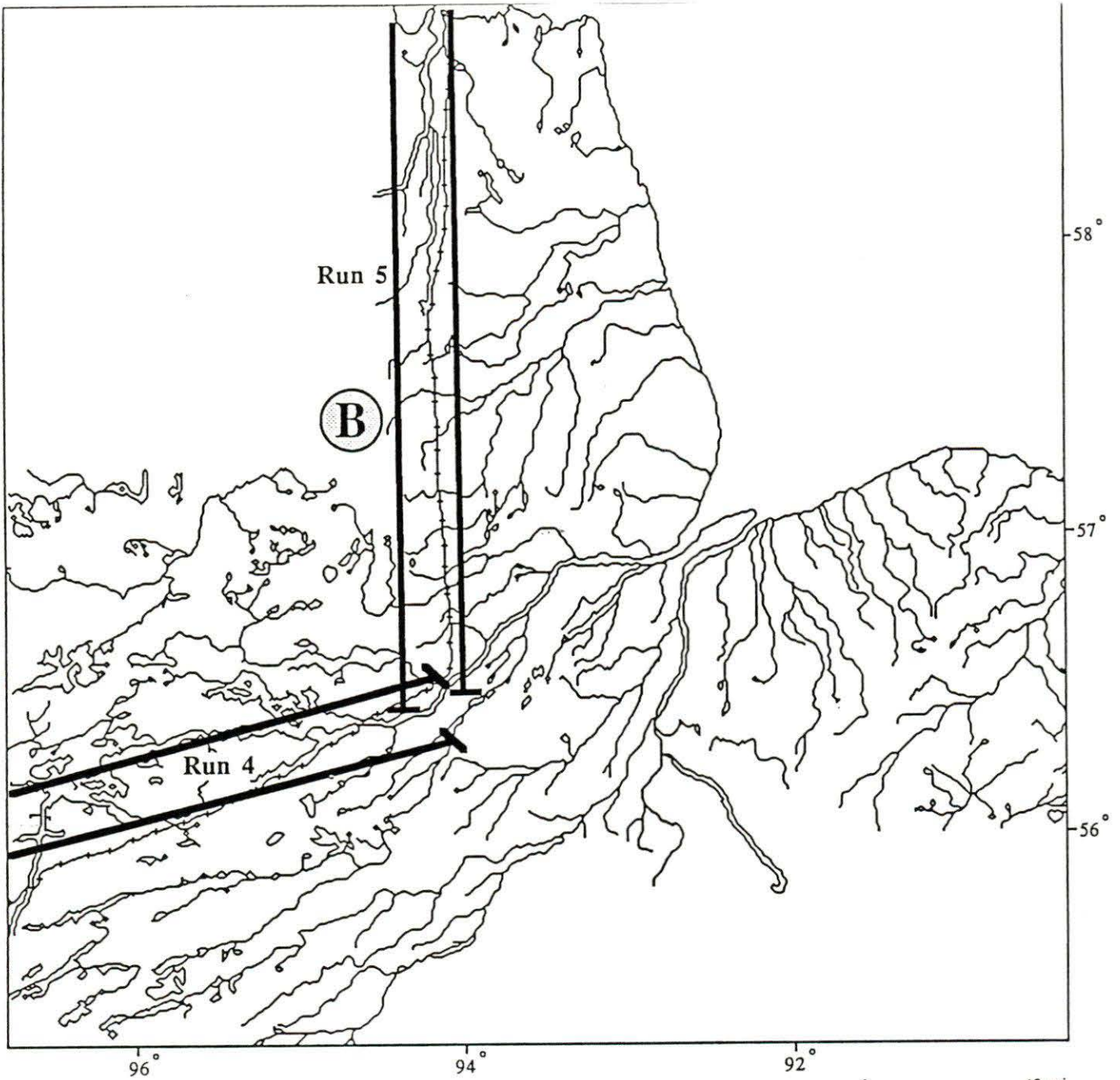


Block	Type	Altitude	Format	Date	Channel(s)
C	SIR-B S.A.R.	200 km	digital	JUL 85	L

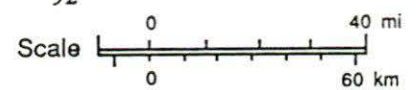
SIR (Shuttle Imaging Radar)

Revolution 85.2  
Image numbers:

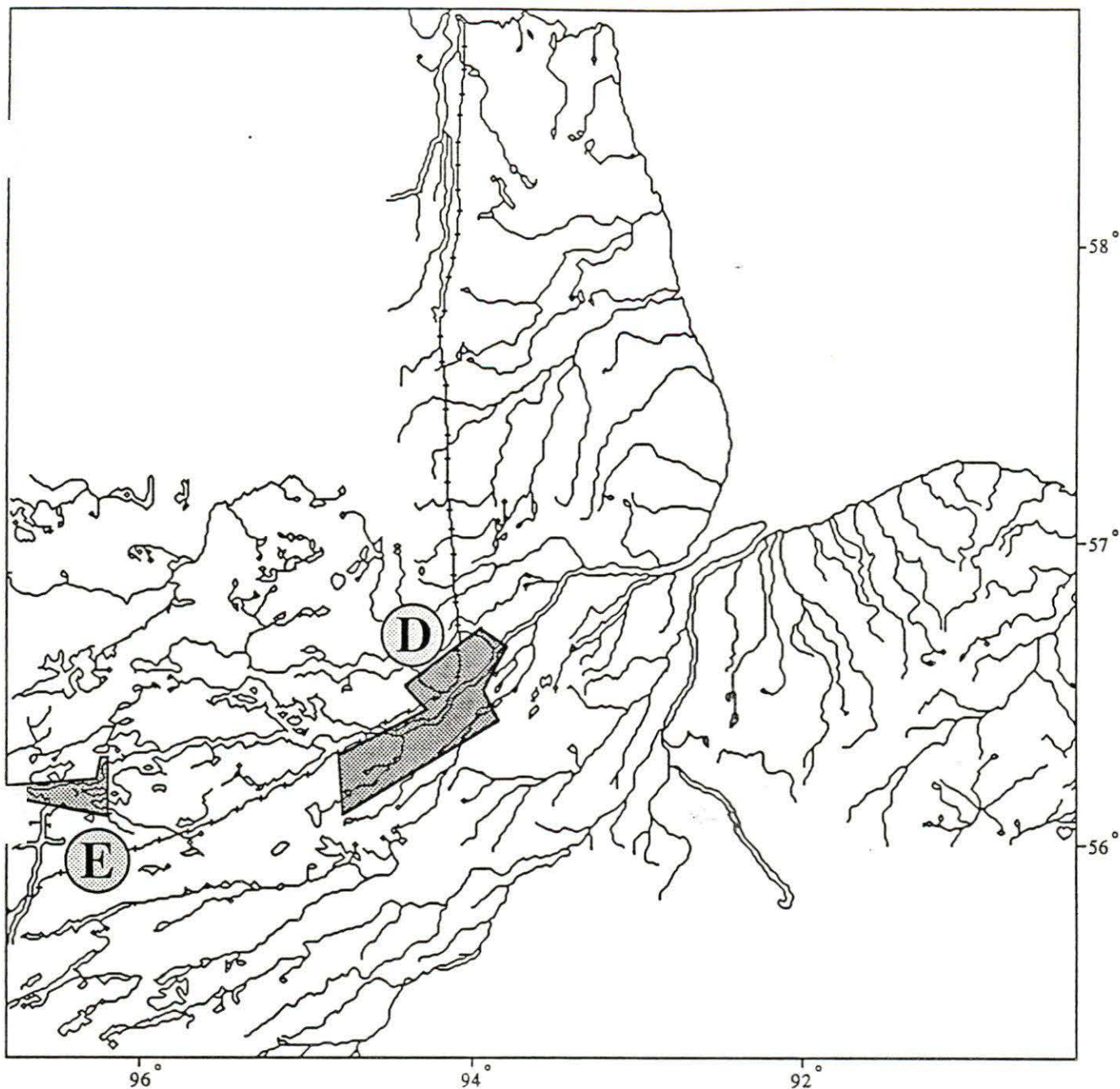
16, East Lake Winnipeg  
22, N. Lake Winnipeg  
51, Norway House



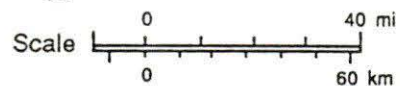
## Lower Nelson



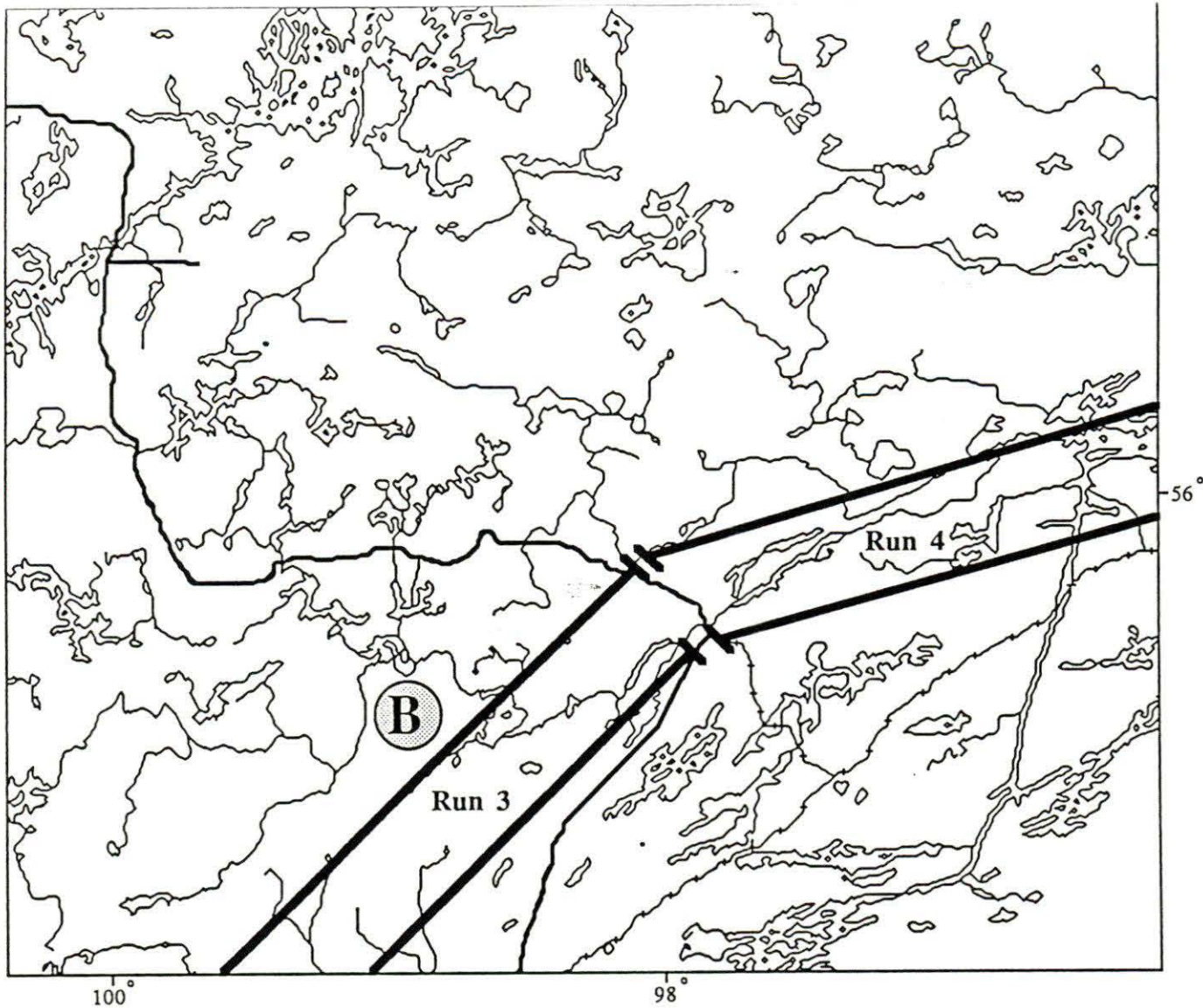
Block	Type	Altitude	Format	Date	Channel(s)
B	SLAR	7500 ft	digital	SEPT 72	NA



## Lower Nelson



Block	Type	Altitude	Format	Date	Channel(s)
D	FLIR	30 ft	VHS	AUG 87	Thermal / IR
E	Video	Various	VHS	AUG 87	Visual / Near IR

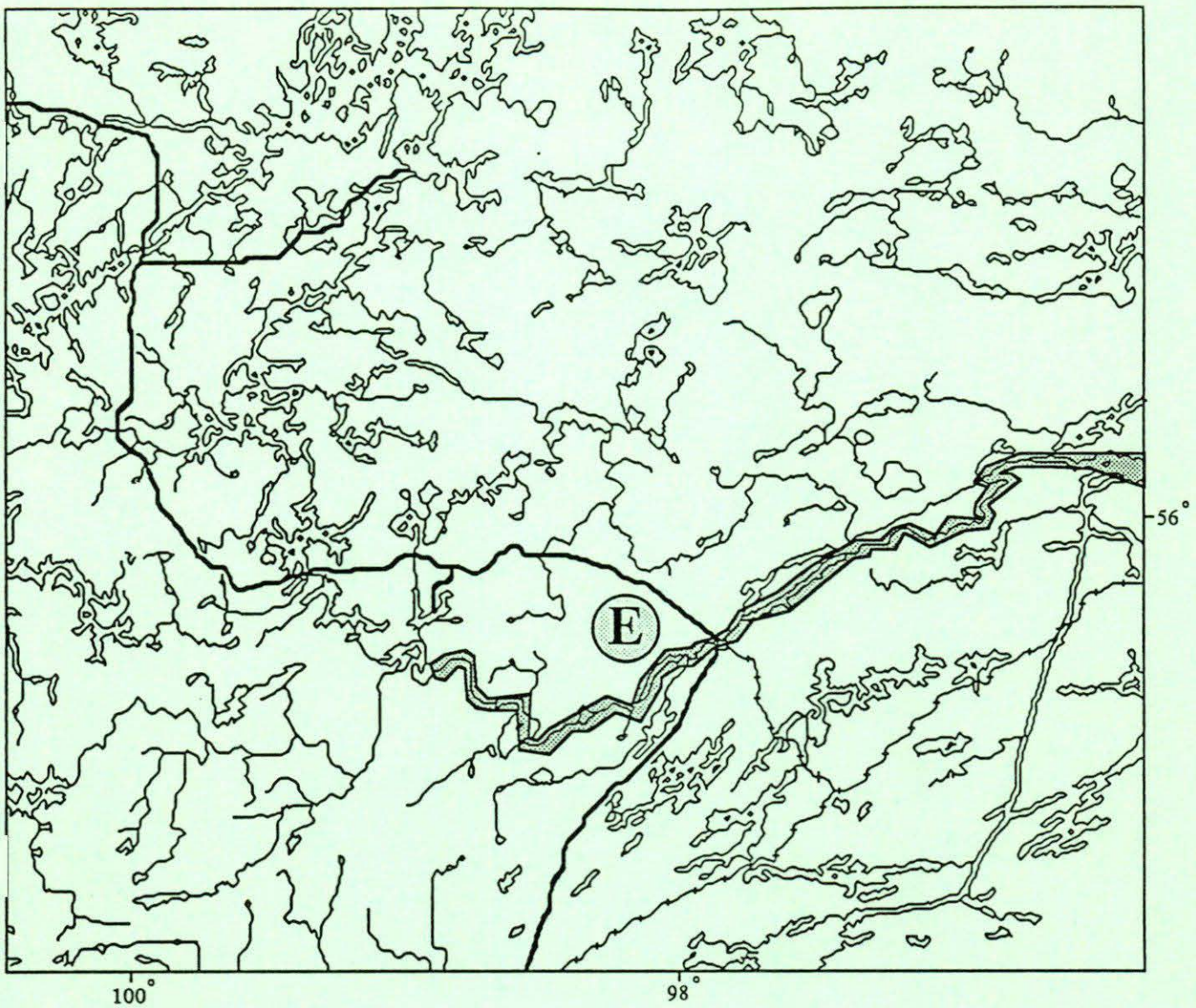


**Rat River**  
(pre 1978 base map)

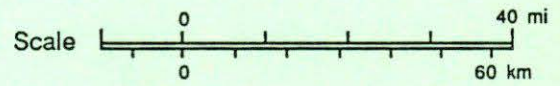


Block	Type	Altitude	Format	Date	Channel(s)
B	SLAR	7500 ft	digital	SEPT 72	NA

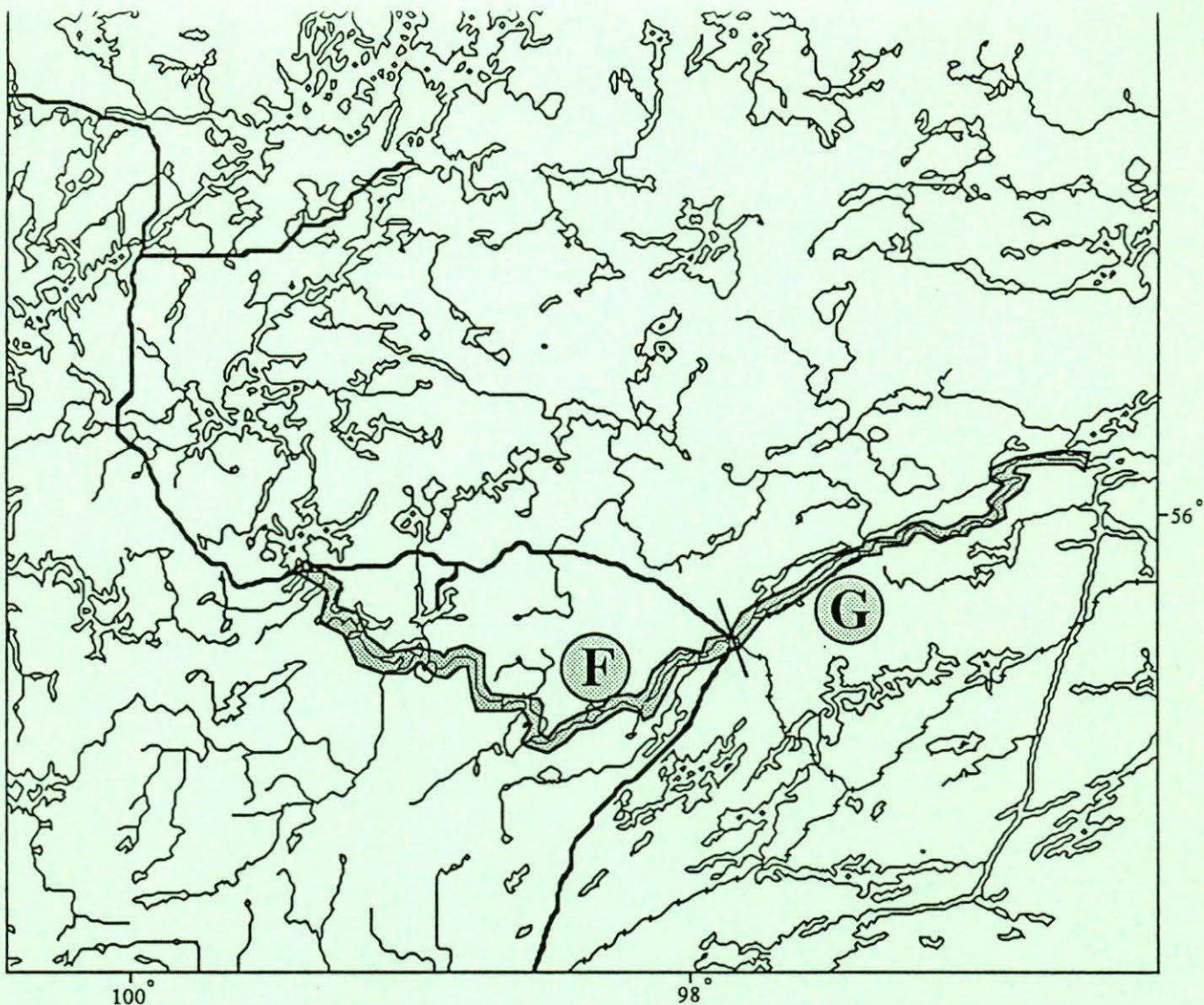




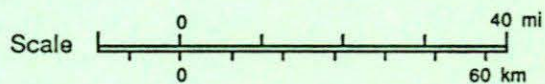
**Rat River**  
(post 1978 base map)



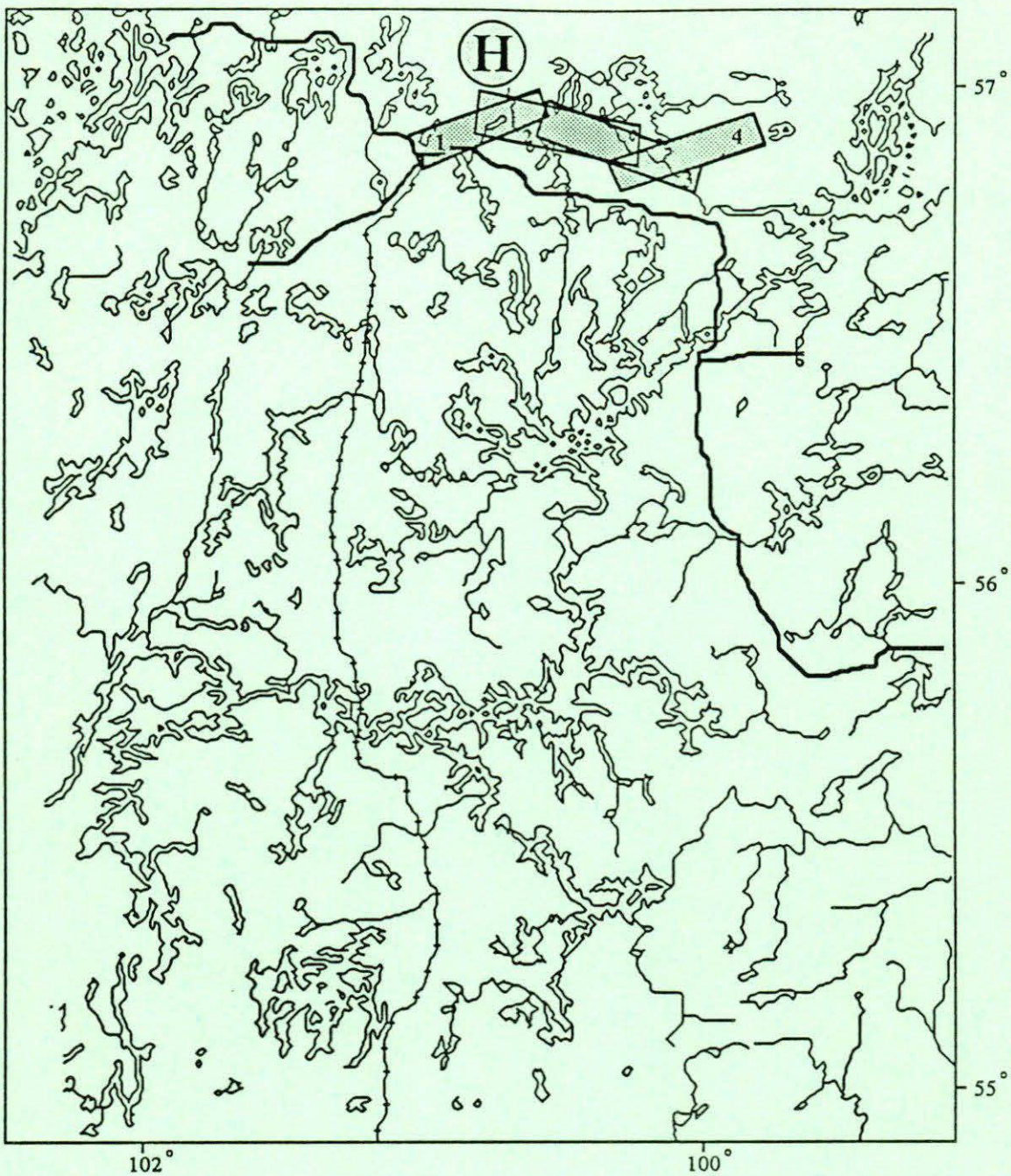
Block	Type	Altitude	Format	Date	Channel(s)
E	Video	Various	VHS	AUG 87	Multi-spectral



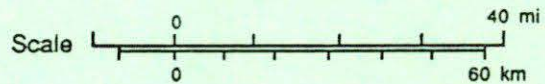
**Rat River**  
(post 1978 base map)



Block	Type	Altitude	Format	Date	Channel(s)
F	Video	600 ft	VHS	AUG 86	Visual
G	Video	600 ft	VHS	Proposed 1987	Visual

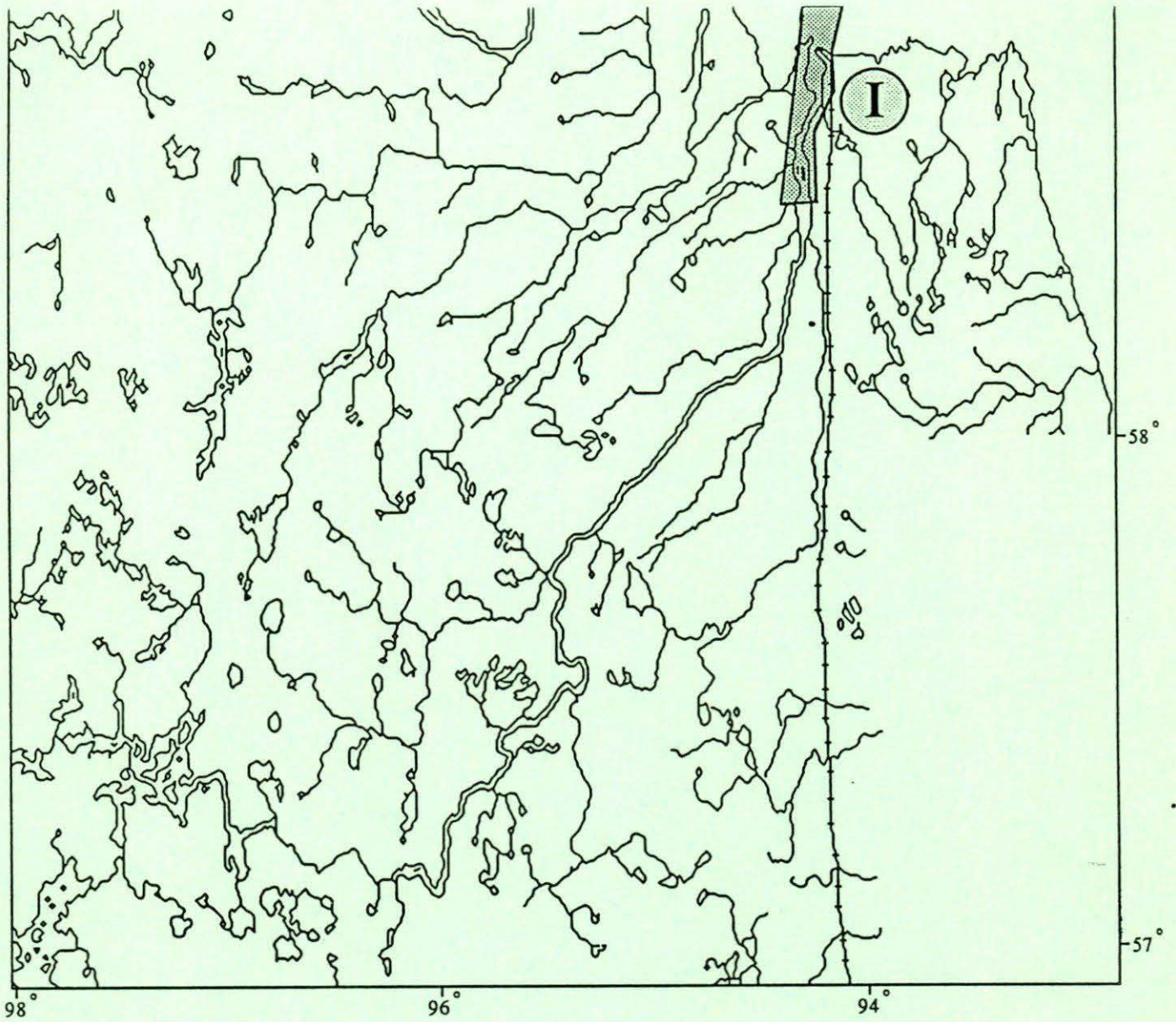


### Upper Churchill

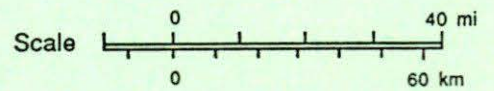


Block	Type	Altitude	Format	Date	Channel(s)
H*	MEIS & MSS	20000 ft	digital	JUN & AUG 86	MEIS: 3,7,1,6,5,4,2,0 MSS : 2,3,4,5,6,7,8,10,11

\* Flightline Designations: 1,2,3,4



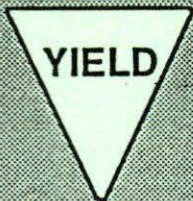
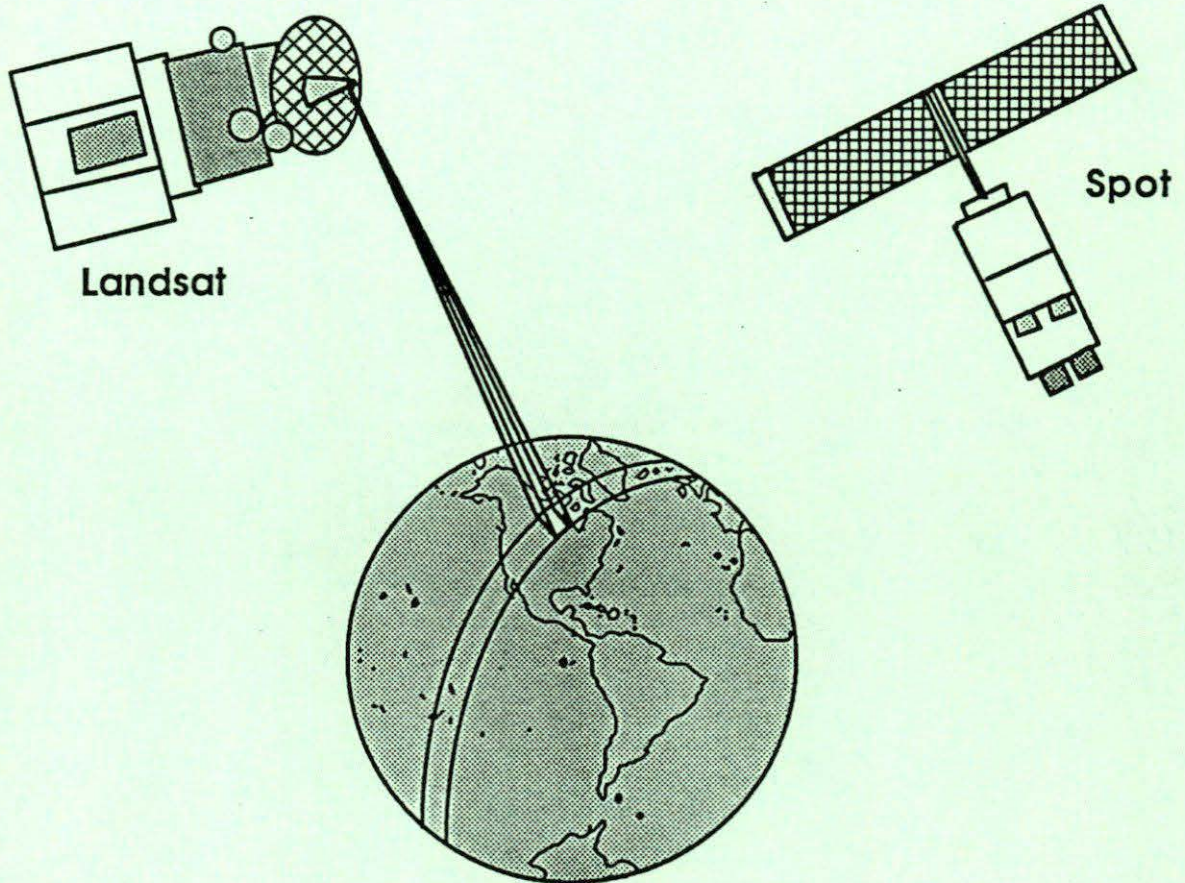
**Lower Churchill**



Block	Type	Altitude	Format	Date	Channel(s)
I	FLIR	Various	VHS	JUL 87	Thermal

## Section 2

# Satellite Imagery



If you haven't already done so, now would be a good time to read "Using the Catalogue", pp. 1-3.

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## SECTION 2. SATELLITE IMAGERY

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### Background

The satellite section provides a complete listing and graphic representation of all imagery ( $\leq 50\%$  cloud), which has been recorded over the study area by Landsat 1, 2, 3, 4, and 5 satellites. Approximately 1500 *multispectral scanner* (MSS) images are documented from a variety of sources. The Landsat status report (Table 6) presents the operating parameters for each Landsat satellite. When two satellites were imaging concurrently, the Manitoba Remote Sensing Centre only archived microfiche for one. Data is available for the other satellite microfiche and can be obtained by contacting the Canada Centre for Remote Sensing. These microfiche are documented in this catalogue as 'NA' in a white microfiche map (see Table 7).

Table 6. Landsat status report \*.

Landsat Series #	Launch Date	Status	Termination Date
1	23-Jul-72	- turned off October 20, 1976. - turned on again June 1, 1977. - MSS band 4 failed March 3, 1977. - turned off October 27, 1977.	6-Jan-78
2	Jan-75	- data transmission April 9, 1975. - termination of operation, January 22, 1980 - recommenced recording June 6, 1980.	24-Feb-82
3	5-Mar-78	- data transmission April 2, 1978. - thermal band 8 inoperative July 1978. - turned off June 6, 1980. - operation very limited April 1982.	7-Sep-83
4	16-Jul-82	- equipped with MSS and TM. - is experiencing "spacecraft" problems. - currently having TM problems. - still in use.	NA
5	1-Mar-84	- currently supplying MSS and TM data. - coverage pattern offset 8 days from that of LS 4. - still in use.	NA

\* Source: Landsat Data Users Handbook.

Images with less than or equal to 50 percent cloud were selected from Landsat Imagery Catalogues. Microfiche cards, for the years 1974 to 1987, were interpreted for cloud cover (c/c) and terrain definition. Microfiche images were viewed and location and percentage of cloud cover were determined using a 10 by 10 grid. Cloud cover

information was recorded from each microfiche. Terrain is described as clear or not clear in areas free of cloud or covered by transparent cloud. When discrepancies between percent cloud observed on the microfiche and percent cloud noted in the Landsat Imagery Catalogue were observed, the microfiche percent cloud was reported. Information gathered from the microfiche is recorded on microfiche maps depicting the geographic location of path and row numbers (see p. 152). The microfiche maps are intended as a reference in selecting appropriate hardcopy images when assessing suitability of the data. Some irregularities were observed when viewing the microfiche. These include:

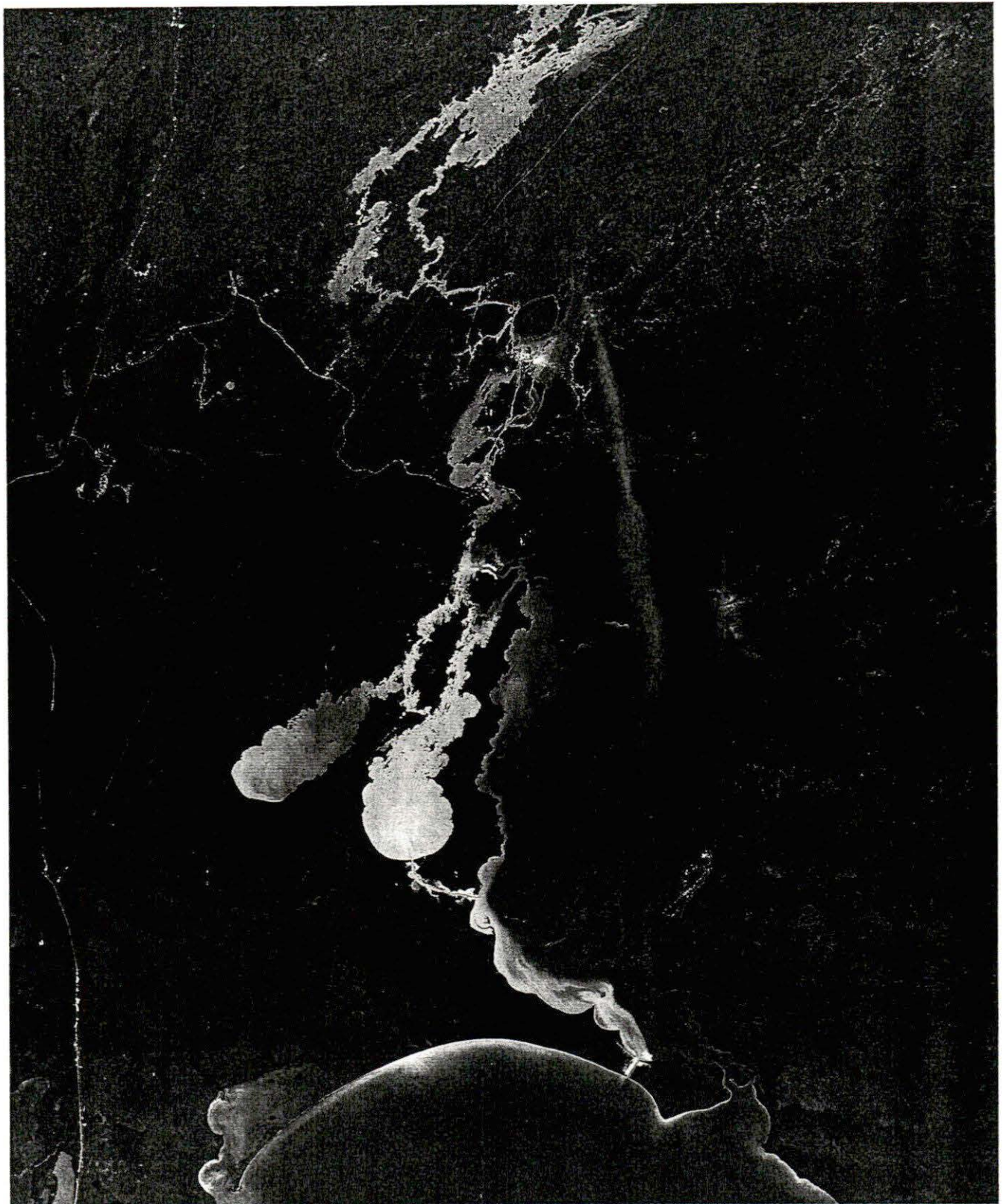
- i) Images from 1972 to 1974 were viewed from *hardcopy* prints. This makes the definition of cloud cover and image clarity more precise for these scenes.
- ii) Landsat 3 microfiche had approximately one third of the image missing (shaded 'NA', west side of the image).
- iii) The Return Beam Vidicon (RBV) is not documented because of severe acquisition problems. It is recommended that the data not be used in quantitative investigations (pers. comm. Manitoba Remote Sensing Centre).
- iv) Several images were not recorded on microfiche even though *digital* data exists. The Manitoba Remote Sensing Centre did not collect microfiche for overlapping years from both satellites. This data is available from the Canada Centre for Remote Sensing.

To illustrate what information is contained in a Landsat MSS image, 12 illustrative plates are presented next. Eight plates show color images of the study area and four plates black and white. Each subarea depicted is illustrated by one image prior to hydroelectric development and one subsequent. The four black and white images are presented to illustrate the utility of Landsat MSS imagery for ice monitoring. Descriptions below each plate describe changes in the environment apparent in each image.

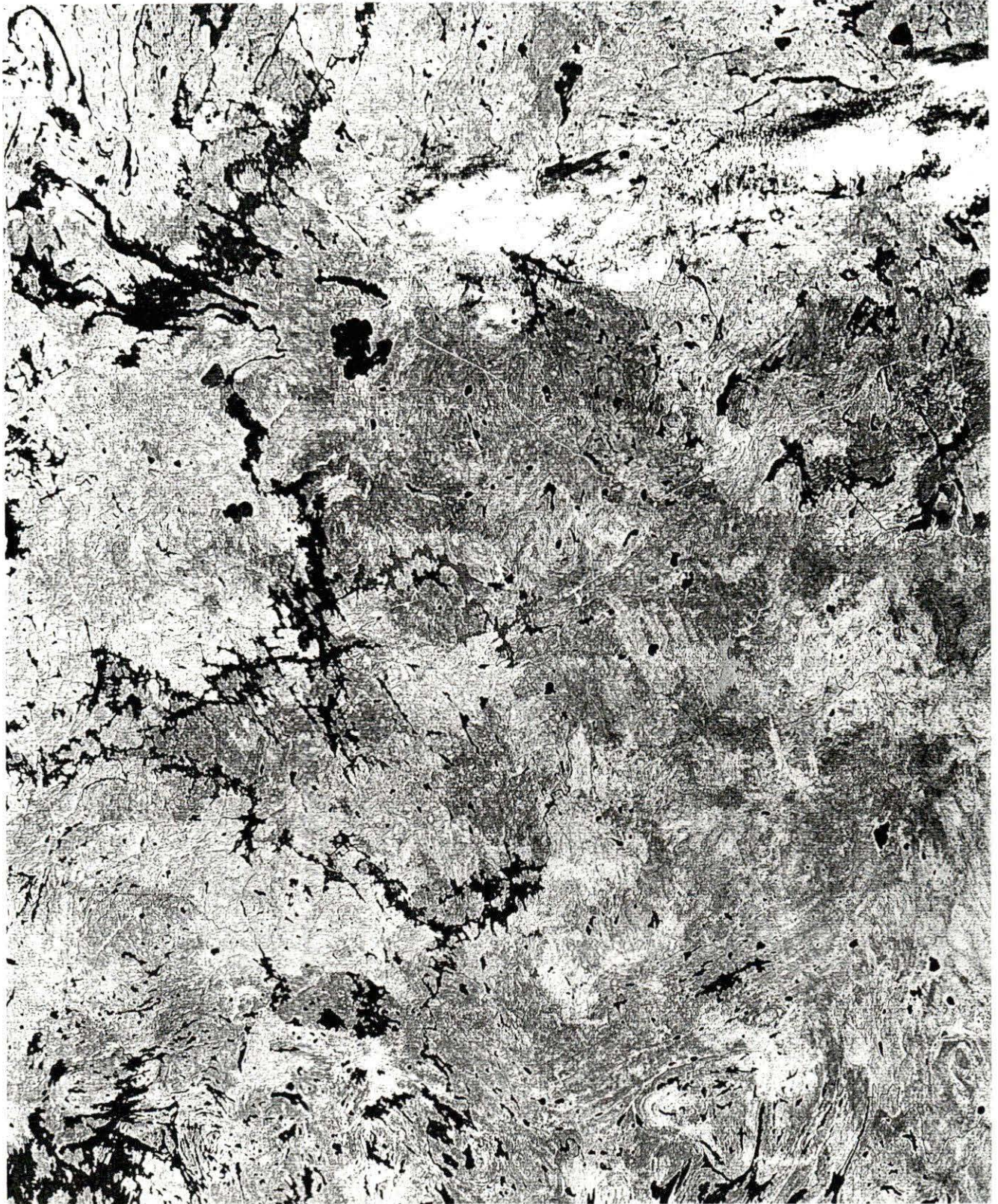


Landsat MSS color composite (bands 4, 5 and 7) of Outlet Lakes. Image was acquired July 4, 1974. Water turbidity patterns (lighter colored water), hydro electric structures (linear channels) and vegetation clearing (light color along lake shores and rivers) are visible.





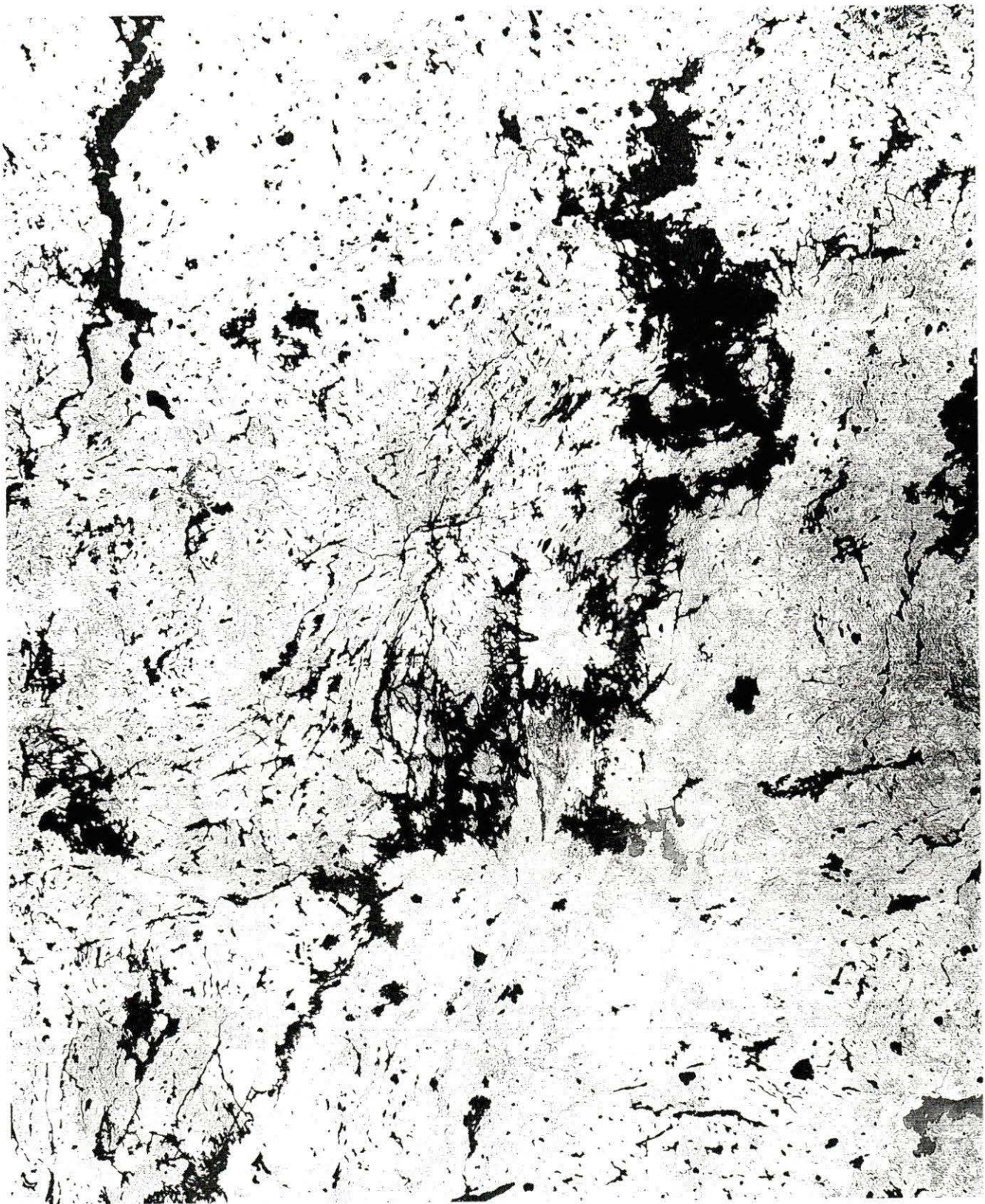
Landsat MSS color composite (bands 4, 5 and 7) of Outlet Lakes. Image was acquired August 16, 1976. Completed hydro structures, water and turbidity levels can be identified.



Landsat MSS color composite (bands 4, 5 and 7) of the Rat River area. Image was acquired September 21, 1973. Natural watershed patterns can be identified.



Landsat MSS color composite (bands 4, 5 and 7) of the Rat River area. Image was acquired August 6, 1983. The Churchill River diversion route (Rat and Burntwood Rivers) can be identified.



Landsat MSS color composite (bands 4, 5 and 7) of Southern Indian Lake. Image was acquired July 29, 1973. Prediversion water areas can be identified.



Landsat MSS color composite (bands 4, 5 and 7) of Southern Indian Lake. Image was acquired June 24, 1978. High turbidity levels (light colored water) and diverted outflow through South Bay are visible.



Landsat MSS color composite (bands 4, 5 and 7) of the lower Churchill River. Image was acquired June 17, 1974. Water and turbidity levels, prior to diversion of the Churchill River, can be identified.

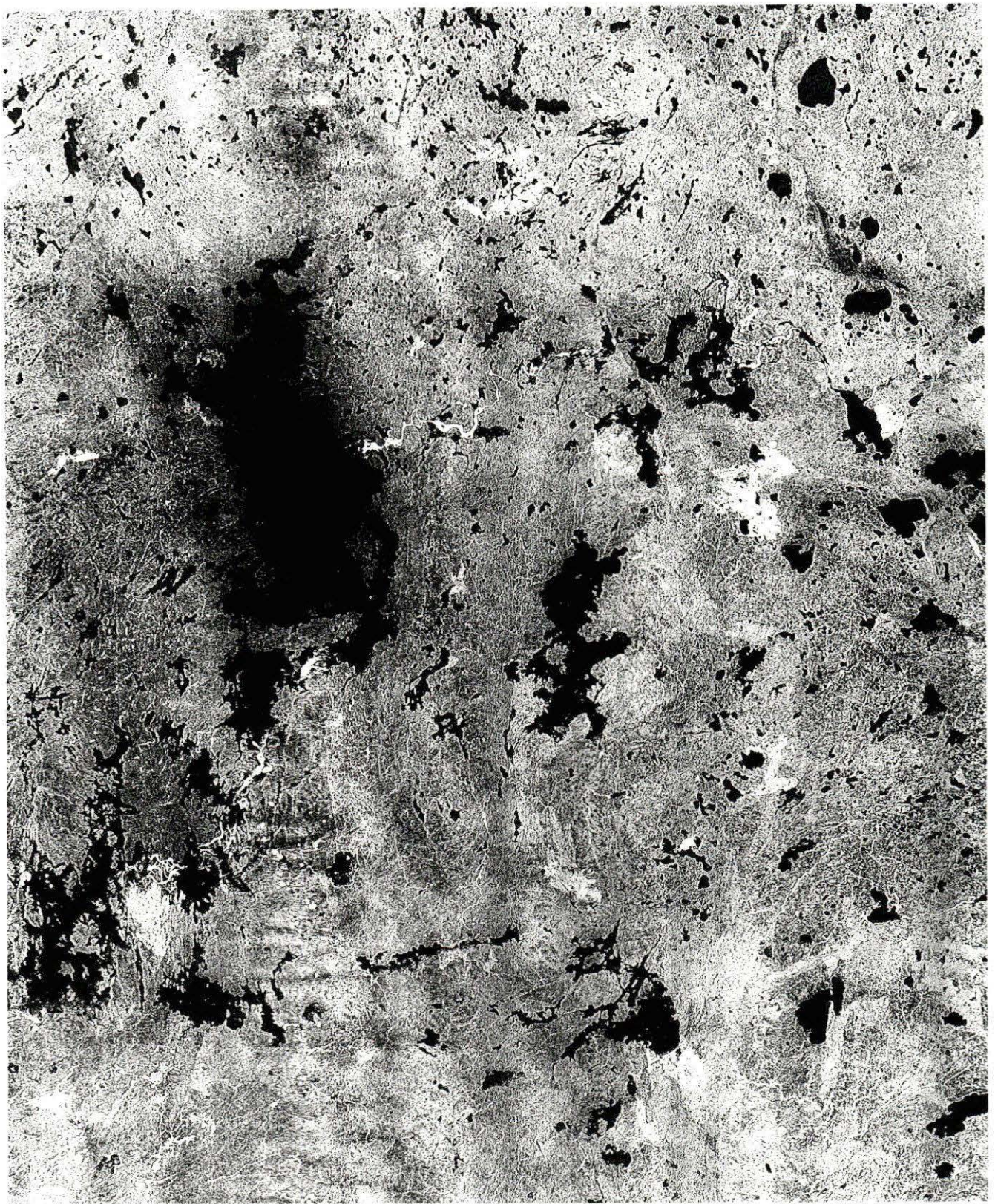


Landsat MSS color composite (bands 4, 5 and 7) of the lower Churchill River. Image was acquired June 25, 1981. Altered turbidity and water levels can be identified in this post-diversion image.



Landsat MSS (band 6) winter scene of Southern Indian Lake. Image was acquired May 12, 1974. The breakup pattern can be identified by the 'black' streams (positive image). Landsat MSS winter scenes are presented in Plates 9-12.





Landsat MSS (band 6) winter scene of Southern Indian Lake. Image was acquired May 7, 1975. The breakup pattern is consistent with Plate 9. Open water is white (negative image). Landsat MSS winter scenes are presented in Plates 9-12.



Landsat MSS (band 6) winter scene of Southern Indian Lake. Image was acquired May 20, 1981. The breakup pattern has been altered from that depicted in Plates 9 and 10. Open water is white (negative image). Landsat MSS winter scenes are presented in Plates 9-12.



Landsat MSS (band 6) winter scene of Southern Indian Lake. Image was acquired May 12, 1984. The breakup pattern is consistent with Plate 11. Open water is white (negative image). Landsat MSS winter scenes are presented in Plates 9-12.

## Introduction

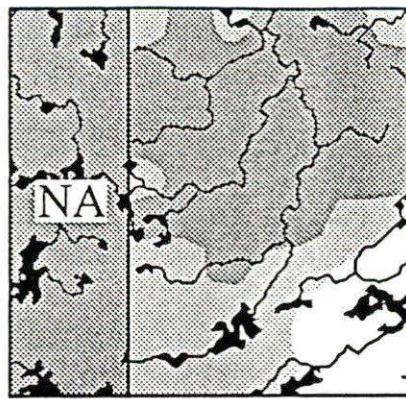
Landsat data is indexed in Canada to a Worldwide Reference System (WRS). This global reference system is based on a network of intersecting paths and rows. The path and row intersections are identified numerically and are termed image centers. By specifying *image* centers a user can obtain imagery without having to use cumbersome longitude and latitude notations. This system is illustrated in the Landsat Index Maps (pp. 157, 158, 255, and 256). There are two different indexing systems for Landsat. The older coverage pattern of Landsat 1, 2, and 3 is accomplished in 18 days and consisted of 251 orbital paths, numbered 001 to 251 east to west. The 16 day coverage pattern of Landsat 4 and 5 is accomplished in 233 orbital paths. As the satellite descends southward from the north pole or ascends northward from the south pole, lateral overlap of each successive path is decreased until, at the equator, lateral overlap between adjacent paths is 14 percent. Overlap at the latitude of the study area is approximately 50 percent (Landsat Data Users Handbook). This convergence of the orbital paths means increased temporal coverage of a given geographical point with increased proximity to the poles. If the *image* center path 31 row 20 is required, the adjacent image centers (path 30 row 20 and path 32 row 20) should also be viewed.

The row is used to identify the latitudinal center lines of a frame on any given path. As the satellite moves along each path, the sensors are continuously scanning the terrain below. When the signals are transmitted to Earth, they are correlated with telemetry data and recorded onto *digital* tape. The recorded data is not to be considered as a series of picture frames along a ground track, but more as a continuum of numerical data available from a sensor with no shutter devices. The images are framed from the continuous MSS data swath at 25 second increments of satellite time. These increments represent approximately 185 kilometers (115 statute miles) with 10% endlap between successive scenes. A total of 248 scenes, 124 on the descending node (day scenes) and 124 on the ascending node (night scenes) are possible along each path.



The study area is encompassed by paths 30 to 35 of the Landsat 4 and 5 (WRS), and by paths 32 to 37 of the Landsat 1, 2, and 3 (WRS). Row numbers vary with each path but generally encompass rows 19 to 22 for both Landsat referencing systems. You should note that *image* centers for Landsat 1, 2, and 3 are not identical to 4 and 5. Refer to the Landsat Index Maps (pp. 157, 158, 255, and 256).

## Microfiche maps

A microfiche map depicting geographic features is presented for each image center. These microfiche maps (Figure 5) are used to depict the location of transparent and opaque cloud. Table 7 describes the different shading patterns used to depict cloud. A data block, located below each microfiche map provides information pertaining to the particular *image* center. Table 8 describes the content of these data blocks.



← microfiche map






 opaque  
 transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	20	3	8/21/82	40	GGGG	967

← data block

Figure 5. Landsat microfiche map.

Table 7. Description of shading pattern on microfiche map. \*

Shading Pattern	Description	Definition
	opaque	terrain not visible.
	transparent	terrain visible but may or may not be clear.
	non-shaded	terrain visible.
	not available, shaded	microfiche available but not clear, for reasons other than cloud.
	not available, non- shaded	microfiche not available at MRSC.

\* See Appendix C for additional information.

Information on *image* quality and a more thorough description of cloud cover can be found in Appendix C. The App. number, described in Table 8, is used to find appropriate information in Appendix C.

Table 8. Description of microfiche data block.

Header	Description
Path/ Row	All Landsat images in this catalogue are listed in ascending order of Path and Row. These in combination are referred to as Picture Centre Numbers and are to be used in conjunction with the Landsat Index Map to locate the approximate position of each image in relation to a map of Canada (see Landsat Index Maps, pp. 157, 158, 255, and 256).
LS	Landsat mission 1,2,3,4, or 5 The basic characteristics of the Landsat satellites and their sensors are documented in the Applications Section. See also Landsat satellite status report (Table 6).
Date	Date of image acquisition over target area listed by month, day, year.
C/C	Cloud Coverage - a subjective estimate is made of the MSS scene. Cloud coverage can be opaque or transparent (see Table 33 in Appendix C for description of opaque).
Qual. of MSS	Image Quality - an asterisk indicates that no data had been processed for this scene at the time of publishing. MSS bands (Multi-spectral scanner bands) 1 2 3 4 (previously 4 5 6 7 for LS 1 to 3) Quality: Excellent, Good, Fair, Poor, Uncorrectable.
App.	Appendix reference number Additional data for App. #25 can be found in Appendix C.

Source: Landsat Imagery Catalogue.

## Using the Satellite Section

Landsat 4 and 5 microfiche maps are presented first, followed by Landsat 1, 2 and 3. A maximum of six Landsat Microfiche Maps are presented on one page. The Landsat Index Maps indicate the approximate spatial extent of one microfiche map. Landsat Microfiche Maps are presented in order of ascending path and row number. The footers describe the *image* center by Landsat, path, and row numbers. You should reference the geographic location of each *image* center because the spatial coverage of Landsat 4 and 5 is different than 1, 2, and 3. Once appropriate *image* centers are selected, *hardcopy* prints should be viewed if you are considering purchasing *digital* data. Information specific to each microfiche map is located in the data block and in Appendix C.

## Landsat Data Products

Several Landsat products are available through the Canada Centre for Remote Sensing. We included a list of *hardcopy* and *digital* data purchased by agencies in Winnipeg (Appendix D and E). We recommend that users contact these agencies to assess the quality of images they wish to purchase. For more information on standard Landsat products, you should refer to the contacts listed in How to Order (p. 155). Table 9 describes standard data products and gives a description of *radiometric* correction types. Table 10 describes available photographic products.

Table 9. Standard Landsat and SPOT data products.

Product Name	Landsat No.	Dimensions of Scene		RC*	GC**		Geodetic Accuracy	Pixel Size (m)	
		pixels x lines	(km)		Al's	Ac-s			
Multispectral Scanner									
Raw full scene	All	3246 x 2340	185 x 185				NA	57 x 80	
Bulk full scene	All	3246 x 2260	185 x 185	*	*		NA	57 x 82	
System-corrected geocoded	All	3246 x 2340	185 x 185	*	*		11.2 km	57 x 80	
		3246 x 2260	185 x 185	*	*		1.06 km	57 x 82	
Precision-corrected geocoded	All	800-1700 x 1140	40-50 x 57	*	*		11.2 km	50 x 50	
		800-1700 x 1140	40-50 x 57	*	*	*	1.06 km	50 x 50	
Thematic Mapper									
Raw Quadrant	4,5	3160 x 2944	88 x 95		*		1.05 km	30 x 30	
Bulk Quadrant	4,5	3160 x 2944	88 x 95	*	*			30 x 30	
Raw full scene	4,5	6120 x 5728	184 x 172		*		1.05 km	30 x 30	
Bulk full scene	4,5	6120 x 5728	184 x 172	*	*		1.05 km	30 x 30	
System-corrected geocoded	4,5	1600-3400 x 2280	40-85 x 57	*	*			25 x 25	
Precision-corrected geocoded	4,5	1600-3400 x 2280	40-85 x 57	*	*	*	18 m	25 x 25	
SPOT									
Raw full scene	MLA <sup>1</sup>	NA	3000 x 3000	60-80 x 60	*	*	*	1.5 km	20 x 20
	PLA <sup>2</sup>	NA	6000 x 6000	60-80 x 60	*	*	*	1.5 km	10 x 10
System-corrected GC	MLA	NA	3360 x 2240	20-42 x 28	*	*	*	1.5 km	~12 x 12
	PLA	NA	6720 x 4480	20-42 x 28	*	*	*	1.5 km	~6 x 6
Precision-corrected GC	MLA	NA	3360 x 2240	20-42 x 28	*	*	*	24 m	~12 x 12
	PLA	NA	6720 x 4480	20-42 x 28	*	*	*	23 m	~6 x 6

- <sup>1</sup> = MLA - Multi-Linear Array
- <sup>2</sup> = PLA - Panchromatic Linear Array
- \* = radiometric correction
- \*\* = geometric correction
- Al = along-scan
- Ac = across-scan

Source: Landsat Data Users Handbook and Remote Sensing in Manitoba, Fall 1986.

\* Selecting radiometric corrections

Radiometric Corrections	Description
Linear	Recommended for user who will perform further digital analysis of CCTs.
Log	Recommended for user who will produce photographic products directly for CCTs (without digital analysis).
Cal2	Higher contrast than Cal3; lower banding at bright and dark extremes; may saturate over water or bright snow/ice.
Cal3	Lower contrast than Cal2; improved coverage over bright and dark extremes (eg. for water or snow/ice studies).

Source: Landsat Data Users Handbook.

Table 10. Photographic imagery products.

Product	Format	Description
Black and White Transparencies, Positives and Negatives	185 mm	Return Beam Vidicon (RBV), or Advanced Very High Resolution Radiometer
	185 mm	Multispectral Scanner (MSS)
	185 mm	Thematic Mapper (TM), bulk, corrected -quadrant -full scene
	185 mm	"Systeme Pour l'Observation de la Terre" (SPOT) -multispectral linear array, full scene -panchromatic linear array, full scene
Color Transparencies and Positives (only)	185 mm	Multispectral Scanner (MSS)
	185 mm	Thematic Mapper (TM), bulk, corrected -quadrant -full scene
	185 mm	"Systeme Pour l'Observation de la Terre" (SPOT) -multispectral linear array, full scene

\* adapted from Landsat Data Users Handbook.

## How to Order

Orders can be made through the Manitoba Remote Sensing Centre or the Canada Centre for Remote Sensing. Provide path, row, date, Landsat number, and product type obtained from the microfiche maps, to either of these agencies. If path, row and date information is unavailable then outline the area of interest on a map, describing the latitude and longitude boundaries in degrees and minutes. Provide information on what dates of imagery are acceptable, percent cloud cover, and particulars of format.

Inquires regarding an order, placing an order, or other additional services, should be directed to the following User Assistance Facilities:

Canada Centre for Remote Sensing  
Attention User Assistance Group  
717 Belfast Road  
Ottawa, Ontario  
K1A 0Y7

E.M.S.I.  
754 Carter Ave.  
Winnipeg, Manitoba  
R3M 2C9

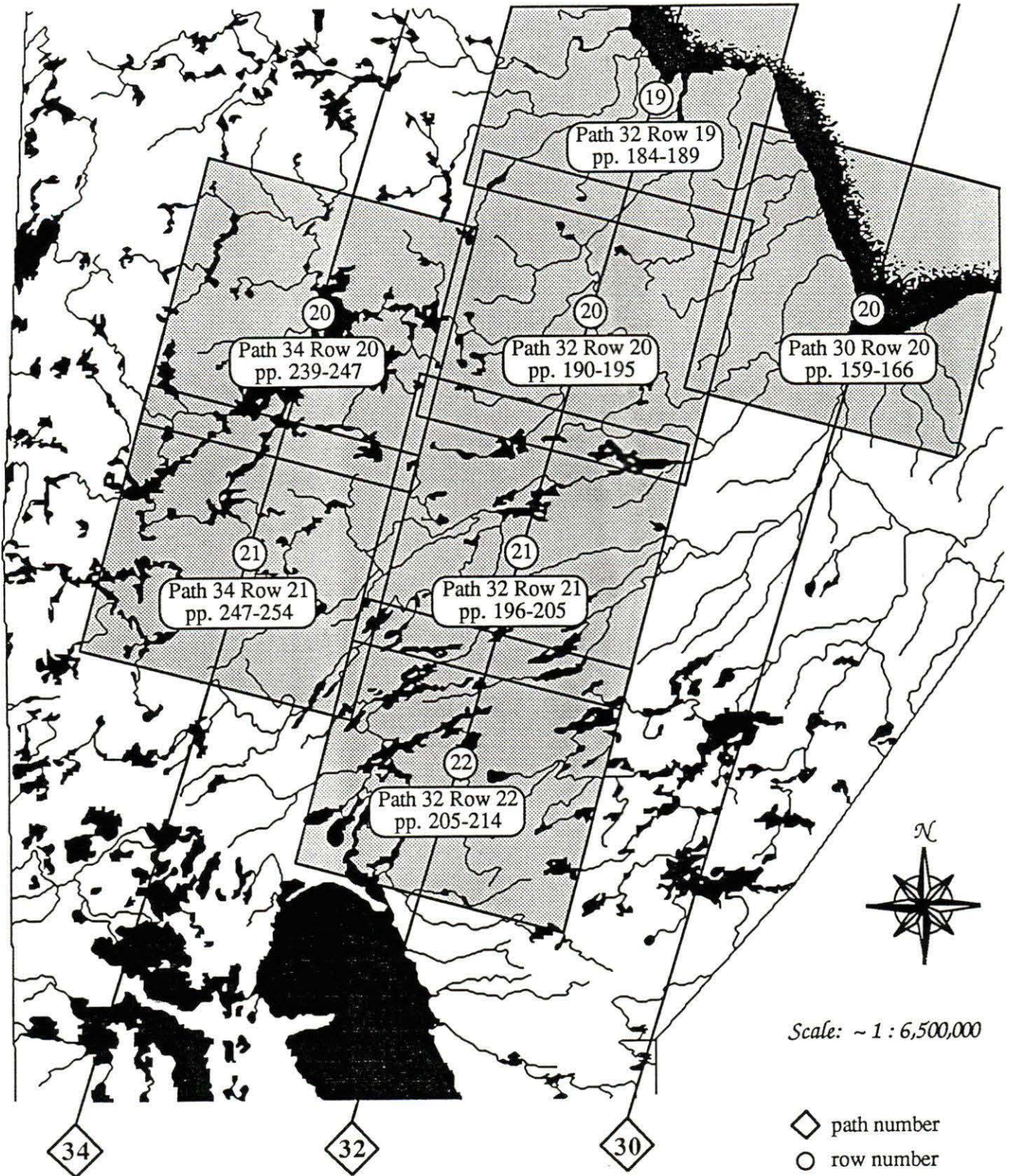
Manitoba Remote Sensing Centre (MRSC)  
1007 Century St.  
Winnipeg, Manitoba  
R3H 0W4

Prince Albert Satellite Station (PASS)  
P.O. Box 1150  
Prince Albert, Saskatchewan  
S6V 5T2

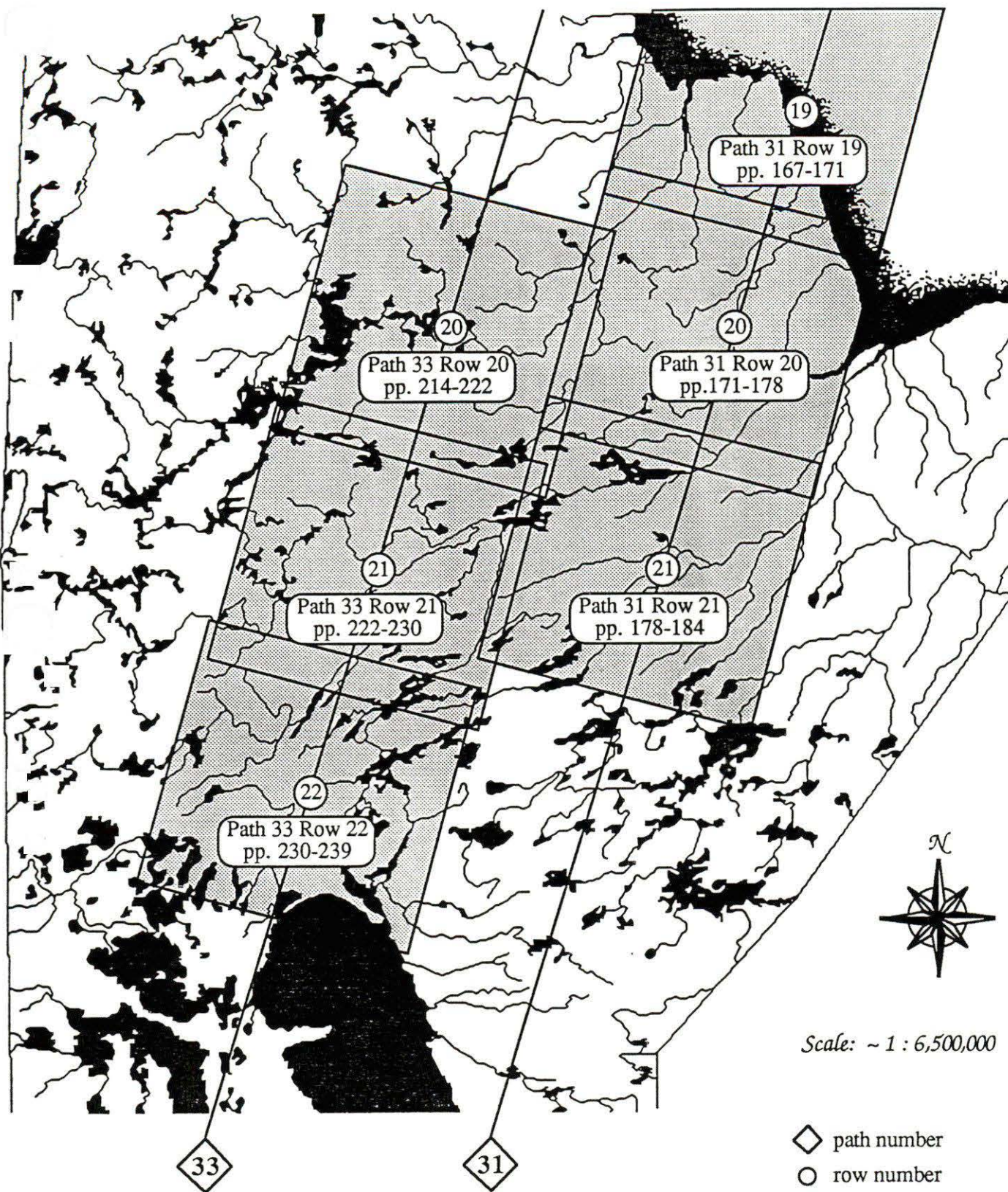


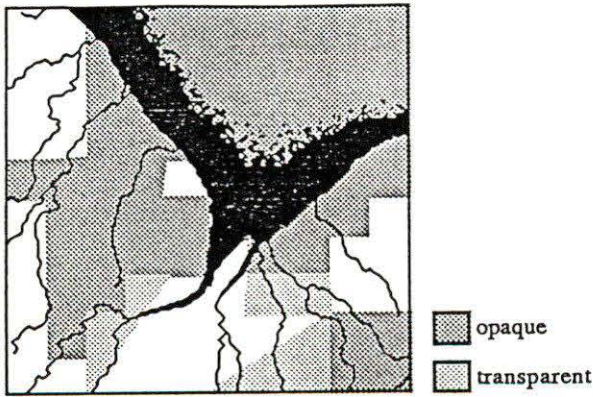


# Landsat 4&5 Index Map

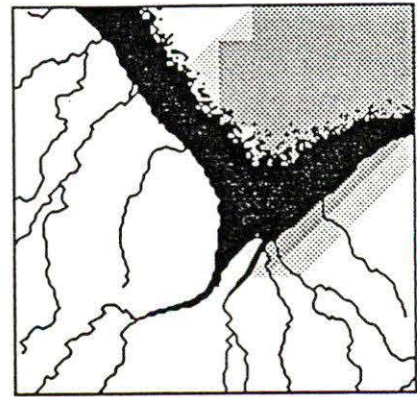


# Landsat 4&5 Index Map

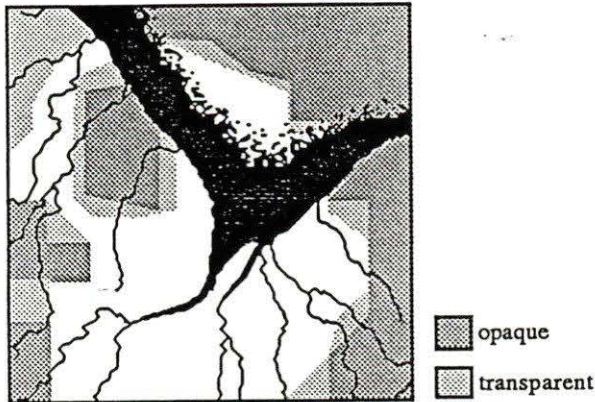




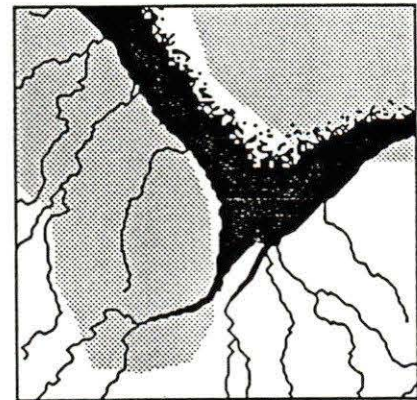
Path	Row	LS	Date	C/C	Qual. of MSS	App.#
30	20	4	11/14/83	40	GGGG	1



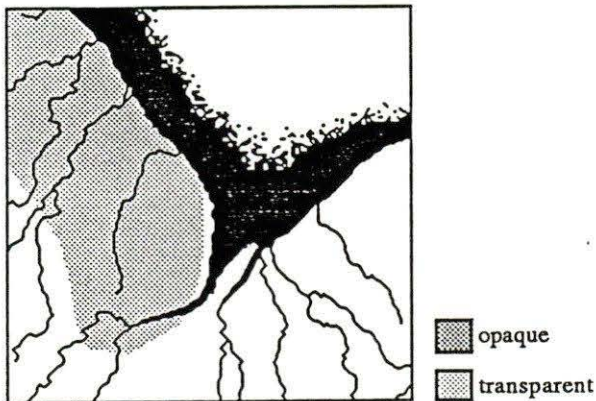
Path	Row	LS	Date	C/C	Qual. of MSS	App.#
30	20	4	1/17/84	10	GGGG	2



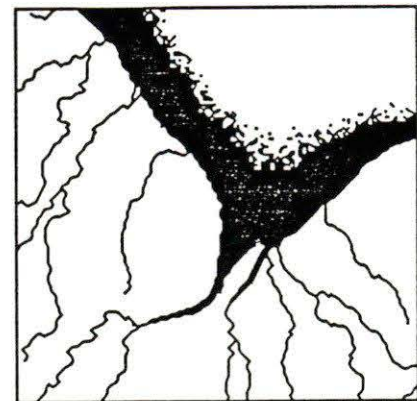
Path	Row	LS	Date	C/C	Qual. of MSS	App.#
30	20	4	2/18/84	30	GGGG	3



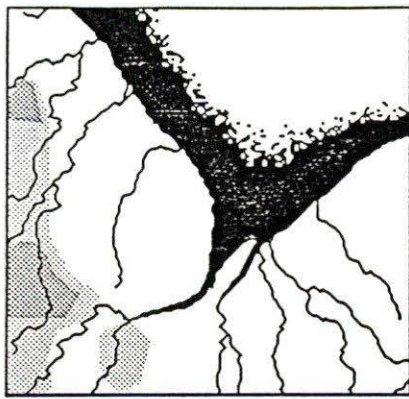
Path	Row	LS	Date	C/C	Qual. of MSS	App.#
30	20	4	3/5/84	0	GGGG	4



Path	Row	LS	Date	C/C	Qual. of MSS	App.#
30	20	4	3/21/84	0	GGGG	5

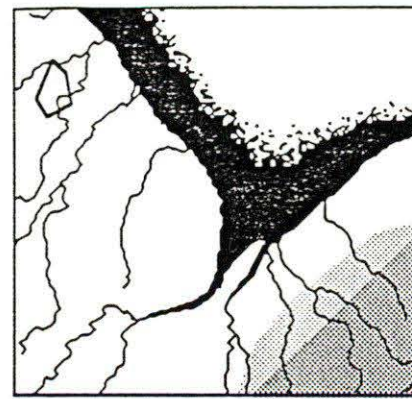


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
30	20	4	4/22/84	0	GGGG	6

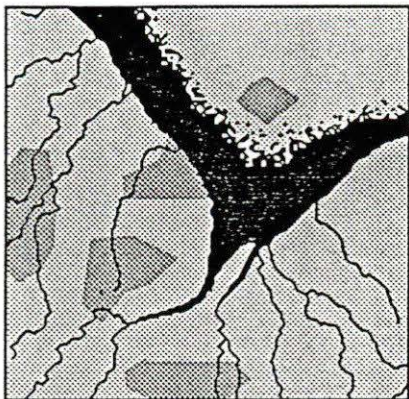


opaque  
transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
30	20	4	7/27/84	5	GGGG	7

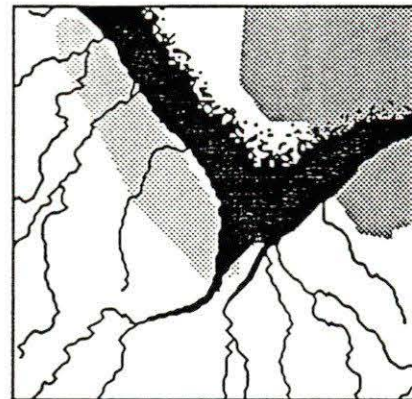


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
30	20	4	8/12/84	10	GGGG	8

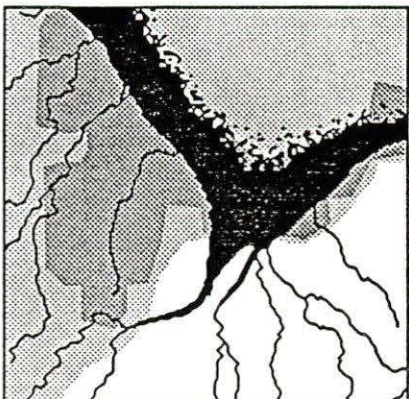


opaque  
transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
30	20	4	9/29/84	30	GGGG	9

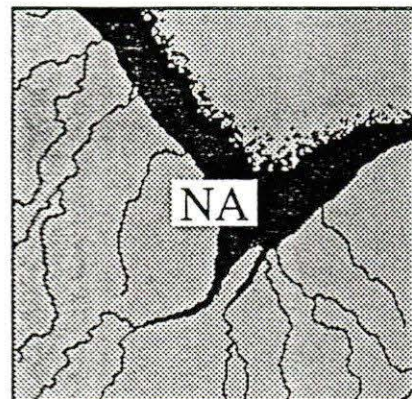


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
30	20	4	10/31/84	25	GGGG	10

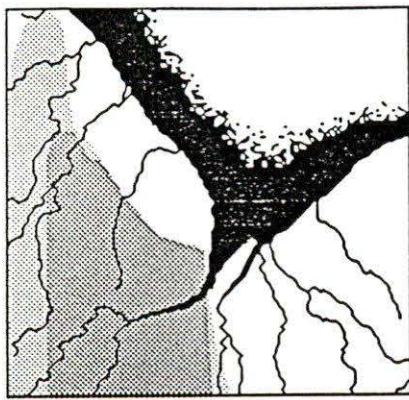


opaque  
transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
30	20	4	2/4/85	30	GGGG	11

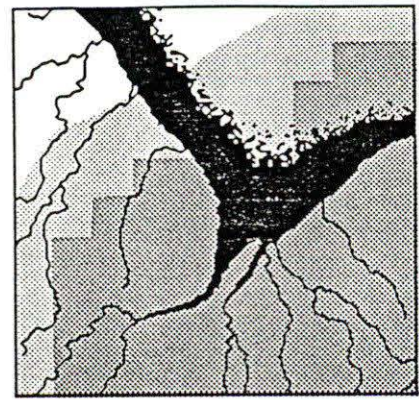


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
30	20	4	5/27/85	30	GGGG	12

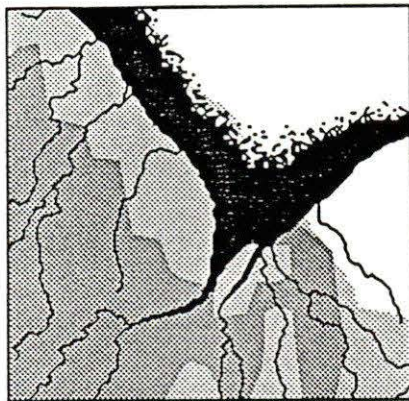


opaque  
transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
30	20	4	6/12/85	20	GGGG	13

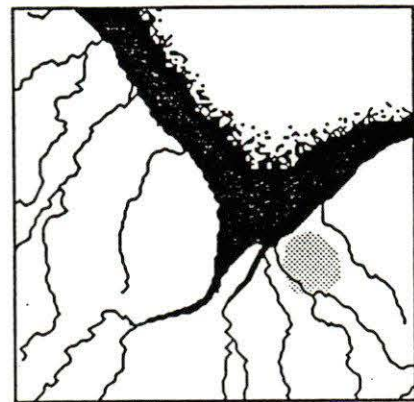


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
30	20	4	6/28/85	50	GGGG	14

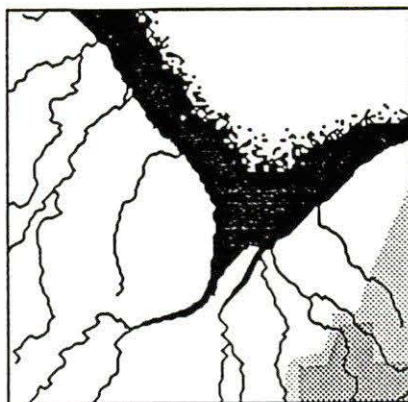


opaque  
transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
30	20	4	7/30/85	50	GGGG	15

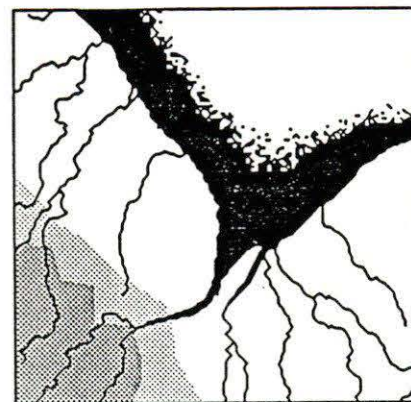


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
30	20	4	8/15/85	1	GGGG	16

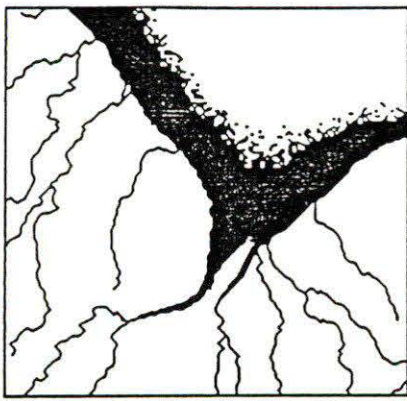


opaque  
transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
30	20	4	10/2/85	5	GGGG	17

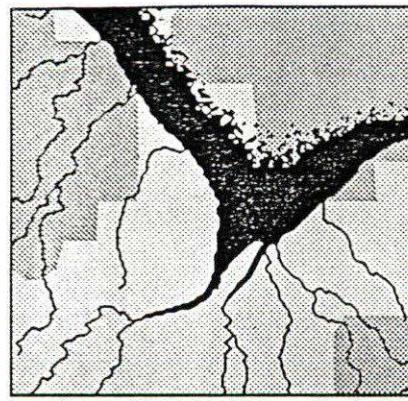


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
30	20	4	11/3/85	10	GGGG	18

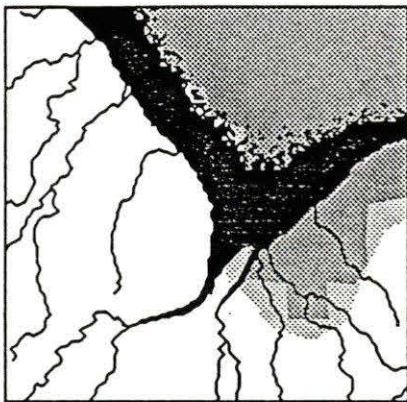


opaque  
transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
30	20	4	11/19/85	0	GGGG	19

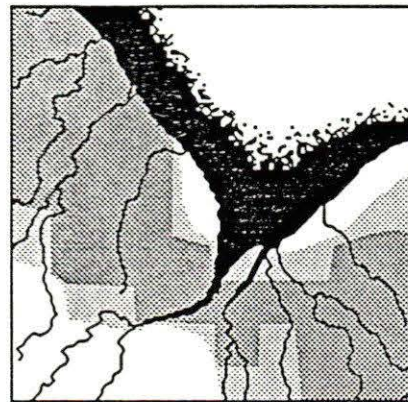


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
30	20	4	1/6/86	30	GGGG	20

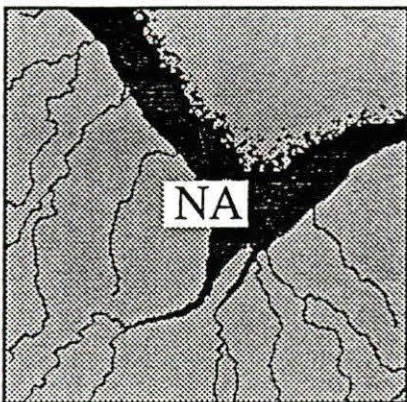


opaque  
transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
30	20	4	1/22/86	20	GGGG	21

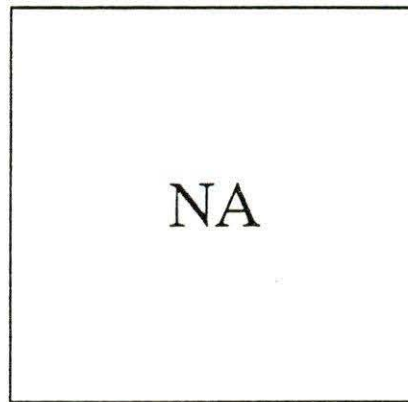


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
30	20	4	2/23/86	20	GGGG	22

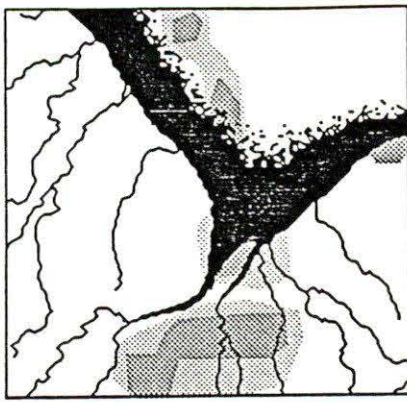


opaque  
transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
30	20	4	3/11/86	20	GGGG	23

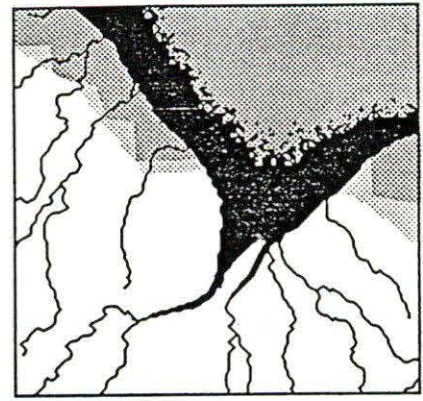


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
30	20	4	7/17/86	0	GGGG	24

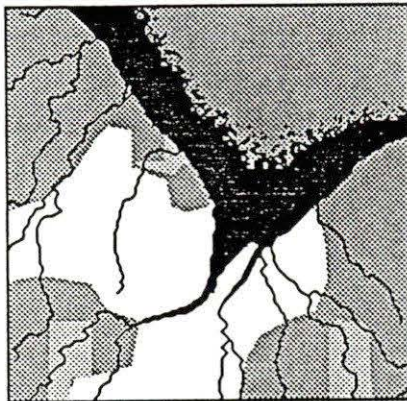


opaque  
transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
30	20	5	6/17/84	15	GGGG	25

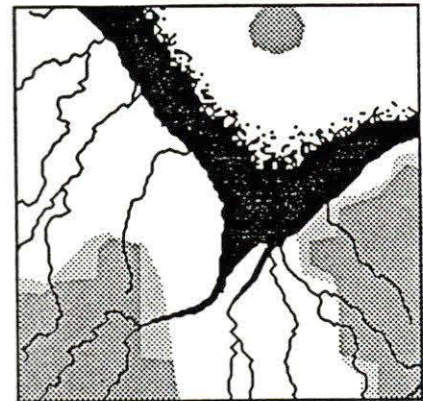


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
30	20	5	8/4/84	50	GGGG	26

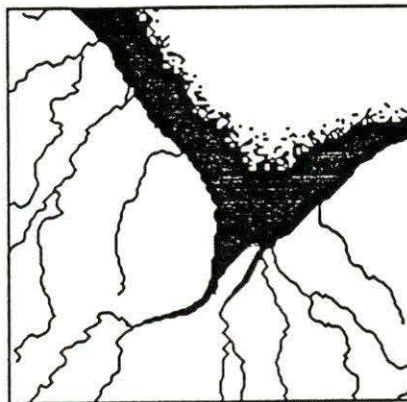


opaque  
transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
30	20	5	8/20/84	50	GGGG	27

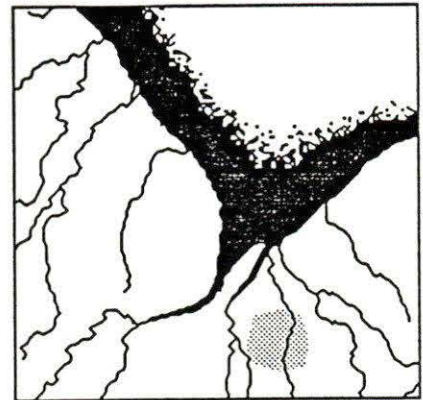


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
30	20	5	9/5/84	30	PPPP	28



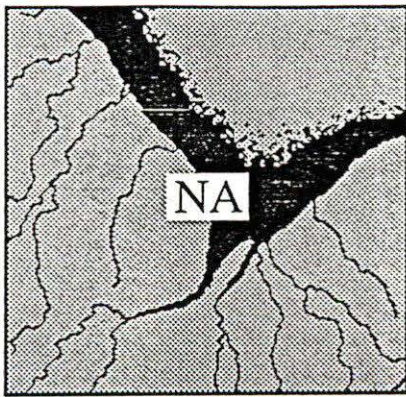
opaque  
transparent



Path	Row	LS	Date	C/C	Qual. of MSS	App.#
30	20	5	11/24/84	0	GGGG	29

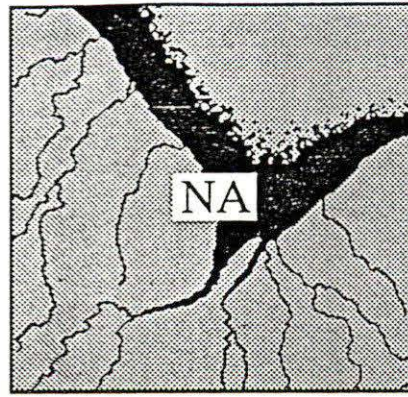


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
30	20	5	2/12/85	2	GGGG	30



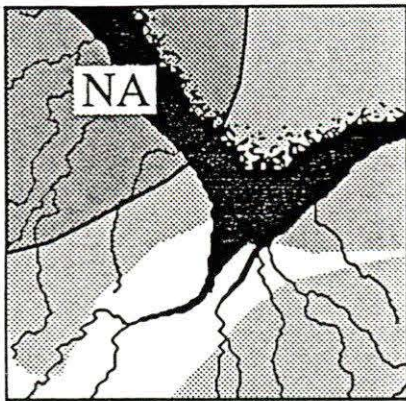




 opaque  
 transparent

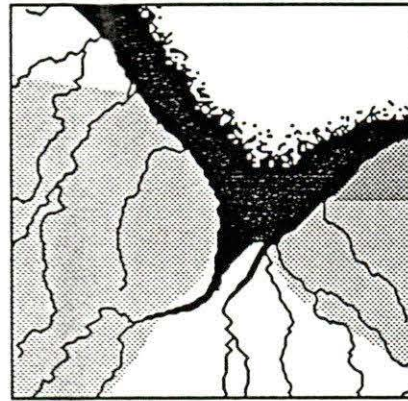


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
30	20	5	3/16/85	30	GGGG	31

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
30	20	5	4/1/85	20	GGGG	32

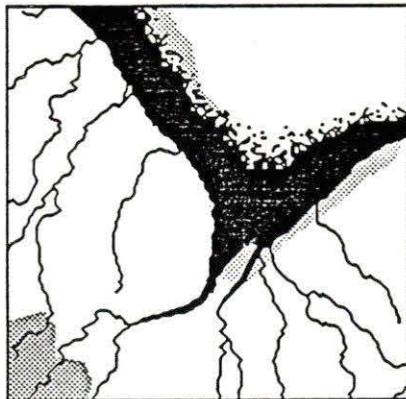




 opaque  
 transparent

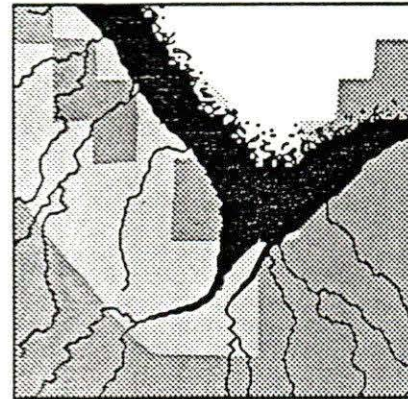


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
30	20	5	6/4/85	30	GGGG	33

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
30	20	5	7/6/85	20	GGGG	34

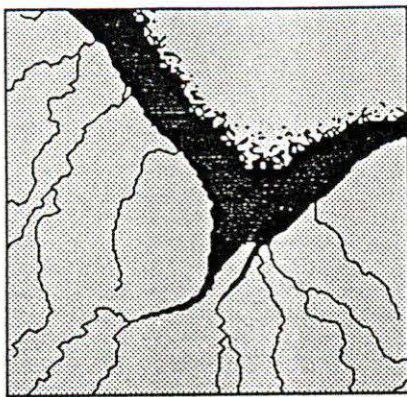


 opaque  
 transparent



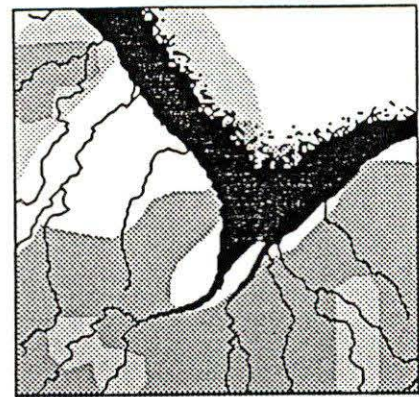
Path	Row	LS	Date	C/C	Qual. of MSS	App.#
30	20	5	7/22/85	10	GGGG	35

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
30	20	5	8/7/85	35	GGGG	36

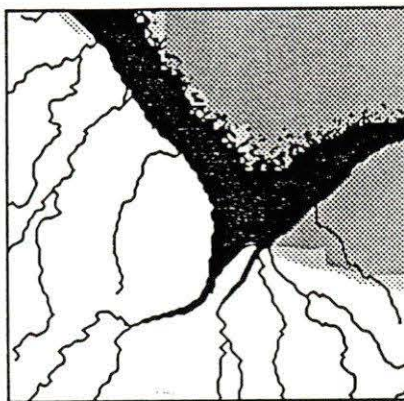


opaque  
 transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
30	20	5	8/23/85	10	GGGG	37

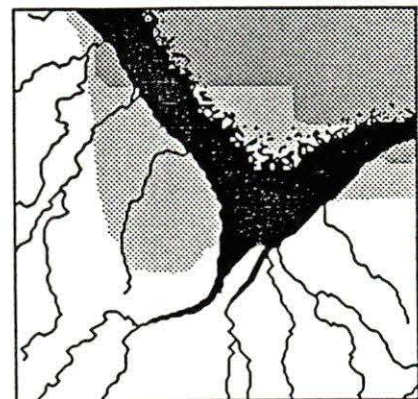


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
30	20	5	9/8/85	50	GGGG	38

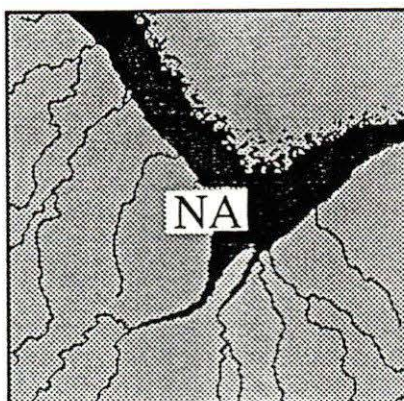


opaque  
 transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
30	20	5	1/30/86	30	GGGG	39

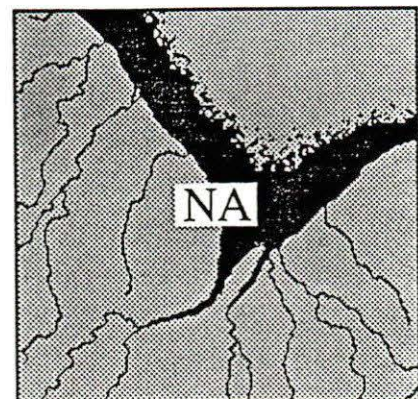


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
30	20	5	2/15/86	15	GGGG	40

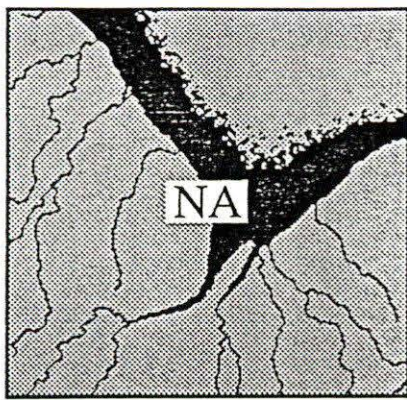


opaque  
 transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
30	20	5	3/19/86	0	GGGG	41

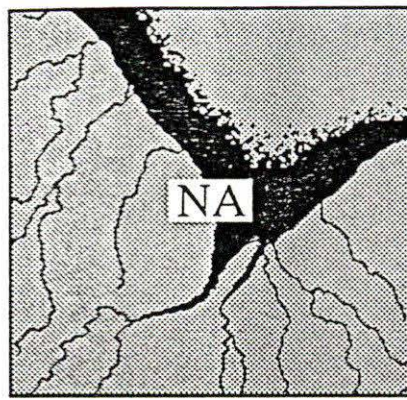


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
30	20	5	4/4/86	5	GGGG	42

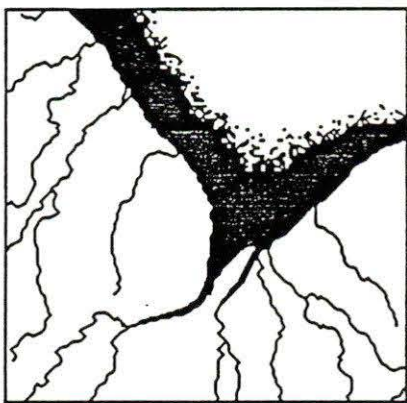


opaque  
transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
30	20	5	4/20/86	15	GGGG	43

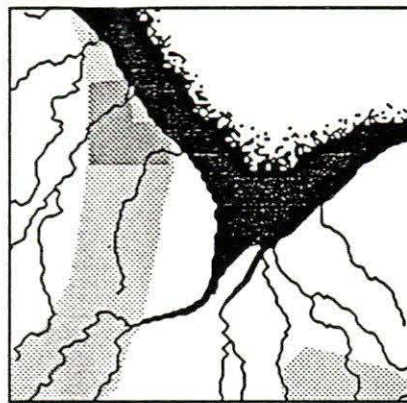


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
30	20	5	5/6/86	30	GGGG	44

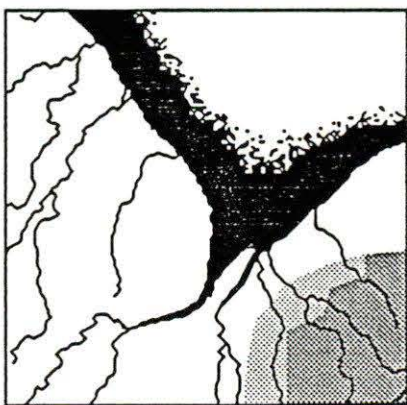


opaque  
transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
30	20	5	5/22/86	0	GGGG	45

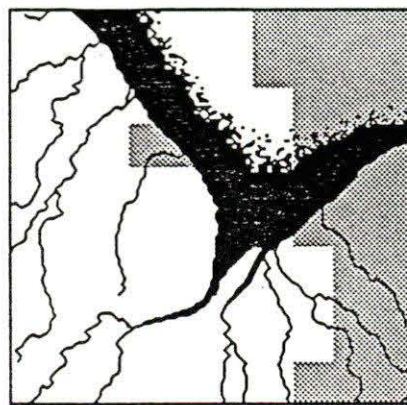


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
30	20	5	6/23/86	10	GGGG	46

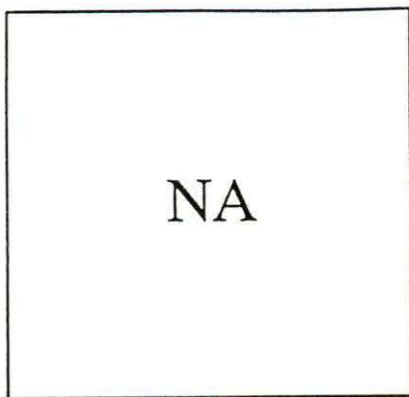




opaque  
transparent

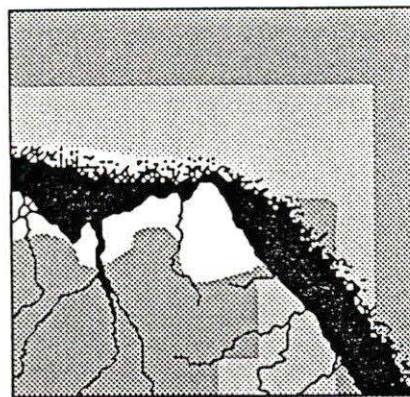
Path	Row	LS	Date	C/C	Qual. of MSS	App.#
30	20	5	7/9/86	15	GGGG	47



Path	Row	LS	Date	C/C	Qual. of MSS	App.#
30	20	5	10/29/86	25	GGGG	48

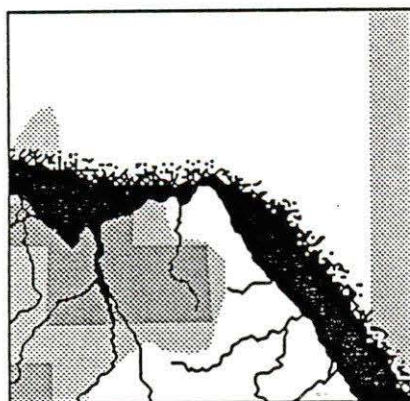




 opaque  
 transparent

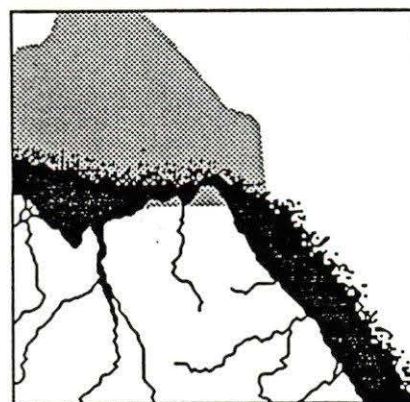


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
31	19	4	11/18/82	20	GGGG	49

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
31	19	4	11/21/83	40	GGGG	50

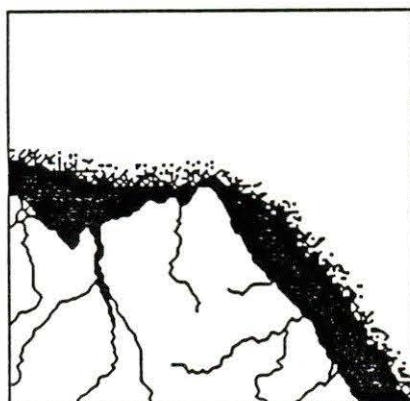




 opaque  
 transparent

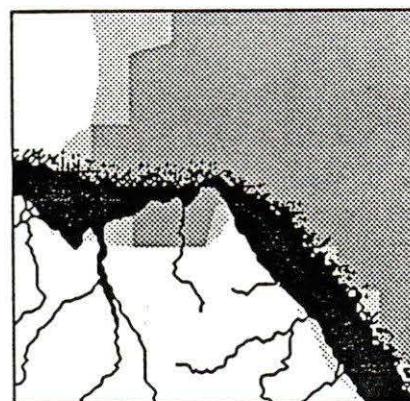


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
31	19	4	2/25/84	45	GGGG	51

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
31	19	4	3/12/84	20	GGGG	52

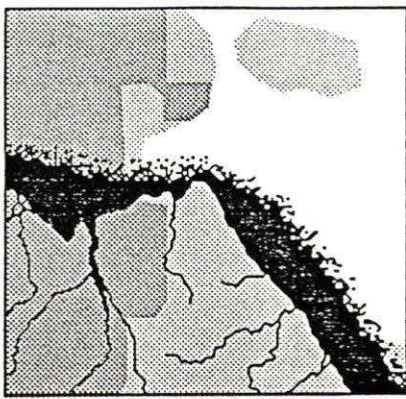


 opaque  
 transparent



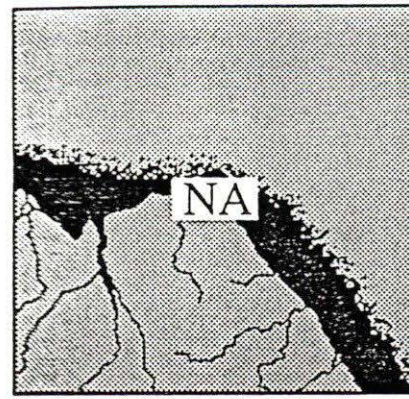
Path	Row	LS	Date	C/C	Qual. of MSS	App.#
31	19	4	8/3/84	0	GGGG	53

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
31	19	4	11/7/84	30	GGGG	54

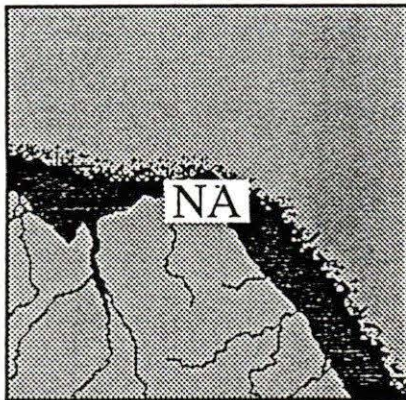


opaque  
transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
31	19	4	12/9/84	50	GGGG	55

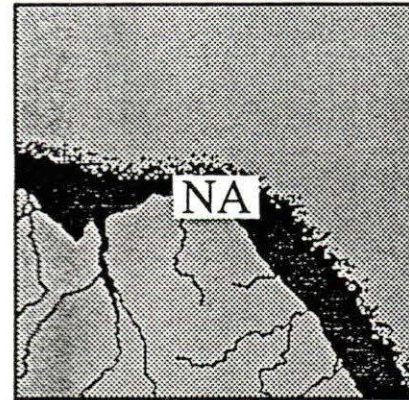


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
31	19	4	1/10/85	50	GGGG	56

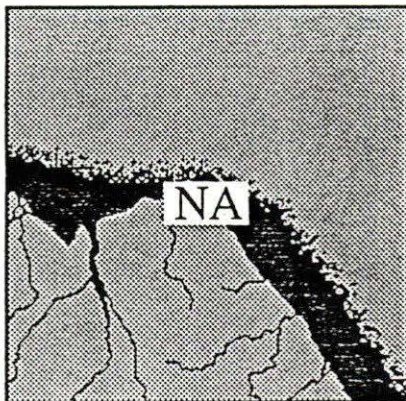


opaque  
transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
31	19	4	3/15/85	50	GGGG	57

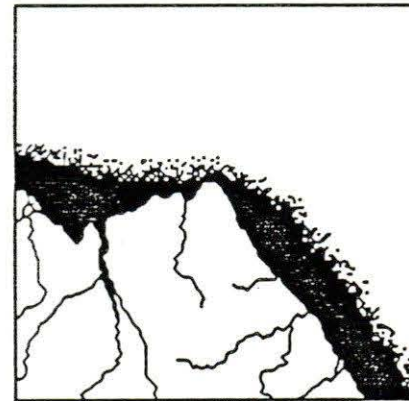


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
31	19	4	3/31/85	5	GGGG	58

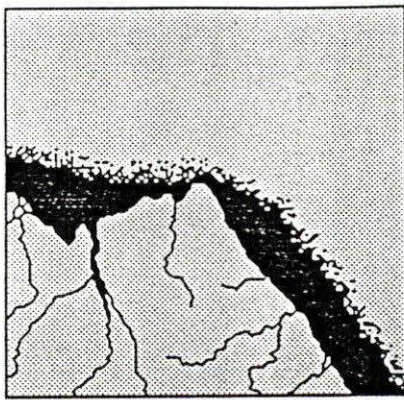


opaque  
transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
31	19	4	4/16/85	0	GGGG	59

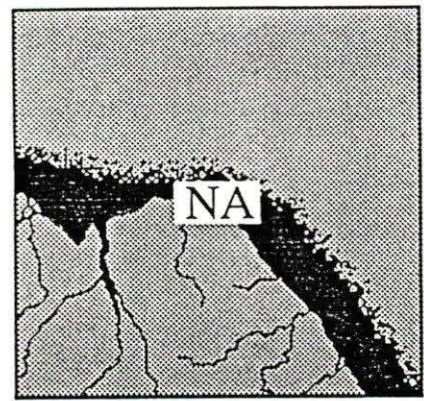


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
31	19	4	11/26/85	0	GGGG	60

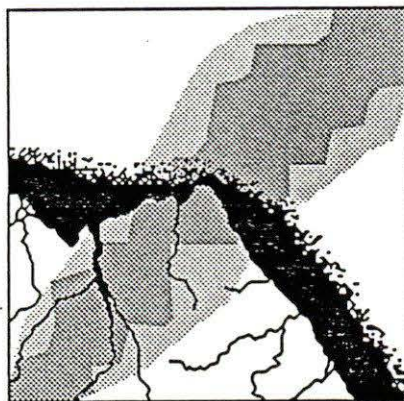


opaque  
 transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
31	19	4	2/14/86	35	GGGG	61

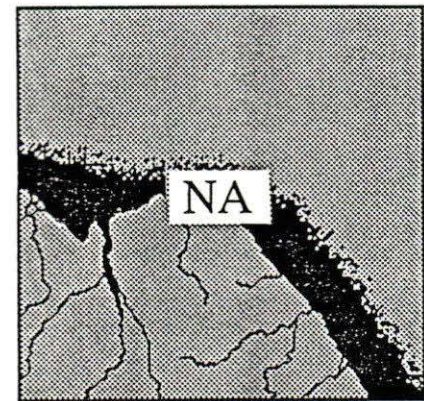


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
31	19	4	4/3/86	0	GGGG	62

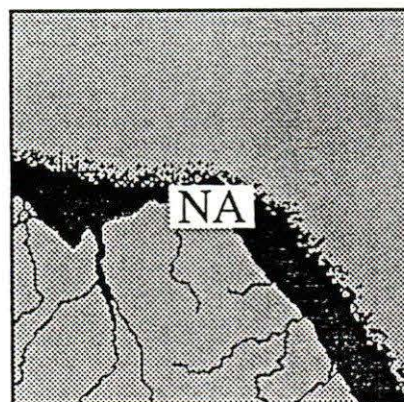


opaque  
 transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
31	19	5	9/12/84	30	GGGG	63

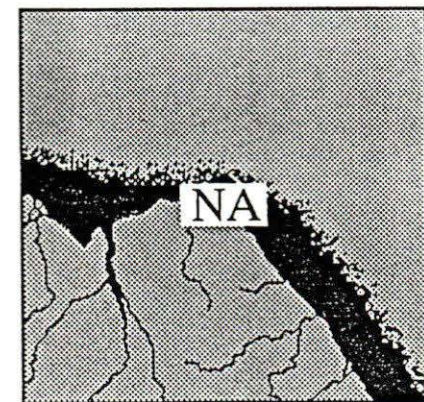


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
31	19	5	3/23/85	5	GGGG	64

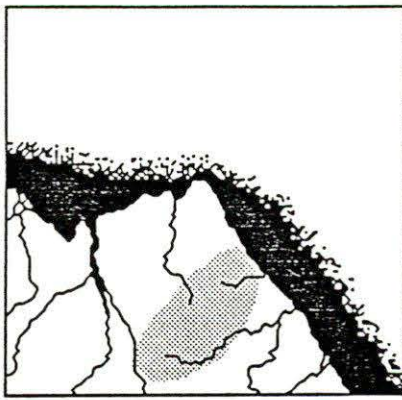


opaque  
 transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
31	19	5	4/8/85	0	GGGG	65

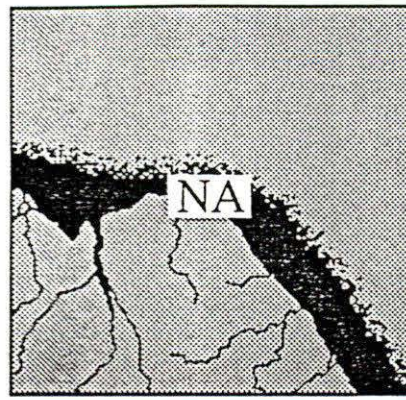


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
31	19	5	4/24/85	40	GGGG	66

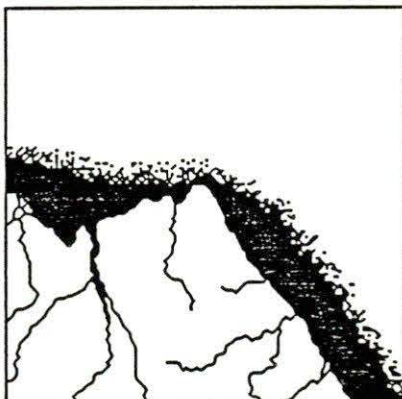


opaque  
transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
31	19	5	6/11/85	2	GGGG	67

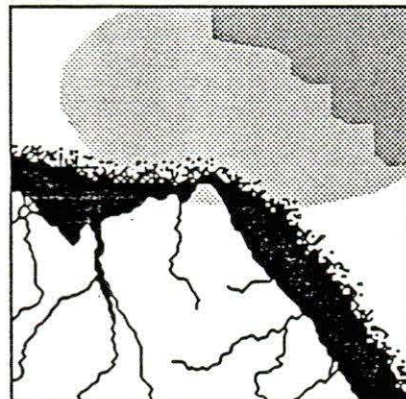


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
31	19	5	7/29/85	45	GGGG	68

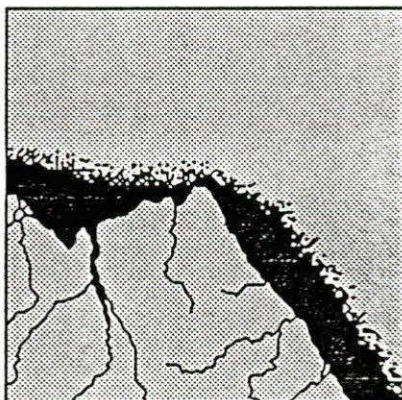


opaque  
transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
31	19	5	10/1/85	0	GGGG	69

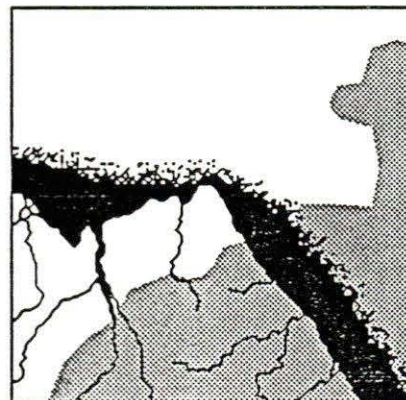


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
31	19	5	11/18/85	10	GGGG	70

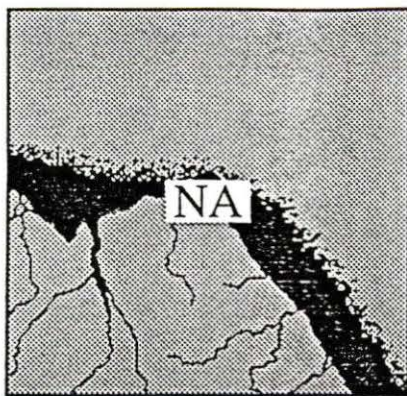


opaque  
transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
31	19	5	2/6/86	25	GGGG	71

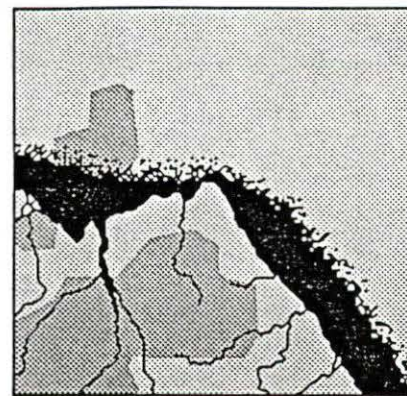


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
31	19	5	3/10/86	25	GGGG	72

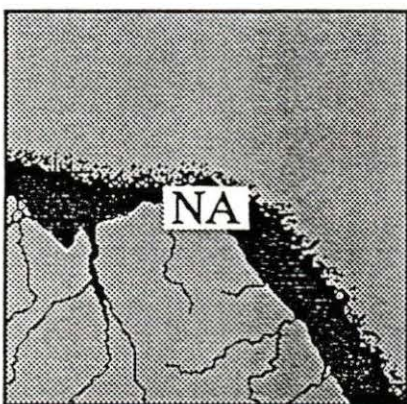


opaque  
transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
31	19	5	3/26/86	10	GGGG	73

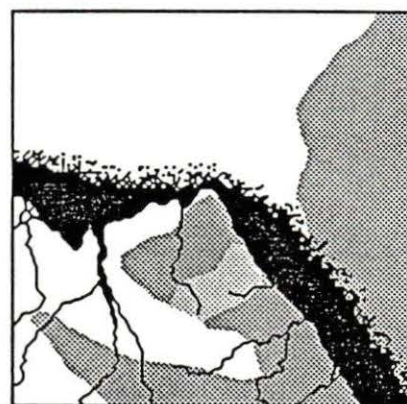


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
31	19	5	5/29/86	25	GGGG	74

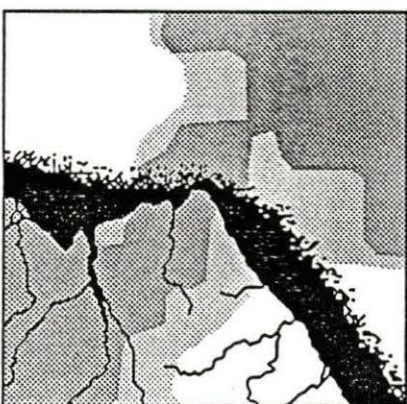


opaque  
transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
31	19	5	6/30/86	40	GGGG	75

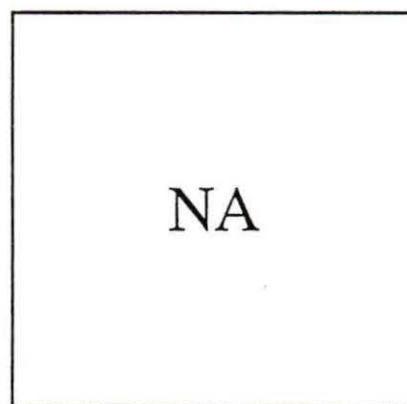


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
31	19	5	7/16/86	40	GGGG	76



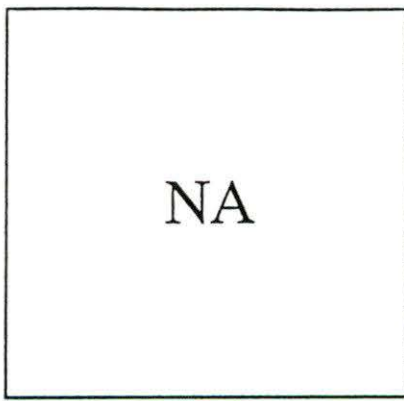
opaque  
transparent



Path	Row	LS	Date	C/C	Qual. of MSS	App.#
31	19	5	9/2/86	30	GGGG	77

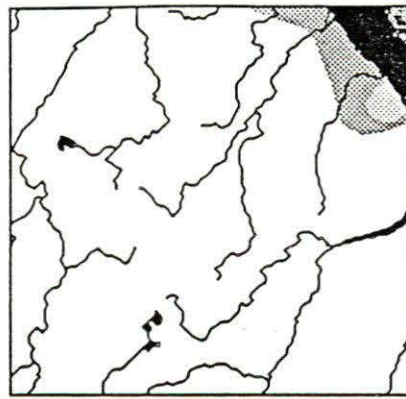


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
31	20	4	11/18/82	5	GGGG	78



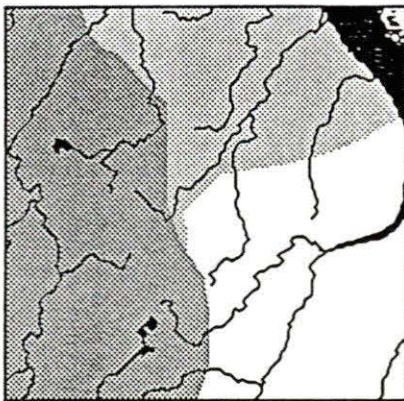




 opaque  
 transparent

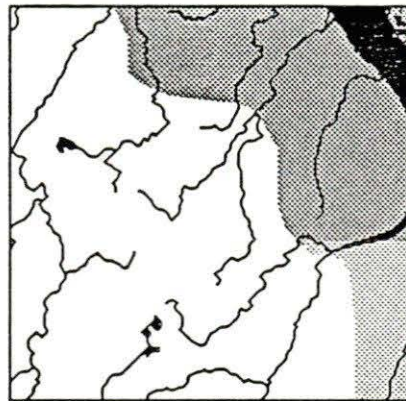


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
31	20	4	12/7/83	50	GGGG	79

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
31	20	4	1/8/84	5	GGGG	80

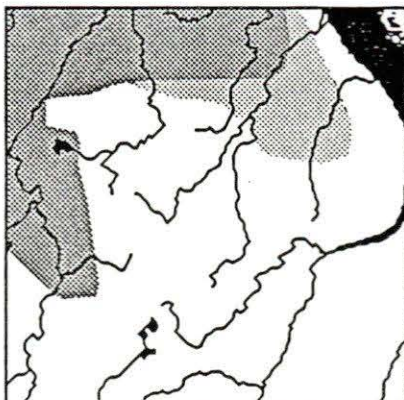




 opaque  
 transparent

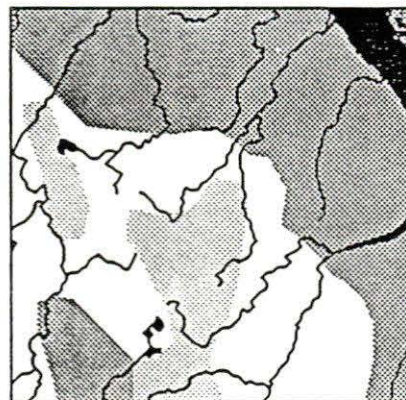


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
31	20	4	2/25/84	40	GGGG	81

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
31	20	4	3/12/84	0	GGGG	82

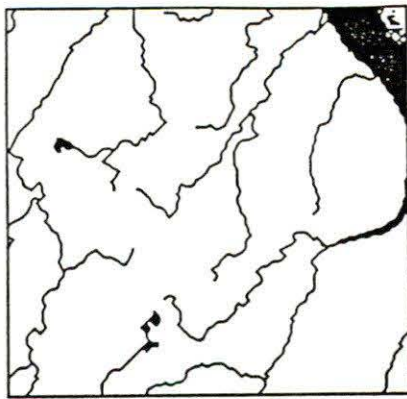




 opaque  
 transparent



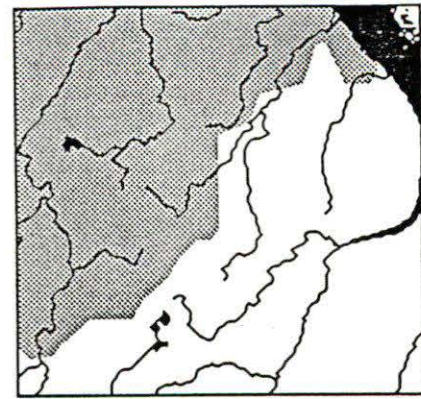
Path	Row	LS	Date	C/C	Qual. of MSS	App.#
31	20	4	5/31/84	25	GGGG	83

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
31	20	4	7/2/84	50	GGGG	84

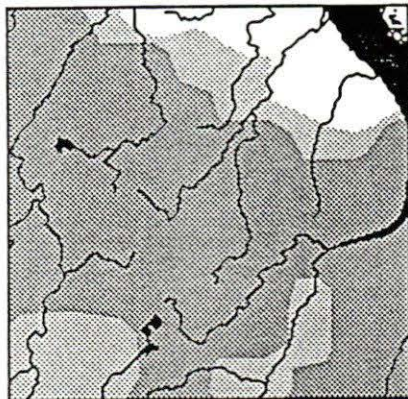




 opaque  
 transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
31	20	4	8/3/84	0	GGGG	85

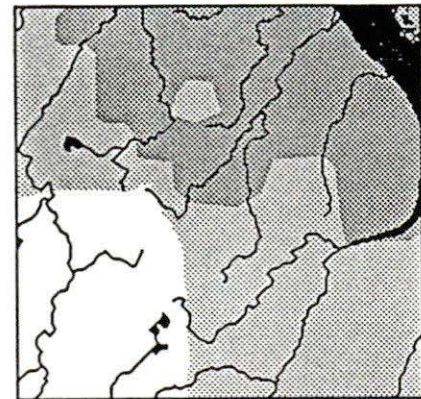


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
31	20	4	10/6/84	40	GGGG	86

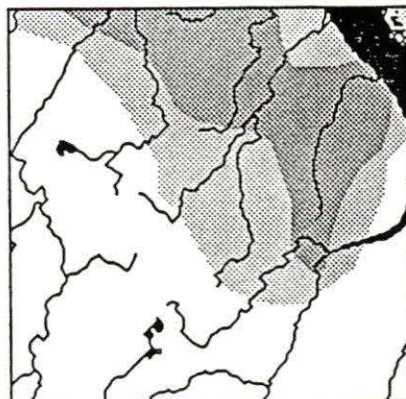




 opaque  
 transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
31	20	4	11/7/84	25	GGGG	87

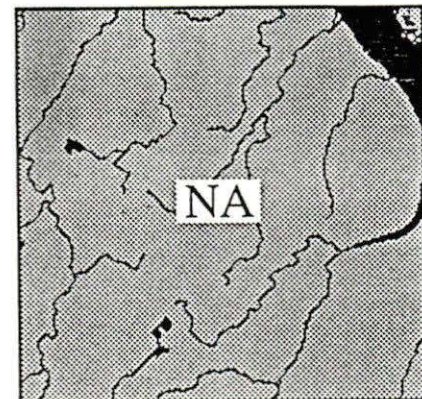


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
31	20	4	12/25/84	50	GGGG	88

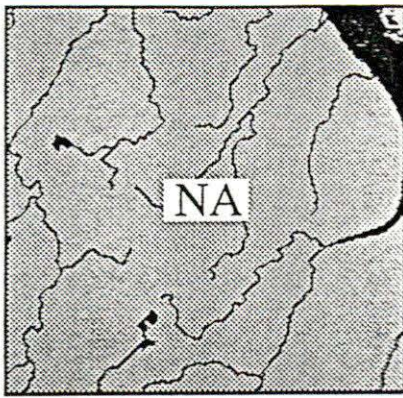


 opaque  
 transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
31	20	4	2/11/85	15	GGGG	89

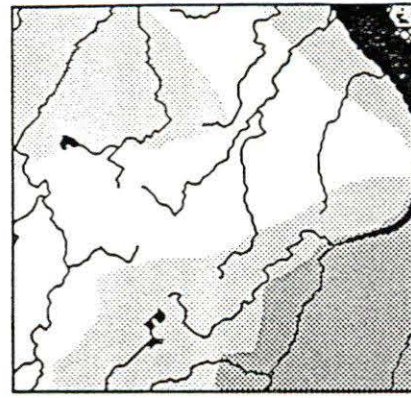


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
31	20	4	4/16/85	0	GGGG	90

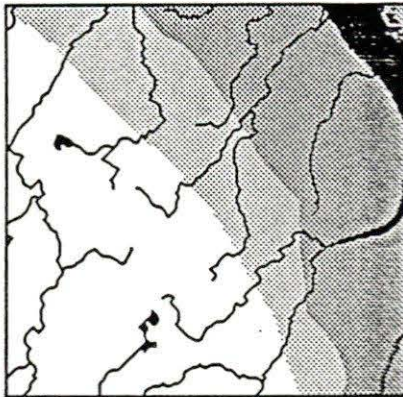


opaque  
transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
31	20	4	5/2/85	40	GGGG	91

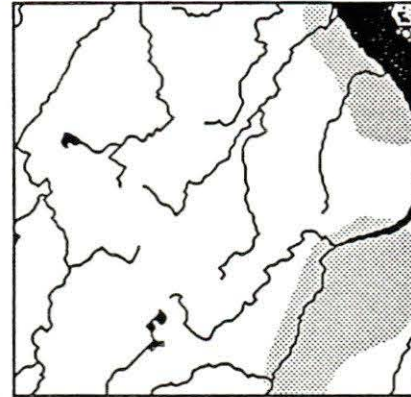


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
31	20	4	7/5/85	30	GGGG	92



opaque  
transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
31	20	4	9/7/85	50	GGGG	93

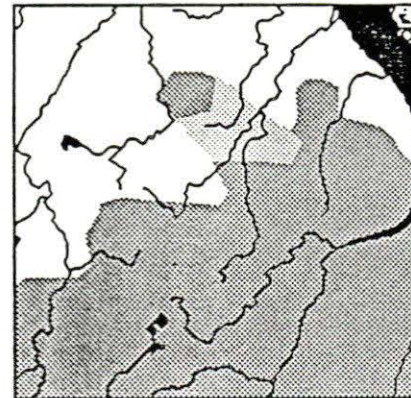


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
31	20	4	10/25/85	20	GGGG	94

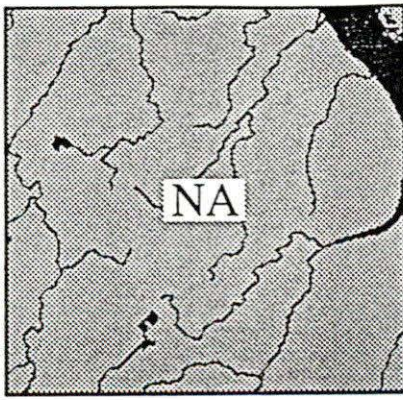


opaque  
transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
31	20	4	11/10/85	0	GGGG	95

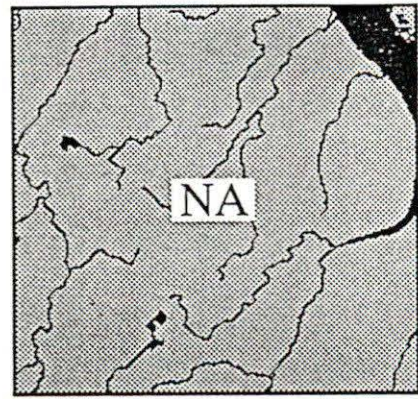


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
31	20	4	11/26/85	25	GGGG	96

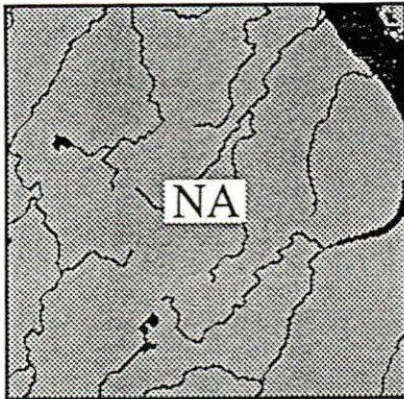


opaque  
transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
31	20	4	2/14/86	0	GGGG	97

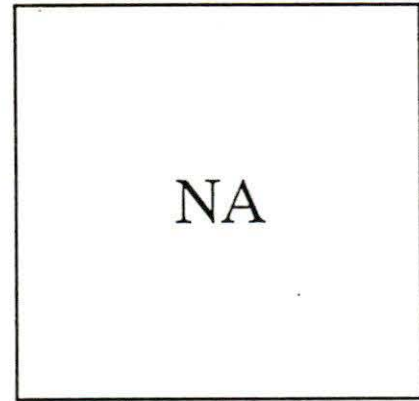


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
31	20	4	3/18/86	40	GGGG	98

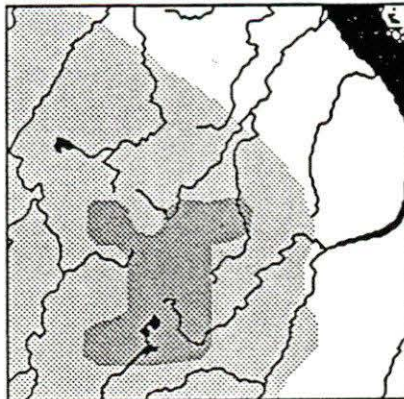


opaque  
transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
31	20	4	4/3/86	0	GGGG	99

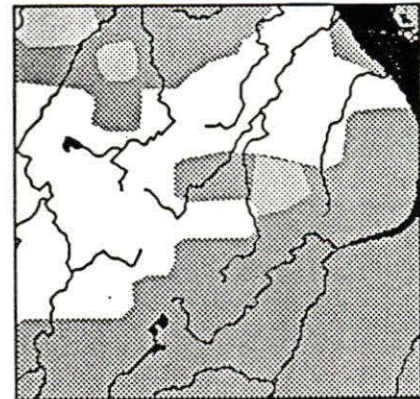


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
31	20	4	8/9/86	30	GGGG	100

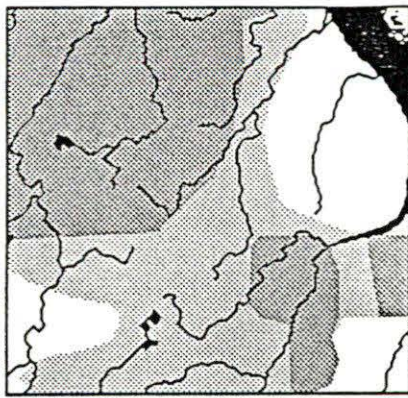


opaque  
transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
31	20	5	4/21/84	20	GGGG	101

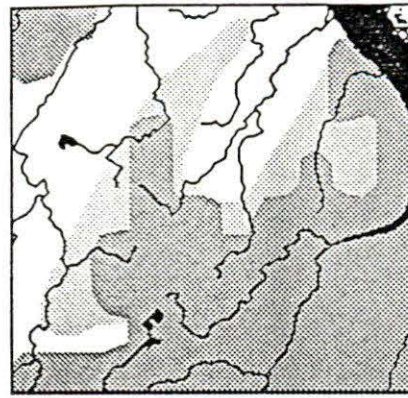


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
31	20	5	6/8/84	50	GGGG	102

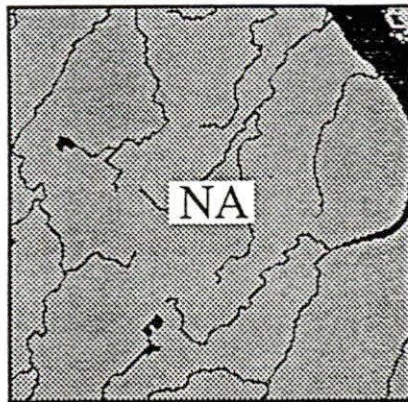


opaque  
transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
31	20	5	6/24/84	45	GGGG	103

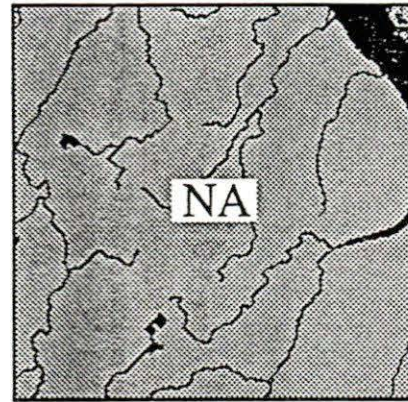


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
31	20	5	9/12/84	40	GGGG	104

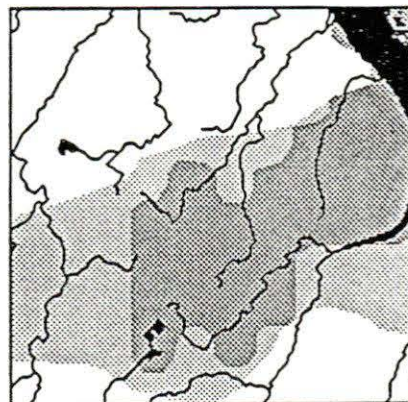


opaque  
transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
31	20	5	4/8/85	0	UUUU	105

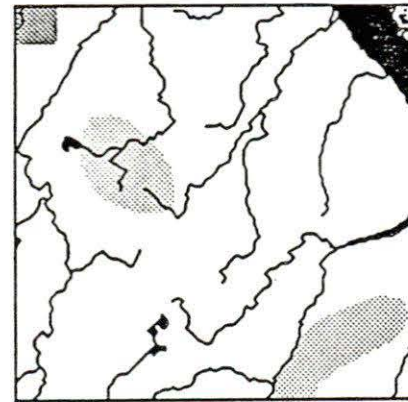


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
31	20	5	4/24/85	30	GGGG	106

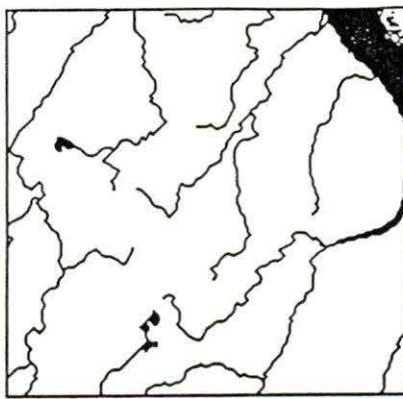


opaque  
transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
31	20	5	6/11/85	25	GGGG	107

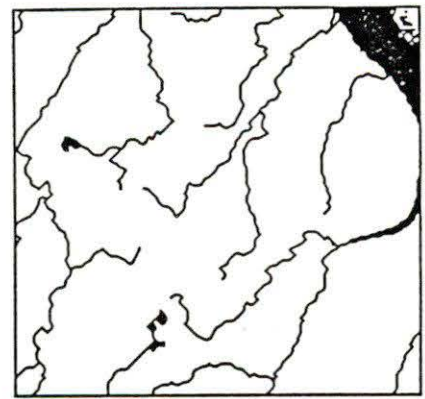


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
31	20	5	8/14/85	5	GGGG	108

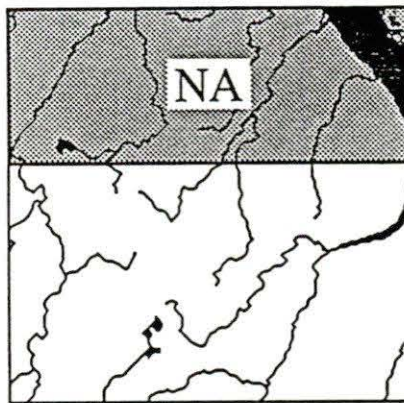


opaque  
transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
31	20	5	10/1/85	0	GGGG	109

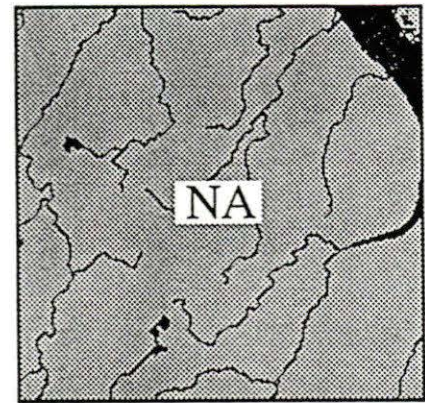


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
31	20	5	11/18/85	0	GGGG	110

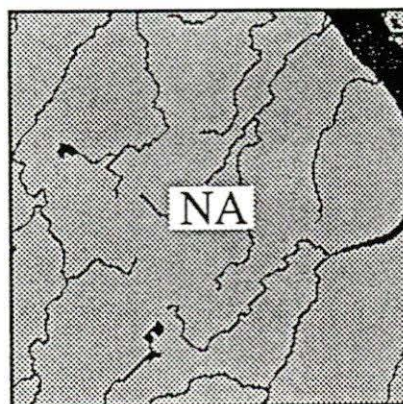


opaque  
transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
31	20	5	12/20/85	10	GGGG	111

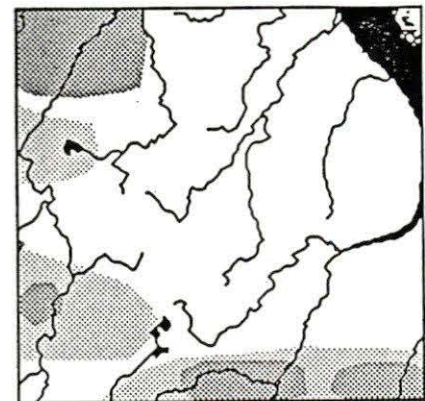


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
31	20	5	2/6/86	10	GGGG	112

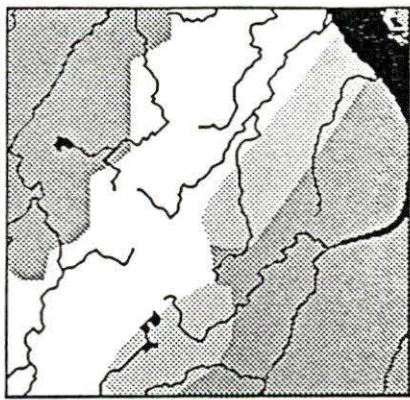




opaque  
transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
31	20	5	3/26/86	40	GGGG	113

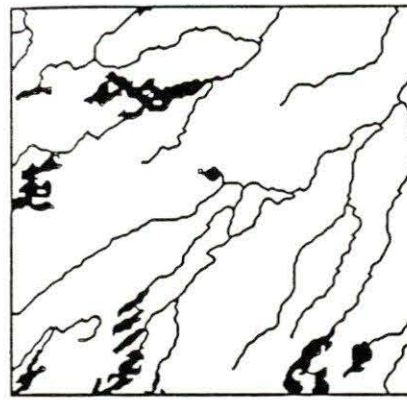


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
31	20	5	5/29/86	20	GGGG	114

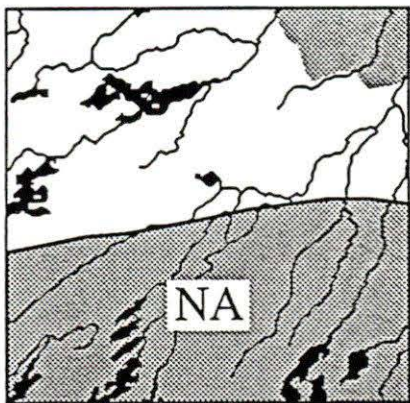




 opaque  
 transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
31	20	5	9/2/86	50	GGGG	115

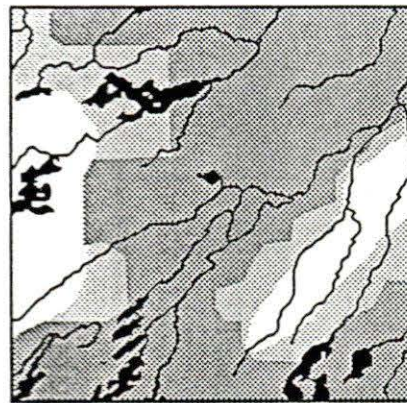


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
31	21	4	1/8/84	0	GGGG	116

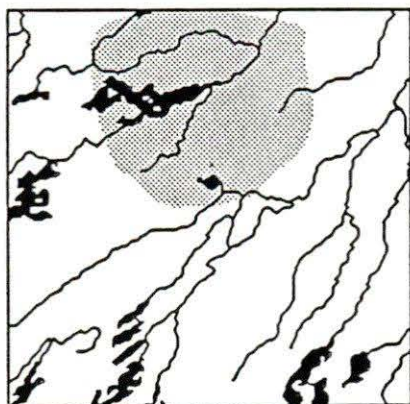


 opaque  
 transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
31	21	4	3/12/84	30	GGGG	117

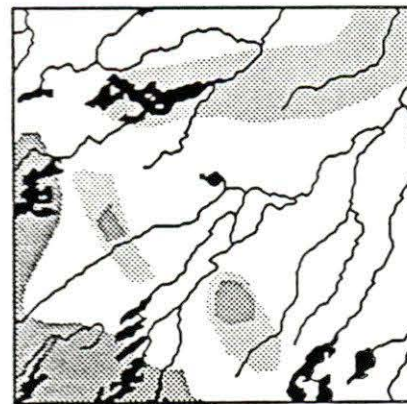


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
31	21	4	3/28/84	50	GGGG	118

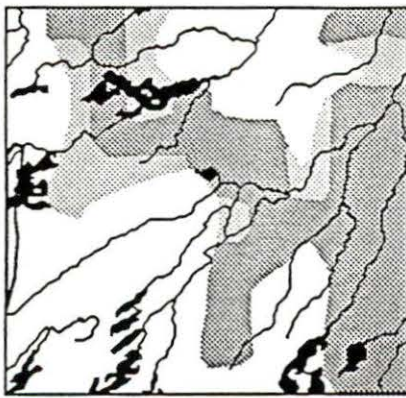


 opaque  
 transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
31	21	4	5/15/84	0	GGGG	119

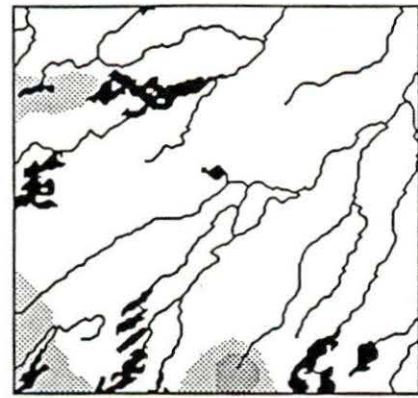


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
31	21	4	5/31/84	40	GGGG	120

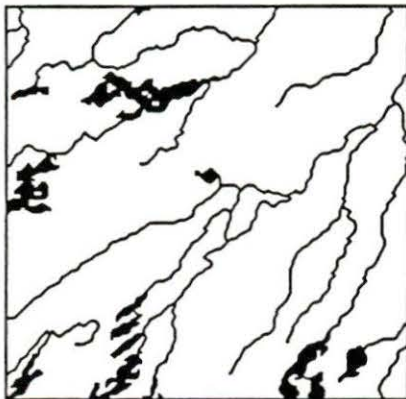


opaque  
transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
31	21	4	7/2/84	40	GGGG	121

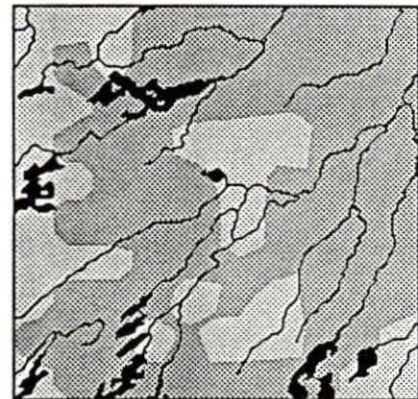


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
31	21	4	8/3/84	2	GGGG	122

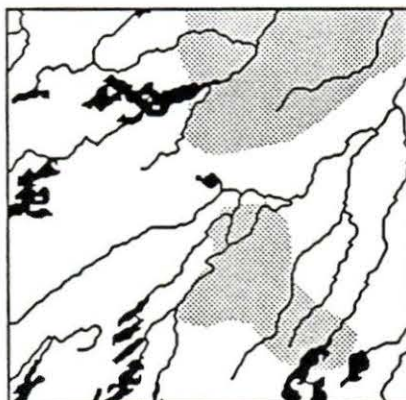


opaque  
transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
31	21	4	10/6/84	0	GGGG	123

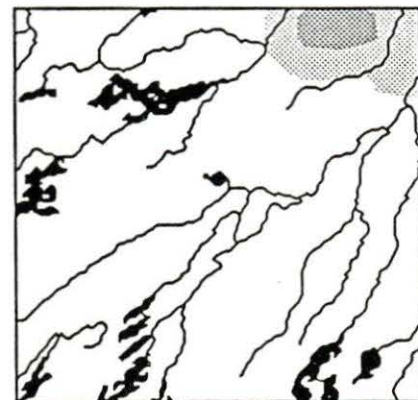


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
31	21	4	11/7/84	50	GGGG	124



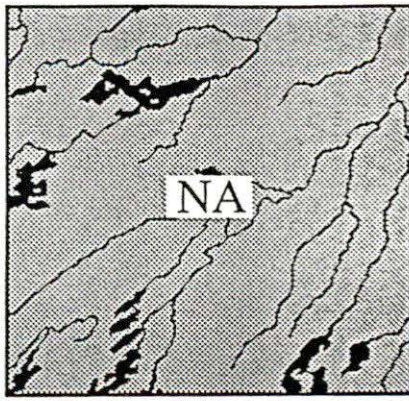
opaque  
transparent



Path	Row	LS	Date	C/C	Qual. of MSS	App.#
31	21	4	12/25/84	0	GGGG	125

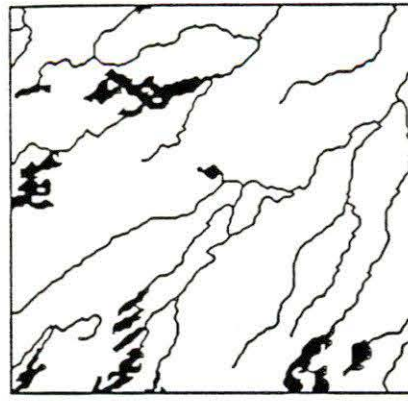


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
31	21	4	2/11/85	0	GGGG	126



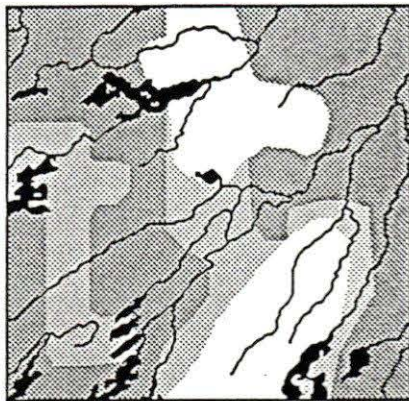




 opaque  
 transparent

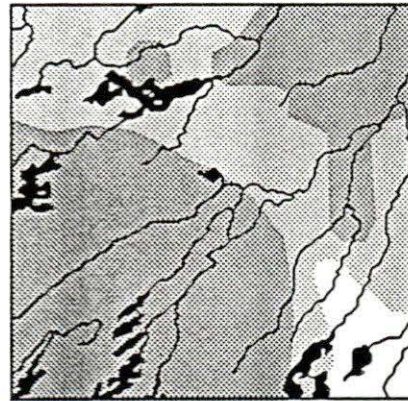


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
31	21	4	4/16/85	0	GGGG	127

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
31	21	4	5/2/85	0	GGGG	128

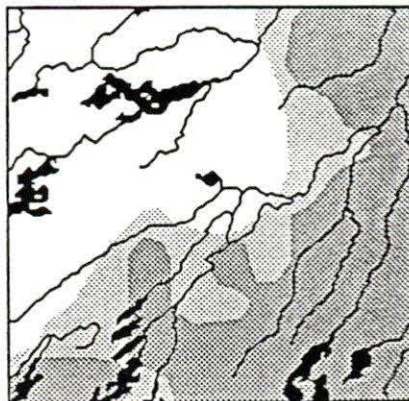




 opaque  
 transparent

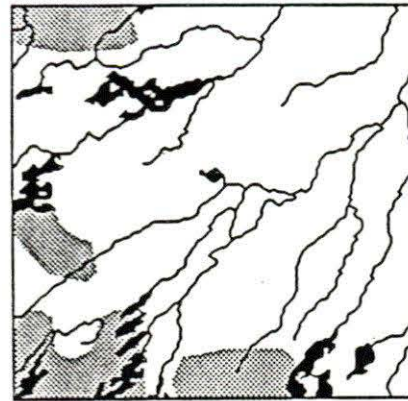


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
31	21	4	5/18/85	45	GGGG	129

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
31	21	4	8/22/85	50	GGGG	130

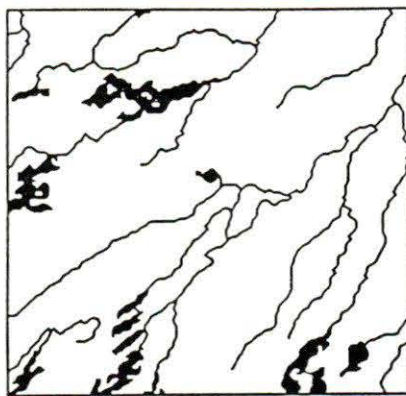




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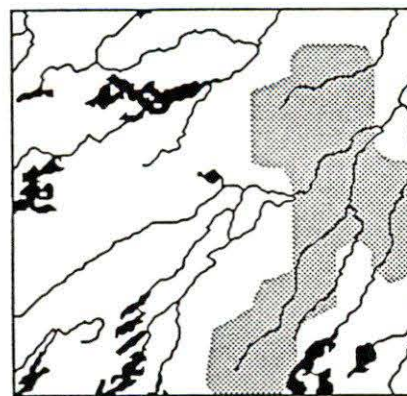
Path	Row	LS	Date	C/C	Qual. of MSS	App.#
31	21	4	9/7/85	50	GGGG	131

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
31	21	4	10/25/85	20	GGGG	132

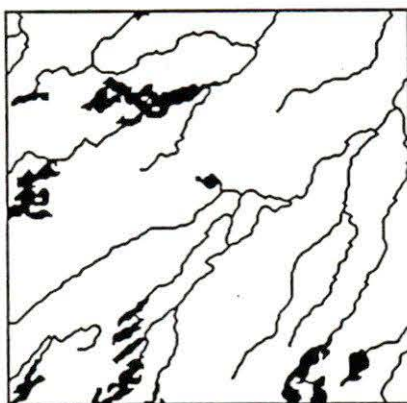




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Path	Row	LS	Date	C/C	Qual. of MSS	App.#
31	21	4	11/10/85	0	GGGG	133

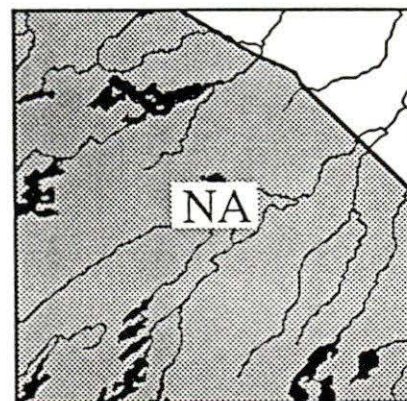


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
31	21	4	12/12/85	30	GGGG	134

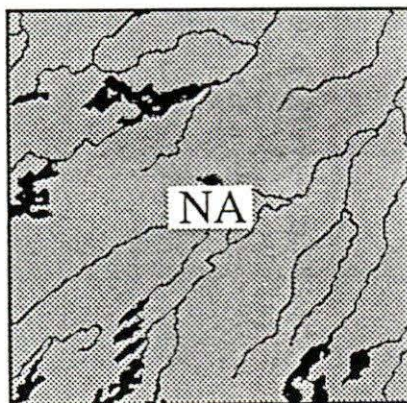




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Path	Row	LS	Date	C/C	Qual. of MSS	App.#
31	21	4	2/14/86	0	GGGG	135

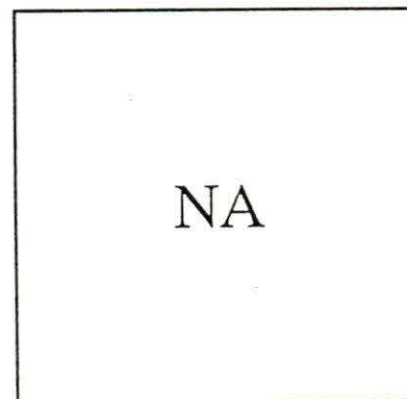


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
31	21	4	3/18/86	0	GGGG	136

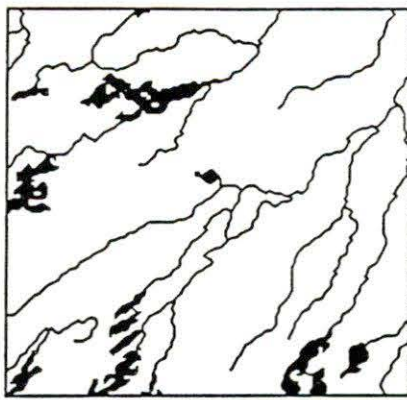




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Path	Row	LS	Date	C/C	Qual. of MSS	App.#
31	21	4	4/3/86	0	GGGG	137

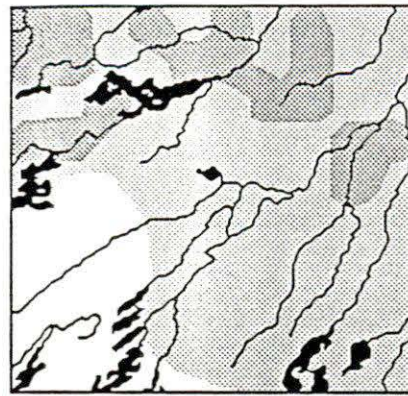


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
31	21	4	8/9/86	15	GGGG	138

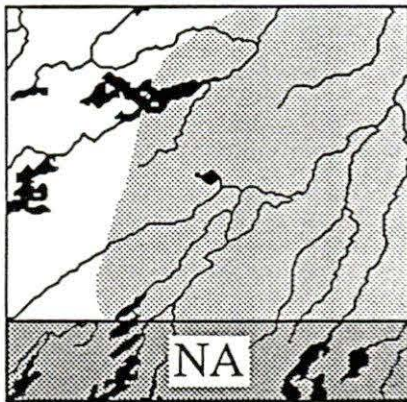




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Path	Row	LS	Date	C/C	Qual. of MSS	App.#
31	21	5	4/21/84	0	GGGG	139

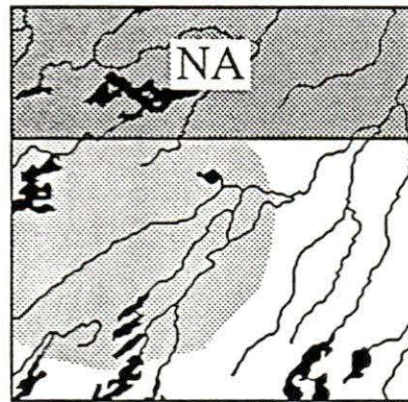


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
31	21	5	6/24/84	30	GGGG	140

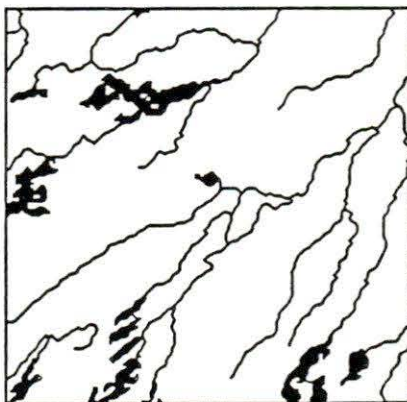




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Path	Row	LS	Date	C/C	Qual. of MSS	App.#
31	21	5	12/1/84	0	UUUU	141

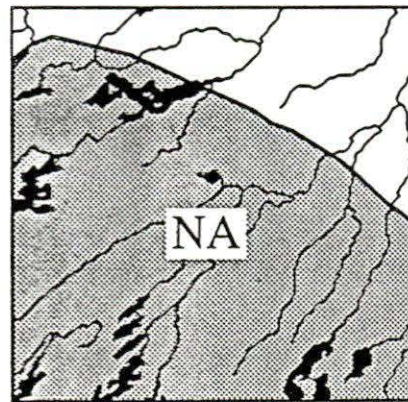


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
31	21	5	1/18/85	10	UUUU	142

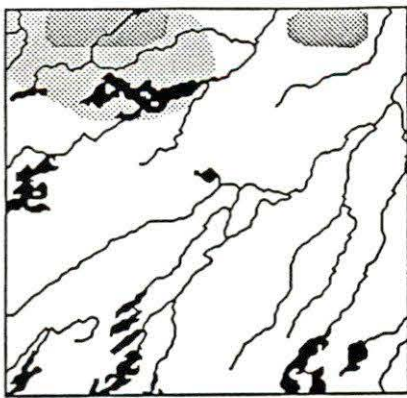


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Path	Row	LS	Date	C/C	Qual. of MSS	App.#
31	21	5	2/19/85	0	GGGG	143

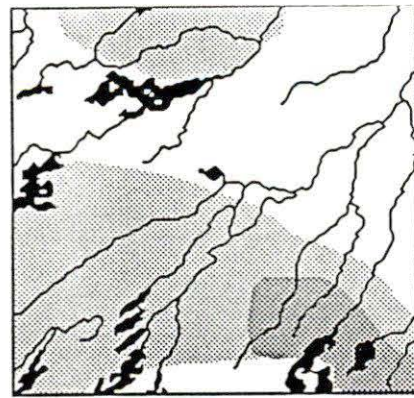


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
31	21	5	4/8/85	0	GGGG	144

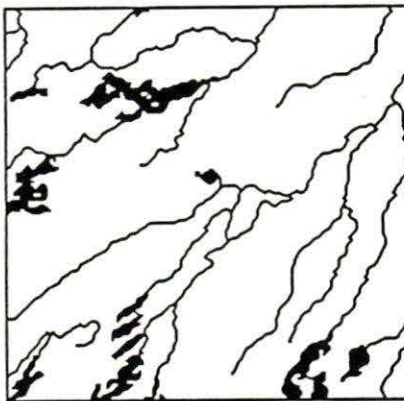


opaque  
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Path	Row	LS	Date	C/C	Qual. of MSS	App.#
31	21	5	4/24/85	5	GGGG	145

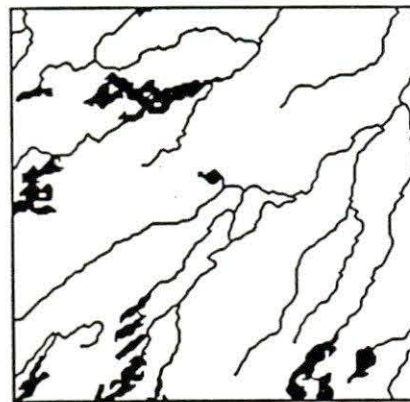


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
31	21	5	6/11/85	15	GGGG	146

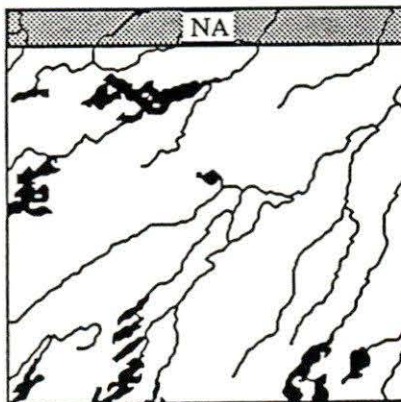


opaque  
transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
31	21	5	10/1/85	0	GGGG	147

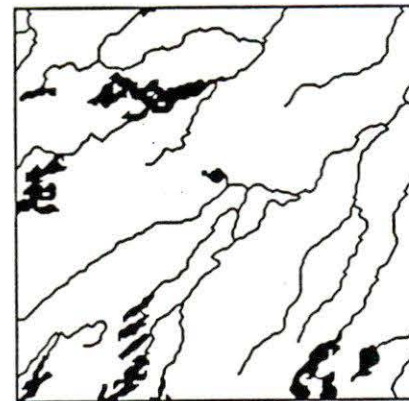


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
31	21	5	11/18/85	0	GGGG	148

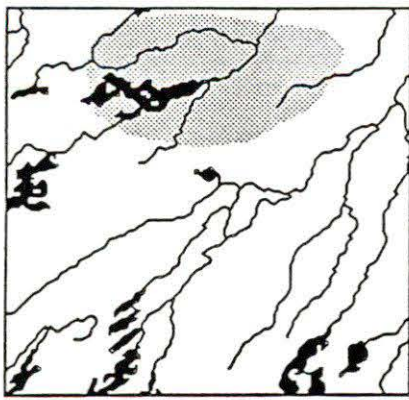


opaque  
transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
31	21	5	12/4/85	0	GGGG	149

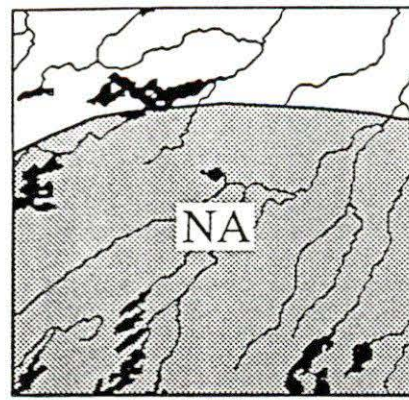


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
31	21	5	12/20/85	0	GGGG	150

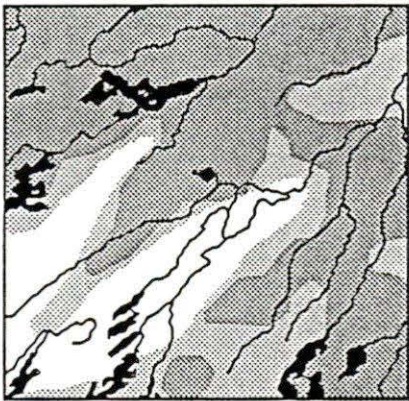


opaque  
transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
31	21	5	1/5/86	0	GGGG	151

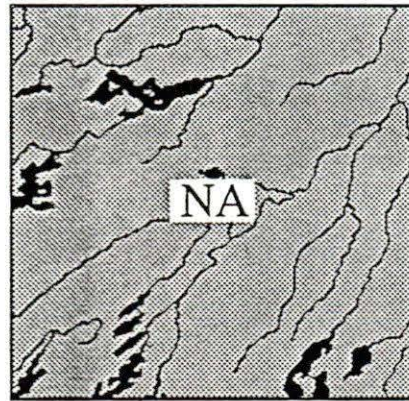


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
31	21	5	3/26/86	0	GGGG	152

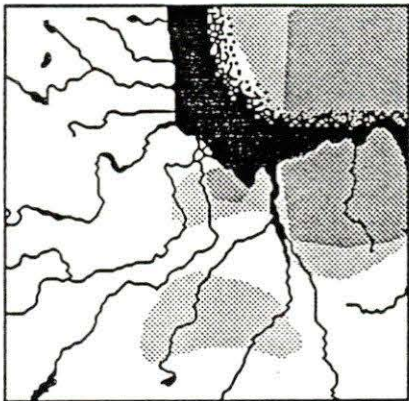


opaque  
transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
31	21	5	6/30/86	50	GGGG	153

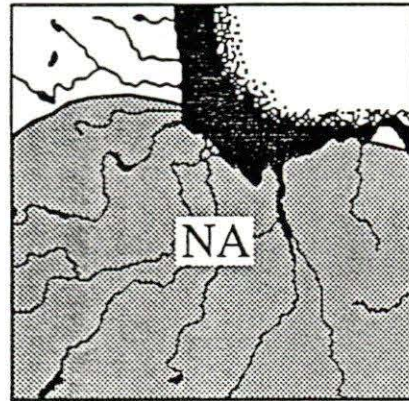


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
31	21	5	3/29/87	20	GGGG	154

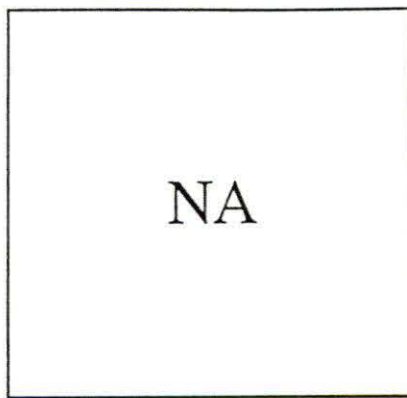




opaque  
transparent

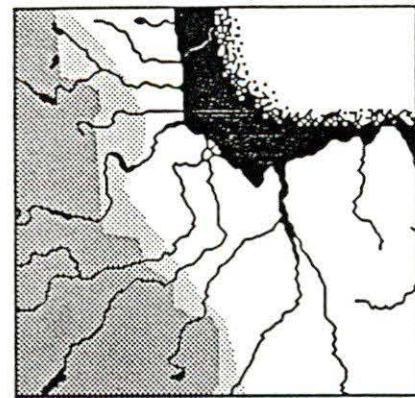
Path	Row	LS	Date	C/C	Qual. of MSS	App.#
32	19	4	1/15/84	40	GGGG	155



Path	Row	LS	Date	C/C	Qual. of MSS	App.#
32	19	4	4/4/84	2	GGGG	156

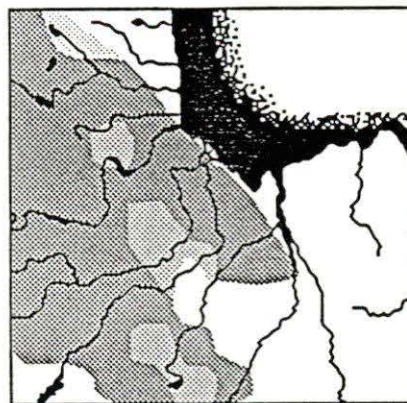




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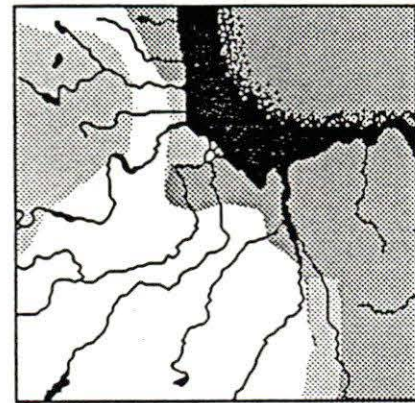


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
32	19	4	4/20/84	0	GGGG	157

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
32	19	4	8/10/84	40	GGGG	158

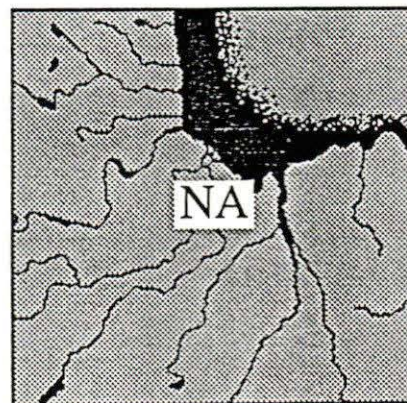


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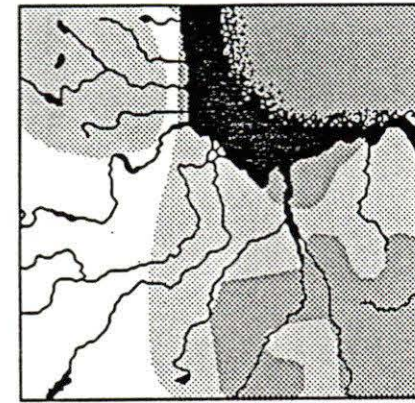


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
32	19	4	8/26/84	25	GGGG	159

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
32	19	4	12/16/84	20	GGGG	160

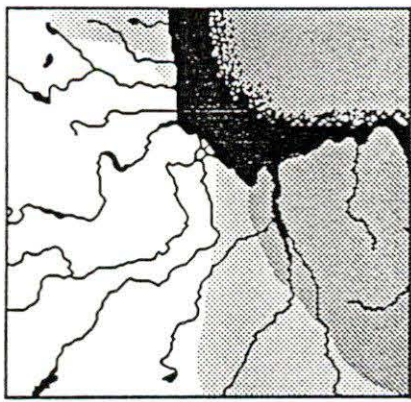


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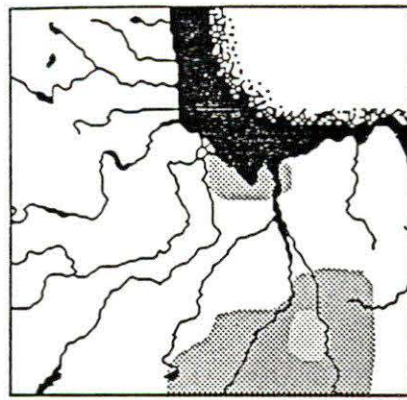
Path	Row	LS	Date	C/C	Qual. of MSS	App.#
32	19	4	4/7/85	10	GGGG	161

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
32	19	4	6/10/85	30	GGGG	162

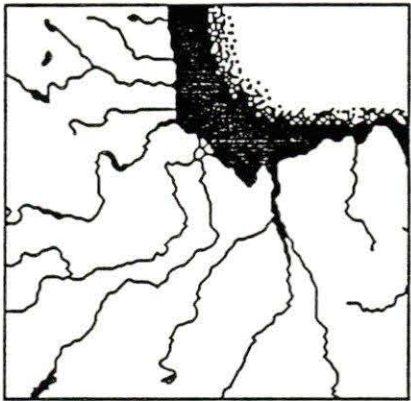


opaque  
transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
32	19	4	7/12/85	30	GGGG	163

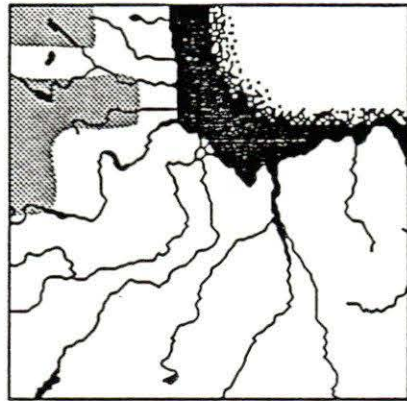


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
32	19	4	7/28/85	5	GGGG	164

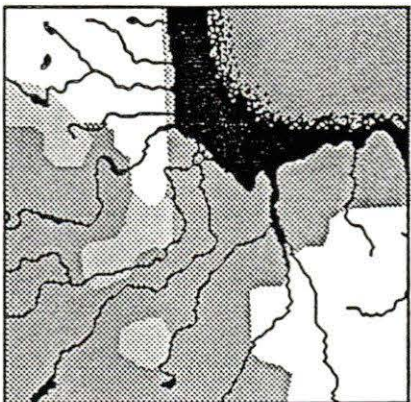


opaque  
transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
32	19	4	8/29/85	0	GGGG	165

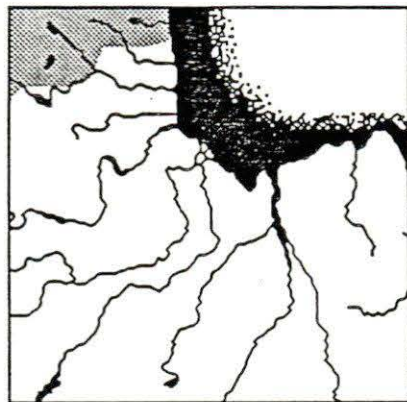


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
32	19	4	9/14/85	5	GGGG	166

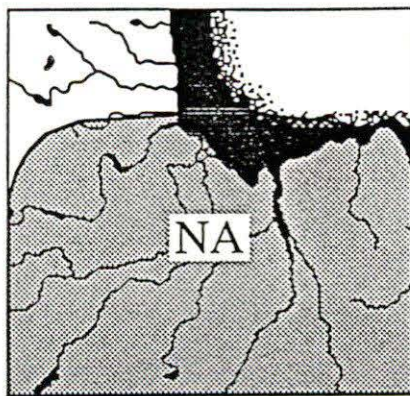




opaque  
transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
32	19	4	11/17/85	50	GGGG	167

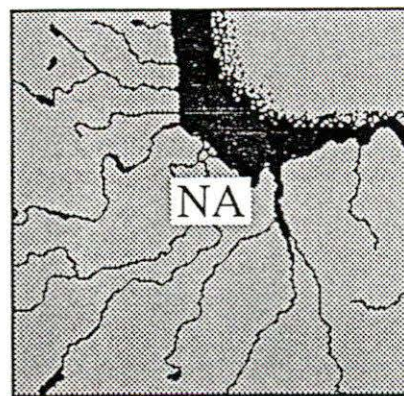


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
32	19	4	12/3/85	20	GGGG	168

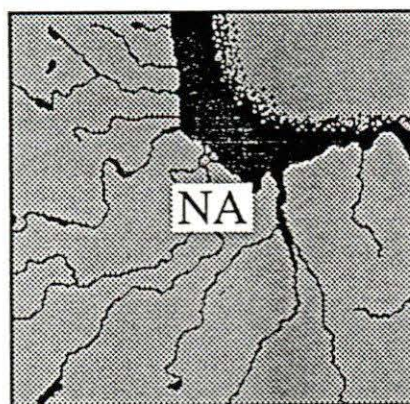




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Path	Row	LS	Date	C/C	Qual. of MSS	App.#
32	19	4	2/5/86	40	GGGG	169

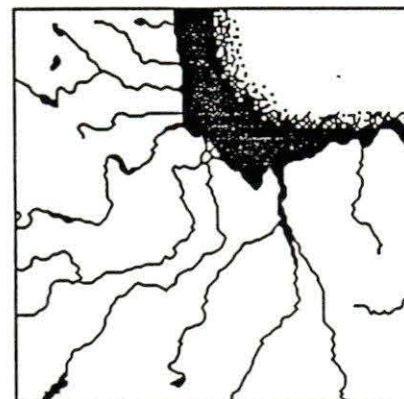


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
32	19	4	4/10/86	20	GGGG	170

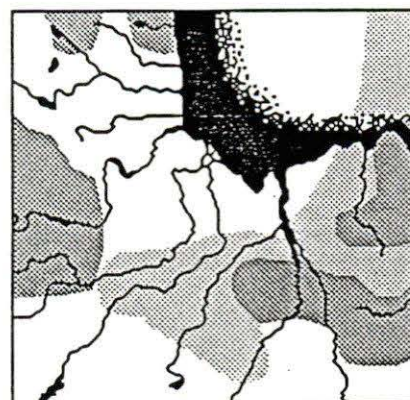




 opaque  
 transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
32	19	5	5/14/84	25	GGGG	171

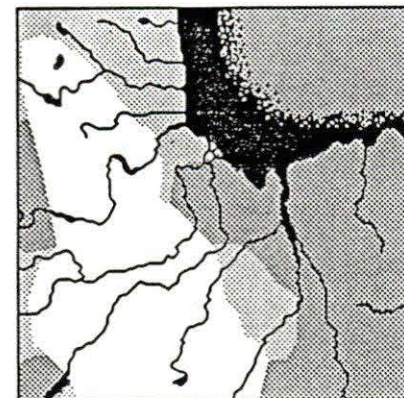


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
32	19	5	8/2/84	0	GGGG	172



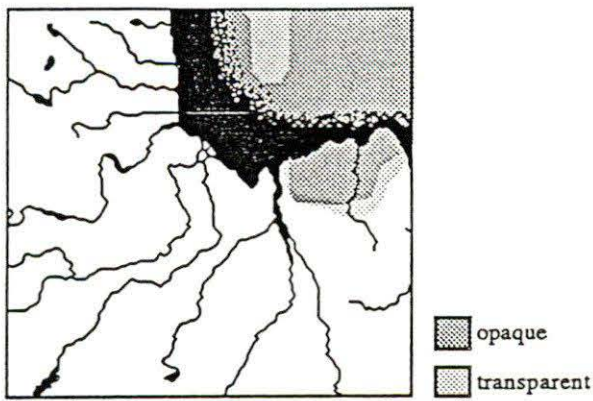
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Path	Row	LS	Date	C/C	Qual. of MSS	App.#
32	19	5	8/18/84	30	GGGG	173

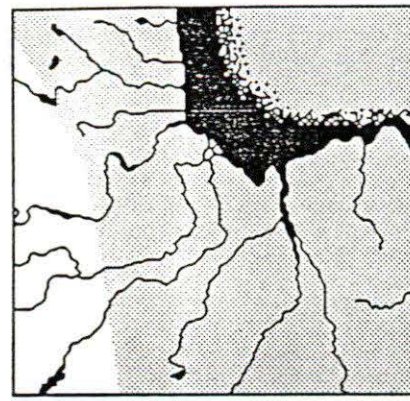


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
32	19	5	10/21/84	40	GGGG	174

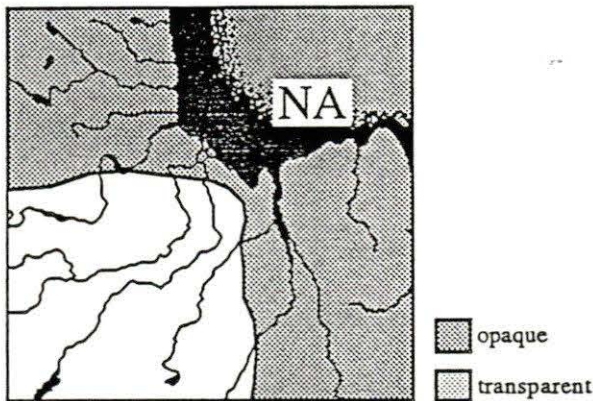




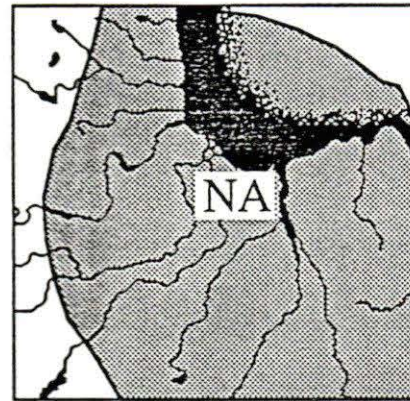
Path	Row	LS	Date	C/C	Qual. of MSS	App.#
32	19	5	11/6/84	20	GGGG	175



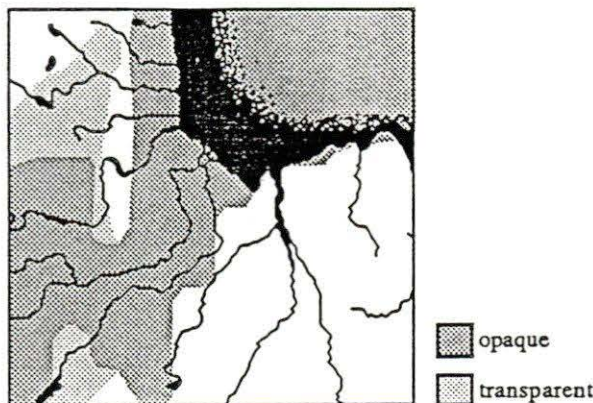
Path	Row	LS	Date	C/C	Qual. of MSS	App.#
32	19	5	2/26/85	0	GGGG	176



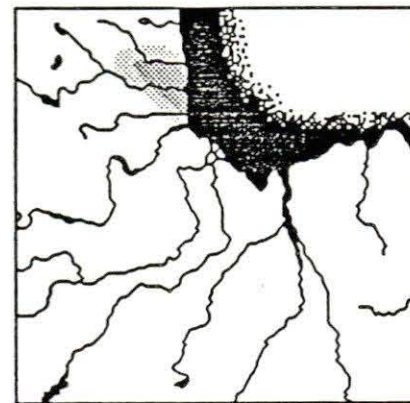
Path	Row	LS	Date	C/C	Qual. of MSS	App.#
32	19	5	3/14/85	40	GGGG	177



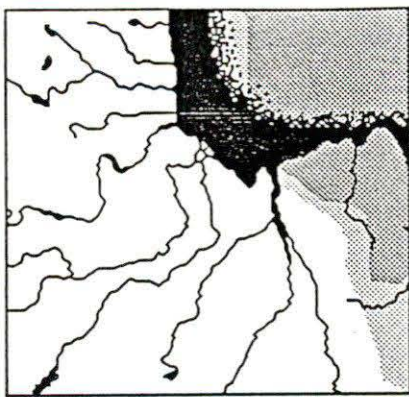
Path	Row	LS	Date	C/C	Qual. of MSS	App.#
32	19	5	5/1/85	10	GGGG	178





Path	Row	LS	Date	C/C	Qual. of MSS	App.#
32	19	5	6/18/85	40	GGGG	179

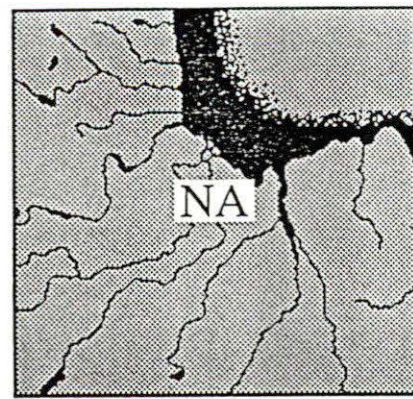


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
32	19	5	8/21/85	10	GGGG	180

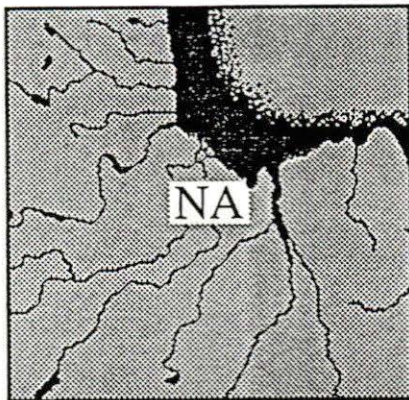




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 transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
32	19	5	11/9/85	20	GGGG	181

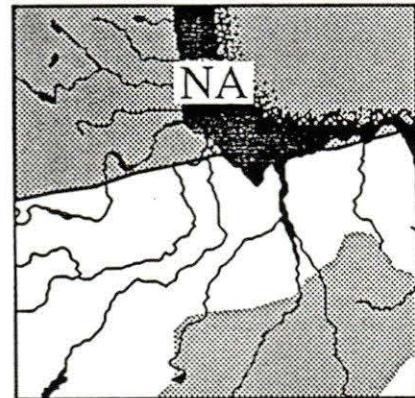


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
32	19	5	3/17/86	20	GGGG	182

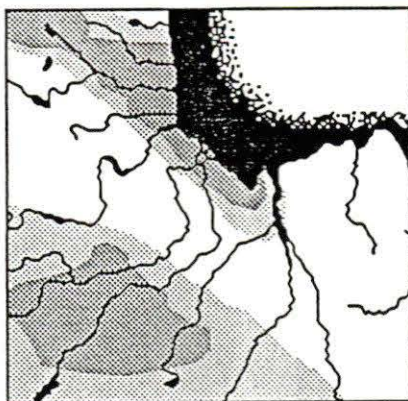




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 transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
32	19	5	5/4/86	10	GGGG	183

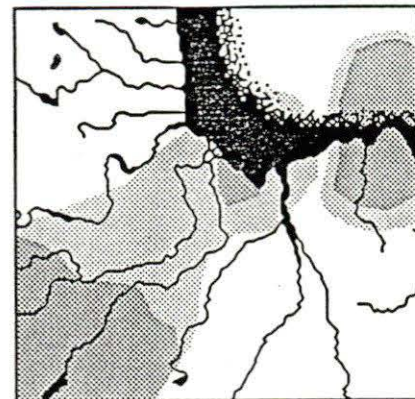


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
32	19	5	5/20/86	25	GGGG	184

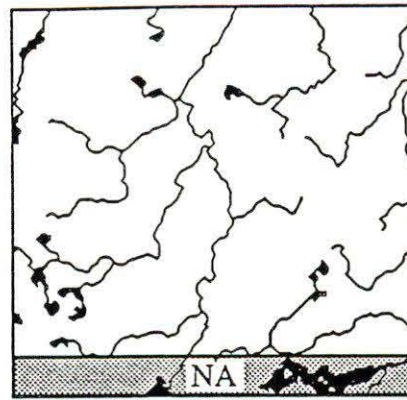
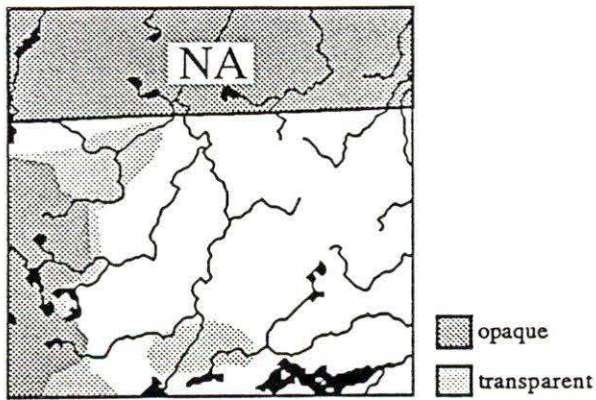


 opaque  
 transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
32	19	5	6/5/86	20	GGGG	185

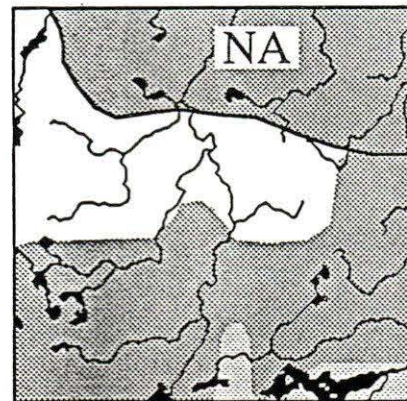
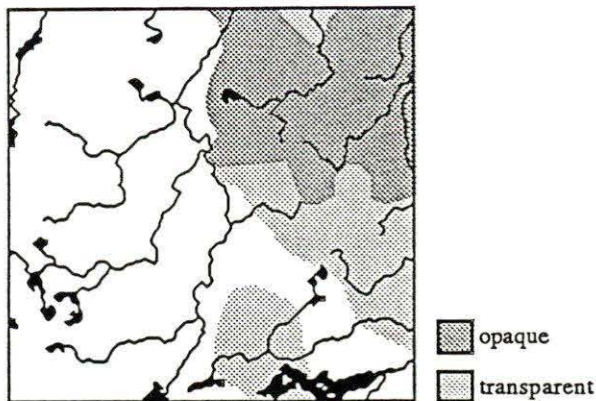


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
32	19	5	10/11/86	10	GGGG	186



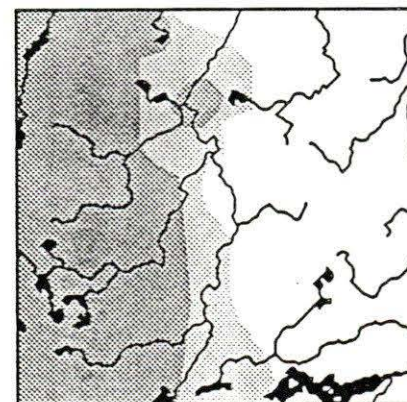
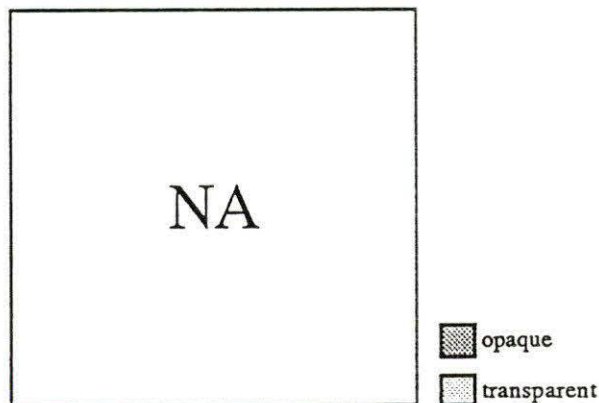
Path	Row	LS	Date	C/C	Qual. of MSS	App.#
32	20	4	8/24/83	15	GGGG	187

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
32	20	4	12/30/83	0	GGGG	188



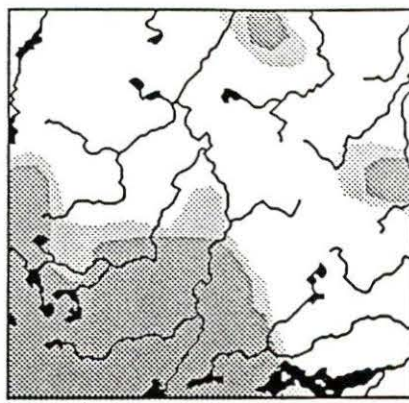
Path	Row	LS	Date	C/C	Qual. of MSS	App.#
32	20	4	1/15/84	10	GGGG	189

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
32	20	4	4/4/84	35	GGGG	190



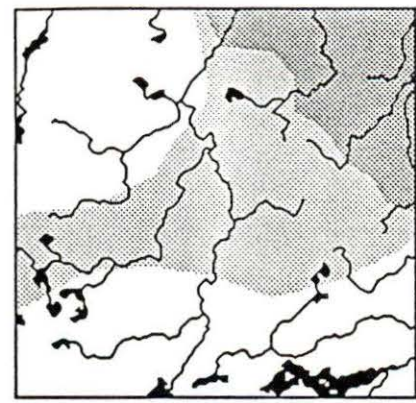
Path	Row	LS	Date	C/C	Qual. of MSS	App.#
32	20	4	4/20/84	10	GGGG	191

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
32	20	4	8/10/84	40	GGGG	192

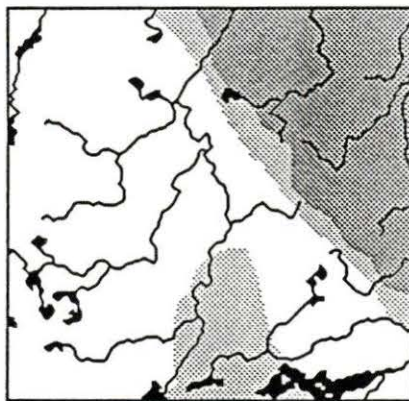


opaque  
transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
32	20	4	8/26/84	25	GGGG	193

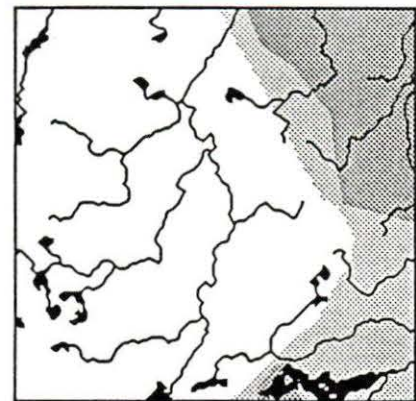


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
32	20	4	10/29/84	50	GGGG	194

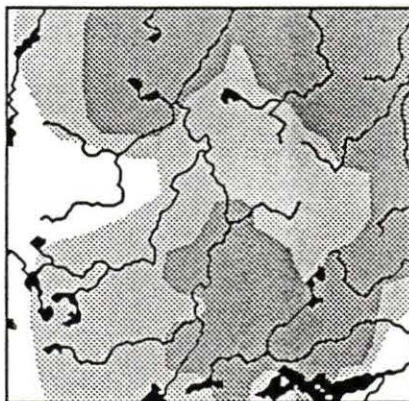


opaque  
transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
32	20	4	11/30/84	40	GGGG	195

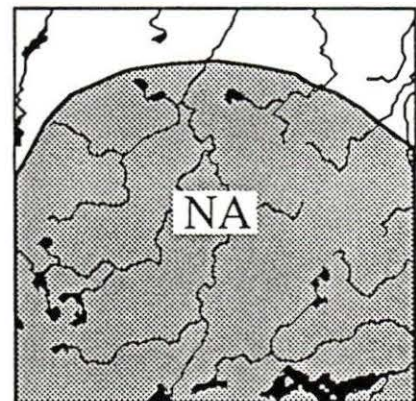


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
32	20	4	12/16/84	5	GGGG	196

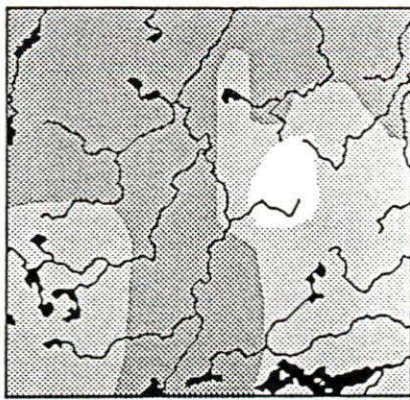




opaque  
transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
32	20	4	3/22/85	30	GGGG	197

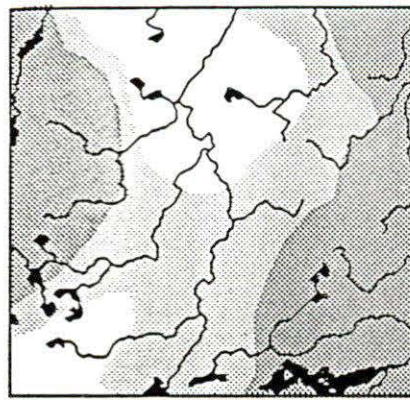


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
32	20	4	4/7/85	0	GGGG	198

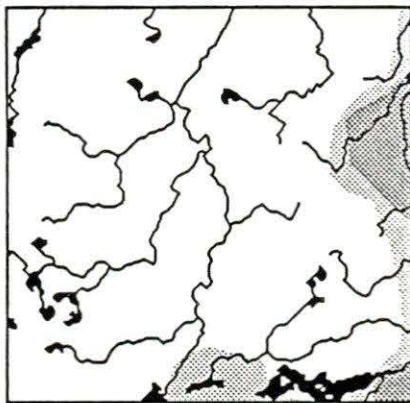




 opaque  
 transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
32	20	4	5/25/85	35	GGGG	199

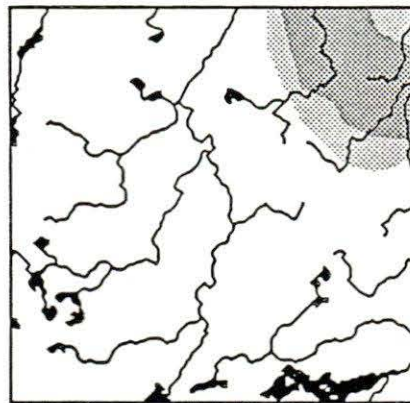


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
32	20	4	6/10/85	35	GGGG	200

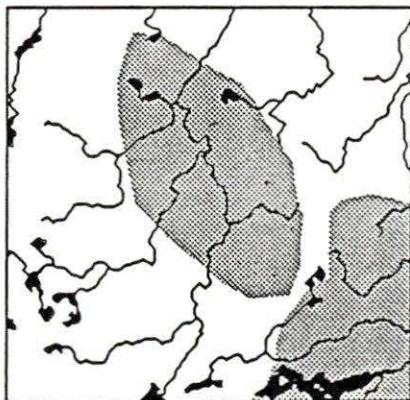




 opaque  
 transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
32	20	4	7/28/85	5	GGGG	201



Path	Row	LS	Date	C/C	Qual. of MSS	App.#
32	20	4	8/29/85	2	GGGG	202



 opaque  
 transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
32	20	4	9/14/85	25	GGGG	203

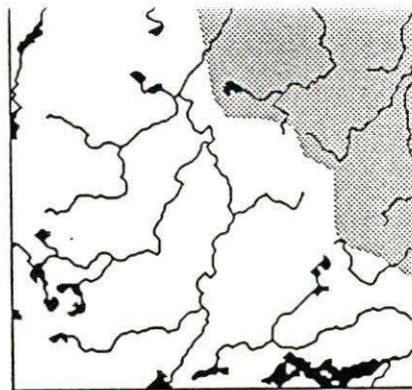


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
32	20	4	11/17/85	10	GGGG	204

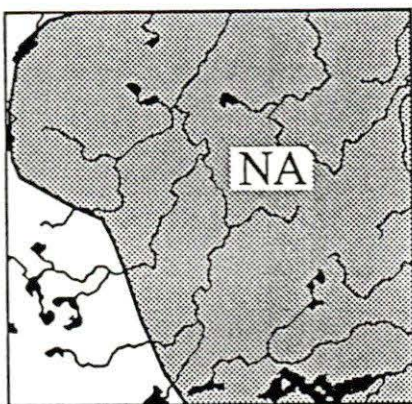


opaque  
transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
32	20	4	12/3/85	0	GGGG	205

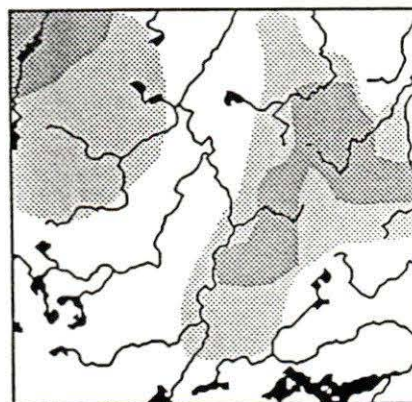


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
32	20	4	12/19/85	20	GGGG	206

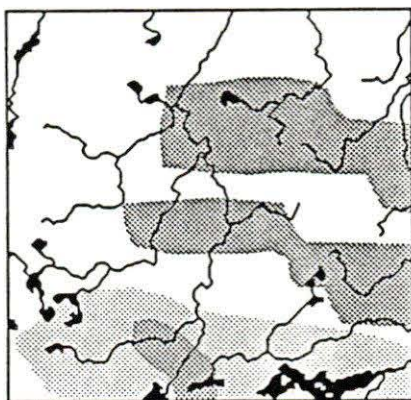


opaque  
transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
32	20	5	5/14/84	0	GGGG	207

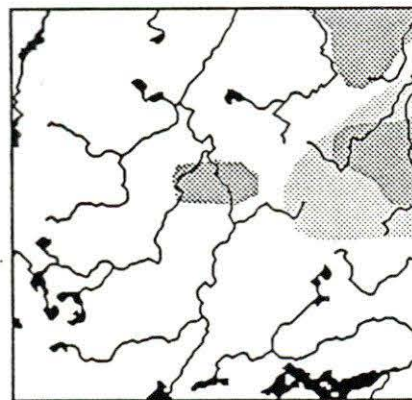


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
32	20	5	5/30/84	25	GGGG	208

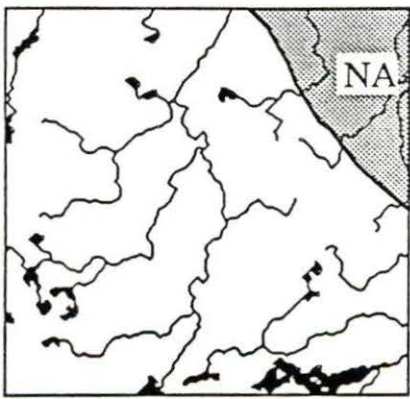




opaque  
transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
32	20	5	8/2/84	10	GGGG	209



Path	Row	LS	Date	C/C	Qual. of MSS	App.#
32	20	5	8/18/84	5	GGGG	210

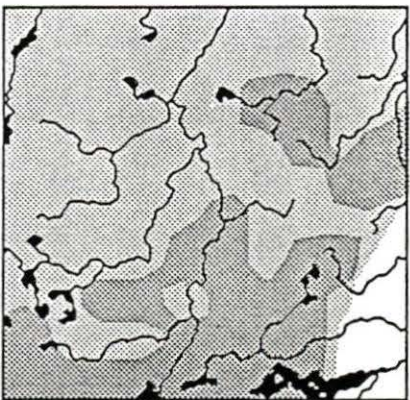




 opaque  
 transparent

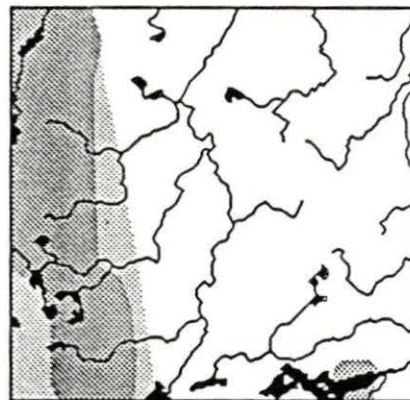


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
32	20	5	2/26/85	0	GGGG	211

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
32	20	5	3/30/85	20	GGGG	212

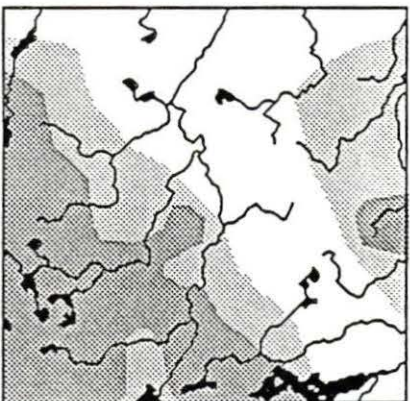




 opaque  
 transparent

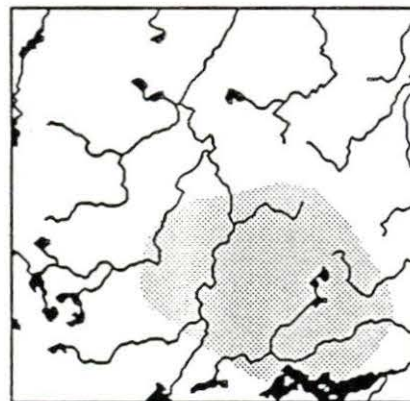


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
32	20	5	5/1/85	20	GGGG	213

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
32	20	5	6/18/85	15	GGGG	214

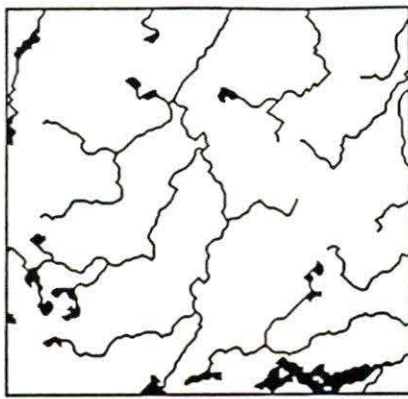




 opaque  
 transparent



Path	Row	LS	Date	C/C	Qual. of MSS	App.#
32	20	5	8/21/85	40	GGGG	215

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
32	20	5	11/9/85	5	GGGG	216

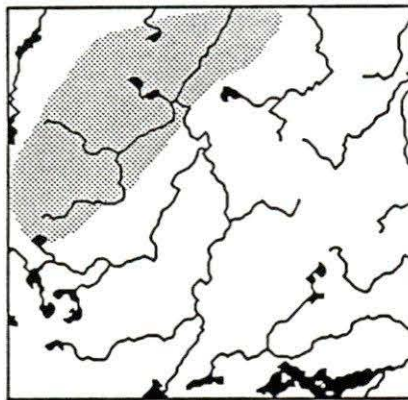


 opaque  
 transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
32	20	5	11/25/85	10	GGGG	217

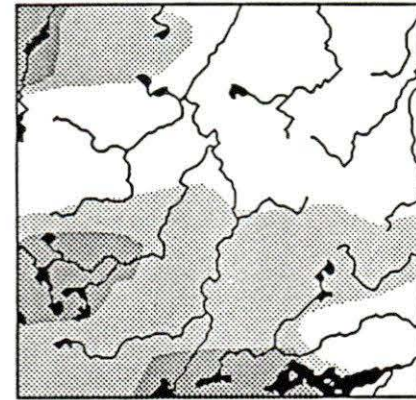


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
32	20	5	1/28/86	50	GGGG	218

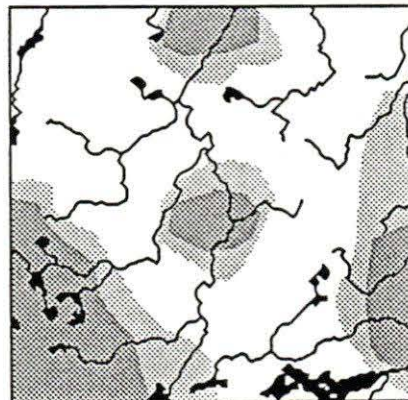


 opaque  
 transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
32	20	5	5/20/86	10	GGGG	219

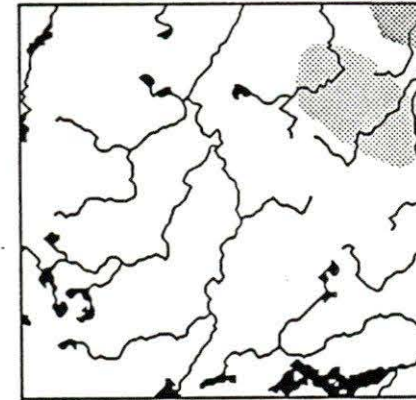


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
32	20	5	6/5/86	40	GGGG	220



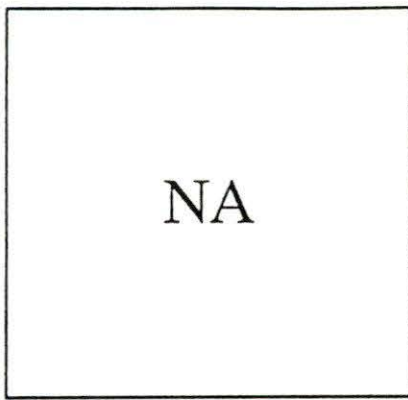
 opaque  
 transparent



Path	Row	LS	Date	C/C	Qual. of MSS	App.#
32	20	5	6/21/86	15	GGGG	221

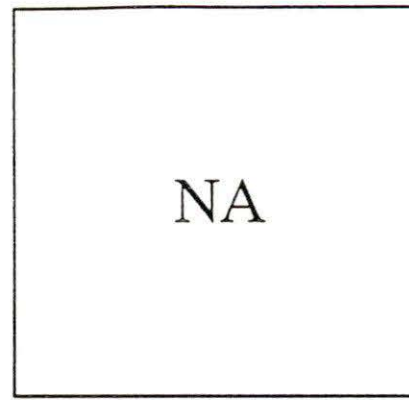


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
32	20	5	10/11/86	5	GGGG	222



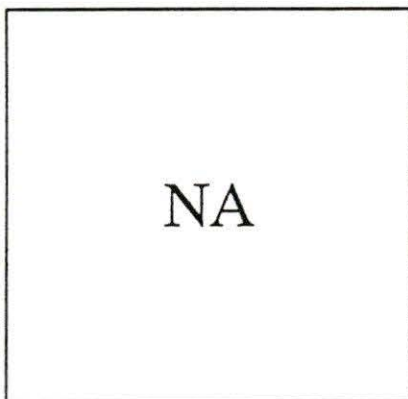




 opaque  
 transparent

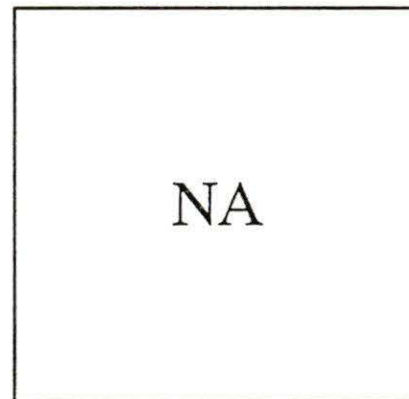


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
32	21	4	9/22/82	5	GGGG	223

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
32	21	4	10/24/82	5	GGGG	224

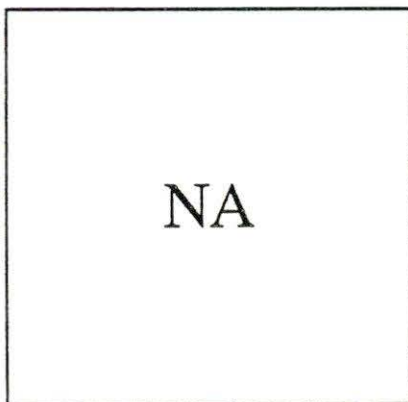




 opaque  
 transparent

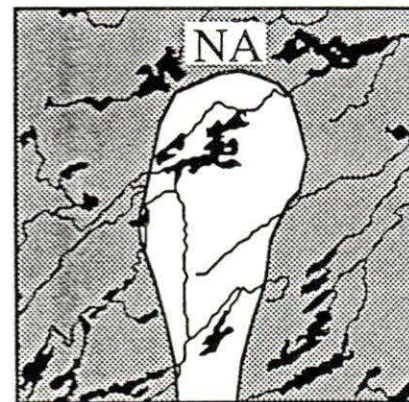


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
32	21	4	12/11/82	0	GGGG	225

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
32	21	4	12/27/82	15	GGGG	226

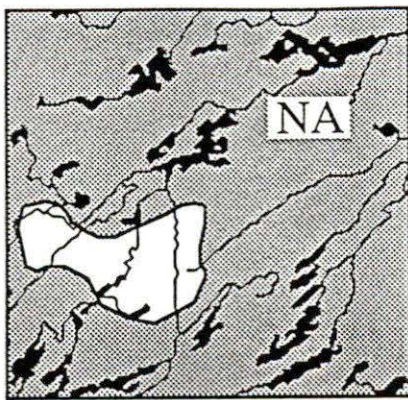




 opaque  
 transparent



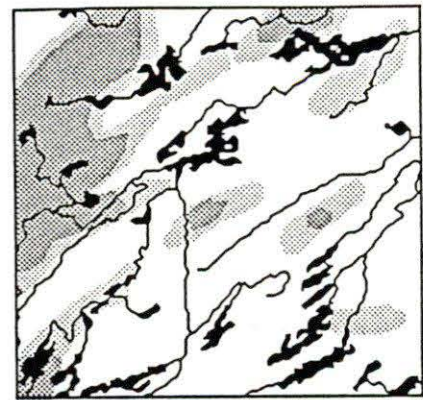
Path	Row	LS	Date	C/C	Qual. of MSS	App.#
32	21	4	4/2/83	0	GGGG	227

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
32	21	4	4/18/83	50	GGGG	228

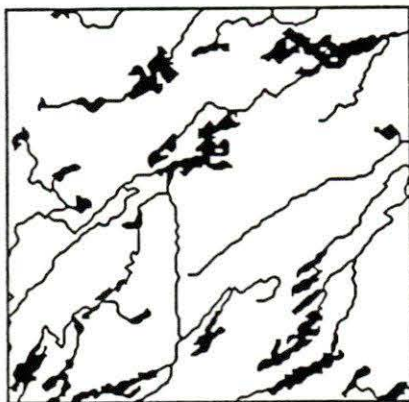




 opaque  
 transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
32	21	4	5/4/83	15	GGGG	229

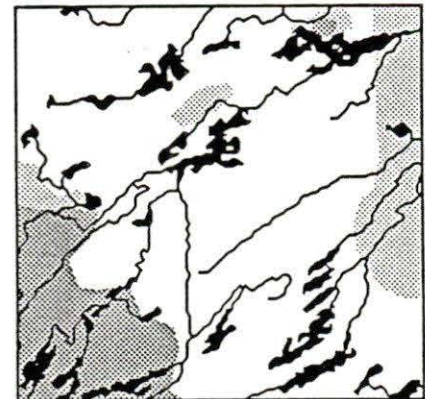


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
32	21	4	6/21/83	25	GGGG	230

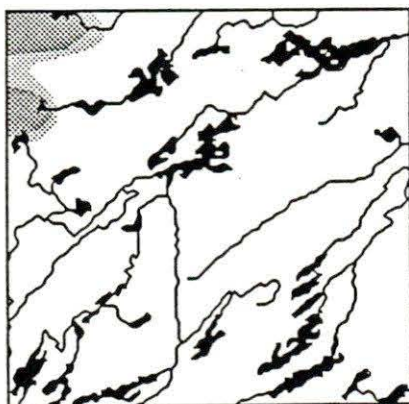




 opaque  
 transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
32	21	4	7/23/83	0	GGGG	231

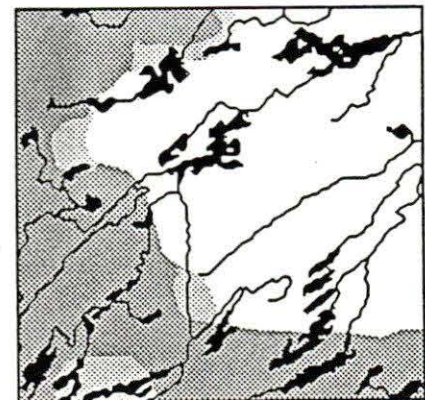


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
32	21	4	8/8/83	15	GGGG	232

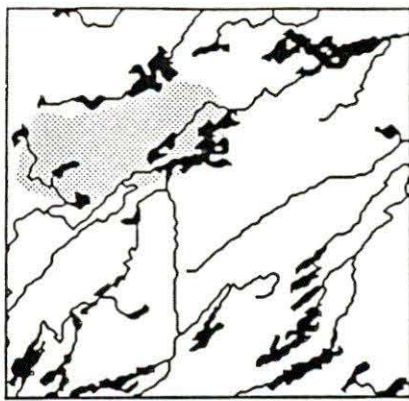


 opaque  
 transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
32	21	4	8/24/83	5	GGGG	233



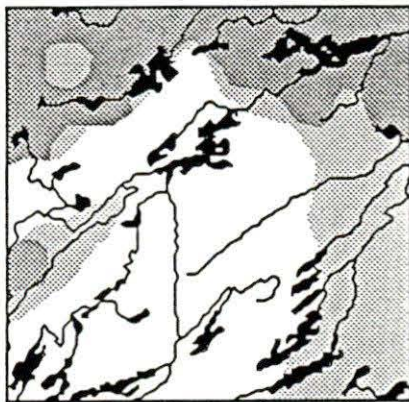
Path	Row	LS	Date	C/C	Qual. of MSS	App.#
32	21	4	11/12/83	40	GGGG	234



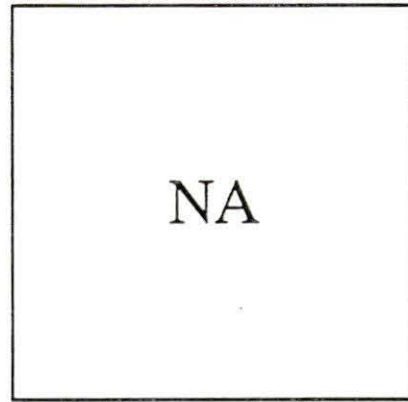
Path	Row	LS	Date	C/C	Qual. of MSS	App.#
32	21	4	12/14/83	5	GGGG	235



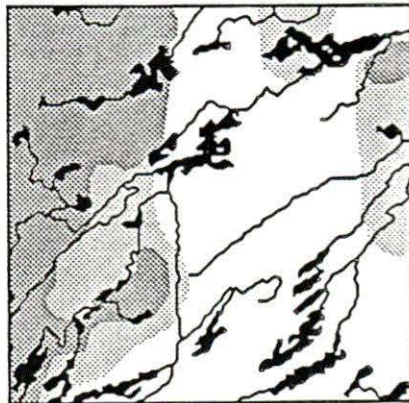
Path	Row	LS	Date	C/C	Qual. of MSS	App.#
32	21	4	12/30/83	35	GGGG	236



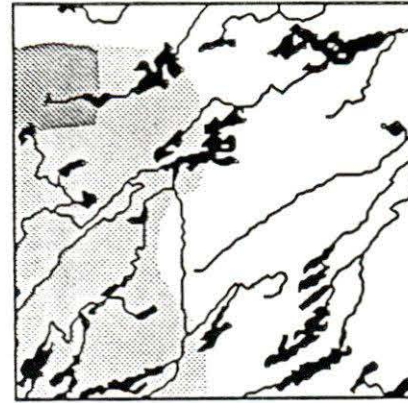
Path	Row	LS	Date	C/C	Qual. of MSS	App.#
32	21	4	4/4/84	15	GGGG	237



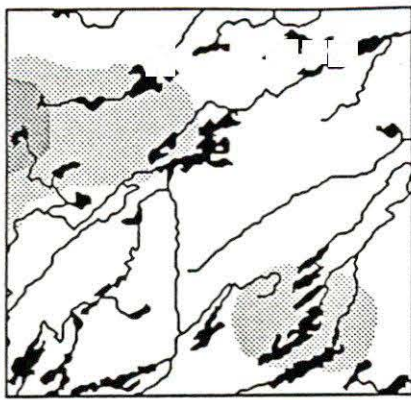
Path	Row	LS	Date	C/C	Qual. of MSS	App.#
32	21	4	4/20/84	5	GGGG	238



Path	Row	LS	Date	C/C	Qual. of MSS	App.#
32	21	4	8/10/84	35	GGGG	239

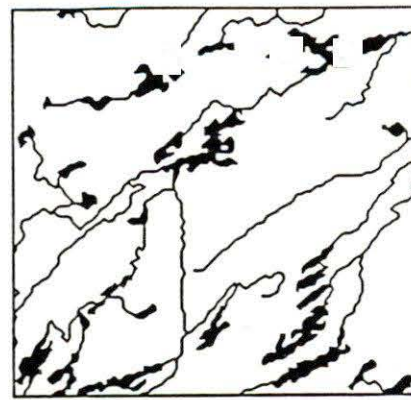


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
32	21	4	10/29/84	15	GGGG	240

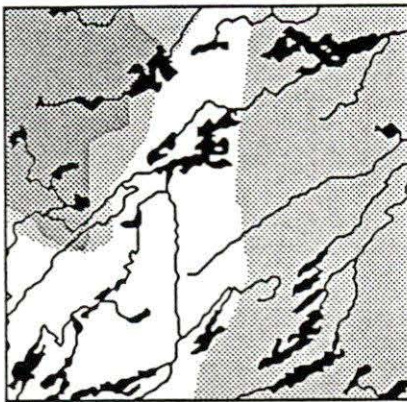


opaque  
transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
32	21	4	11/30/84	0	GGGG	241

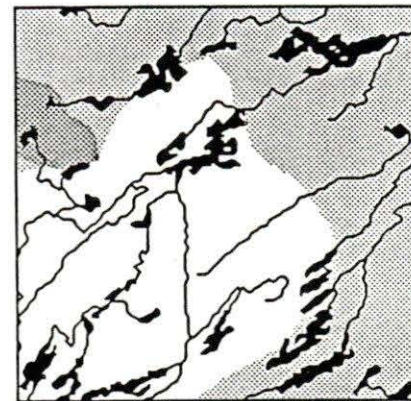


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
32	21	4	12/16/84	0	GGGG	242

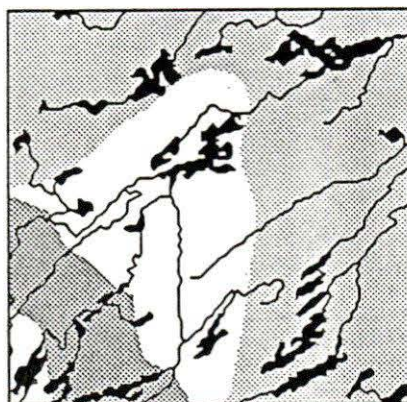


opaque  
transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
32	21	4	2/18/85	30	GGGG	243

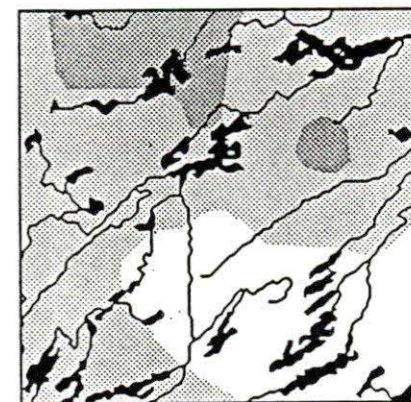


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
32	21	4	3/22/85	0	GGGG	244

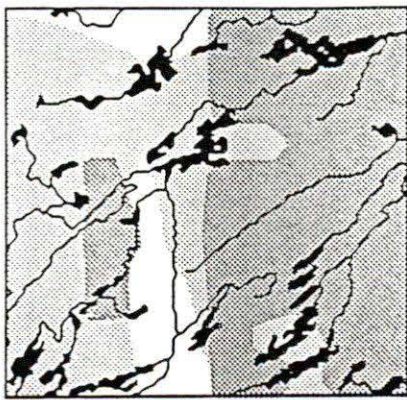




opaque  
transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
32	21	4	4/7/85	15	GGGG	245

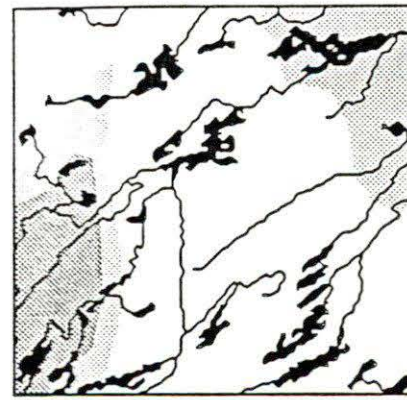


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
32	21	4	5/25/85	15	GGGG	246

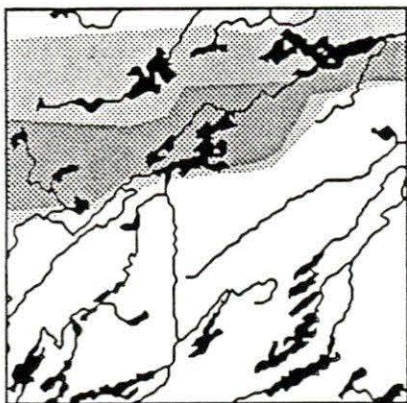




 opaque  
 transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
32	21	4	6/10/85	45	GGGG	247

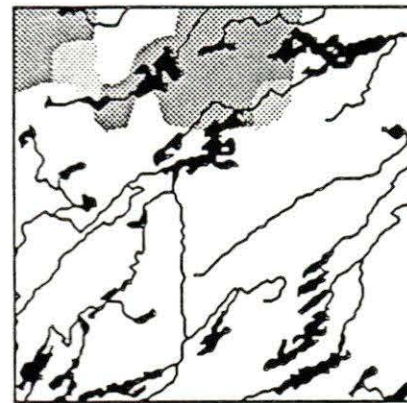


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
32	21	4	7/28/85	25	GGGG	248





 opaque  
 transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
32	21	4	8/29/85	14	GGGG	249

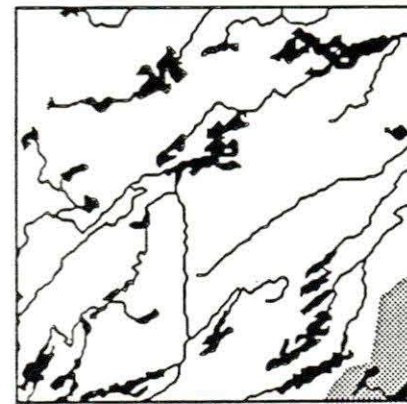


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
32	21	4	9/30/85	10	GGGG	250

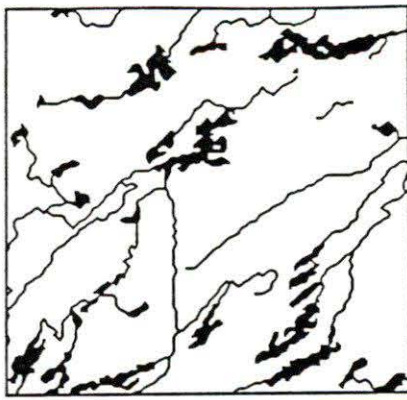




 opaque  
 transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
32	21	4	10/16/85	40	GGGG	251

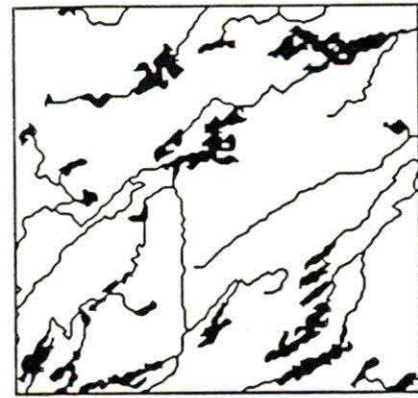


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
32	21	4	11/17/85	2	GGGG	252

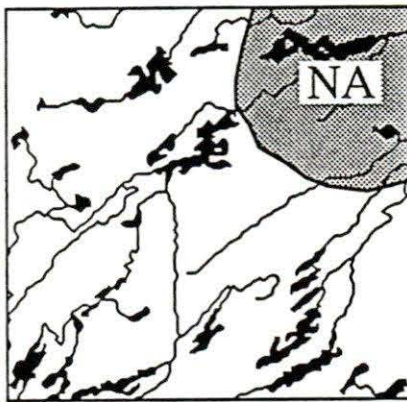




 opaque  
 transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
32	21	4	12/3/85	0	GGGG	253

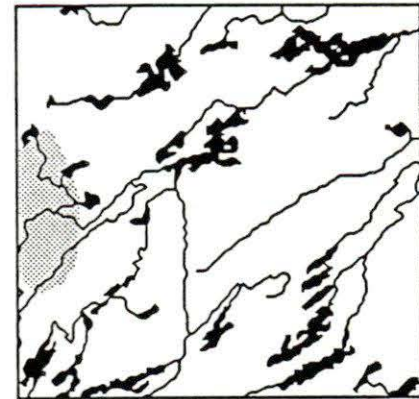


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
32	21	4	12/19/85	0	GGGG	254





 opaque  
 transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
32	21	5	5/14/84	0	GGGG	255



Path	Row	LS	Date	C/C	Qual. of MSS	App.#
32	21	5	5/30/84	2	GGGG	256

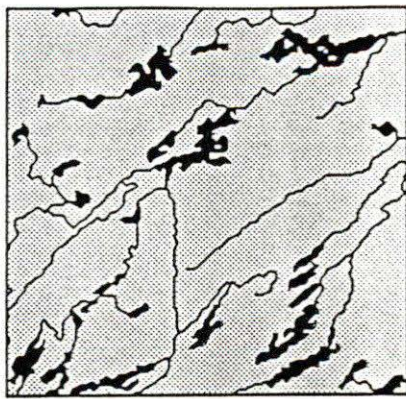




 opaque  
 transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
32	21	5	6/15/84	20	GGGG	257

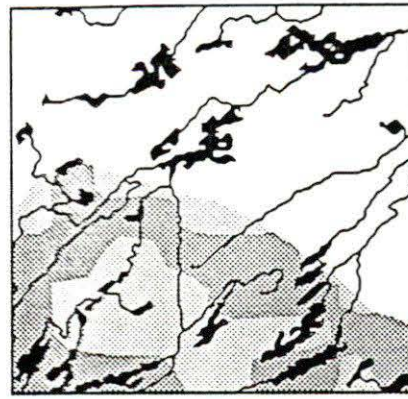


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
32	21	5	7/1/84	30	GGGG	258

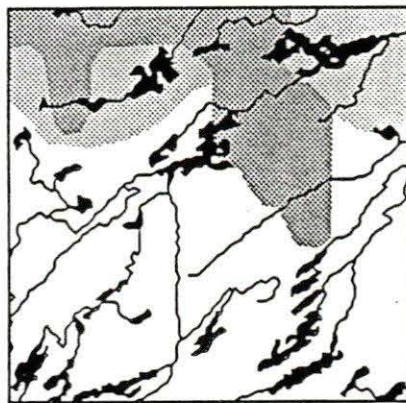




 opaque  
 transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
32	21	5	8/2/84	25	GGGG	259

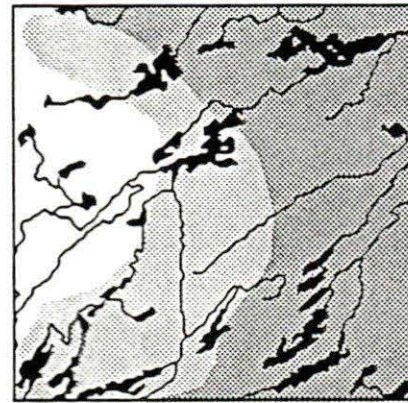


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
32	21	5	8/18/84	40	GGGG	260

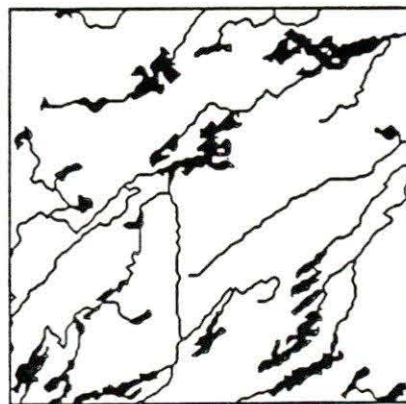




 opaque  
 transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
32	21	5	10/5/84	25	GGGG	261

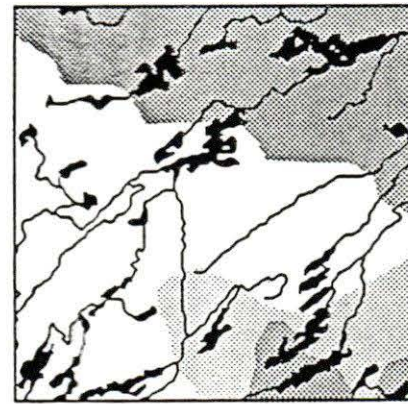


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
32	21	5	11/6/84	50	GGGG	262

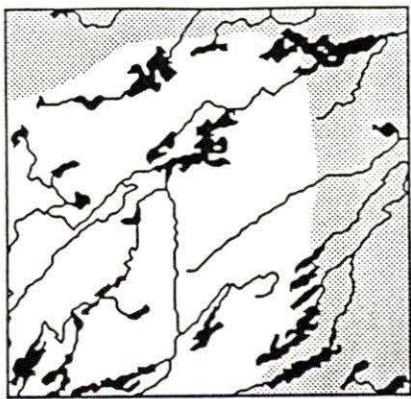




 opaque  
 transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
32	21	5	1/25/85	0	GGGG	263

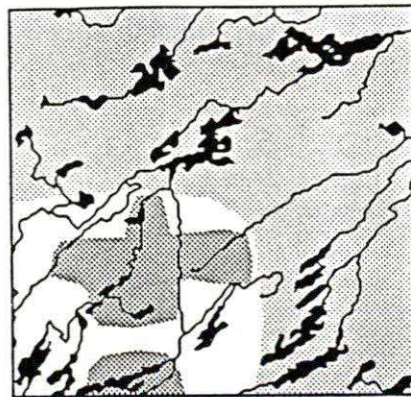


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
32	21	5	2/10/85	40	GGGG	264

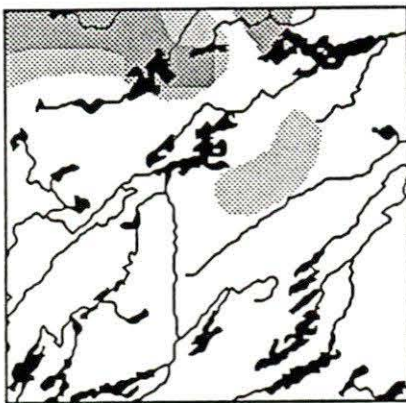




 opaque  
 transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
32	21	5	2/26/85	0	GGGG	265



Path	Row	LS	Date	C/C	Qual. of MSS	App.#
32	21	5	3/30/85	15	GGGG	266

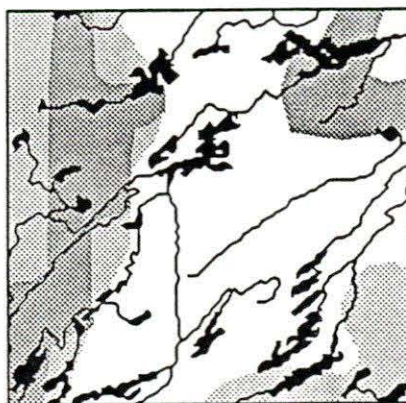




 opaque  
 transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
32	21	5	5/1/85	5	GGGG	267

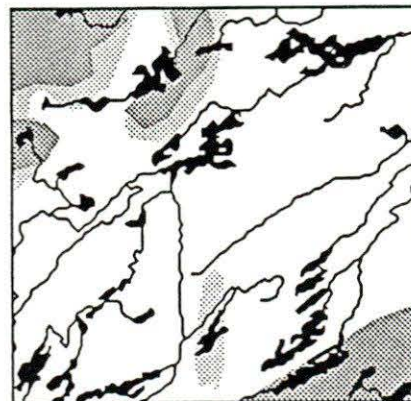


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
32	21	5	5/17/85	20	GGGG	268



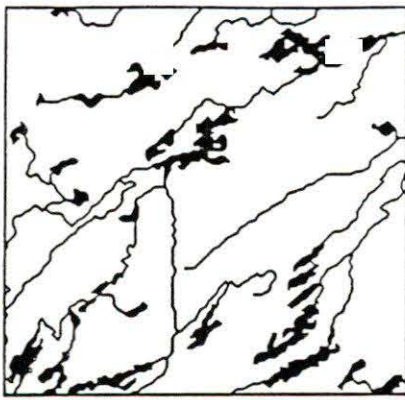
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 transparent



Path	Row	LS	Date	C/C	Qual. of MSS	App.#
32	21	5	6/18/85	20	GGGG	269



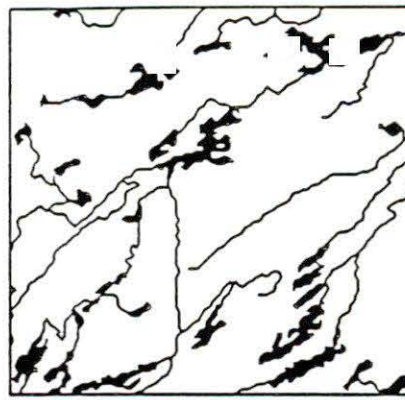
Path	Row	LS	Date	C/C	Qual. of MSS	App.#
32	21	5	8/5/85	20	GGGG	270



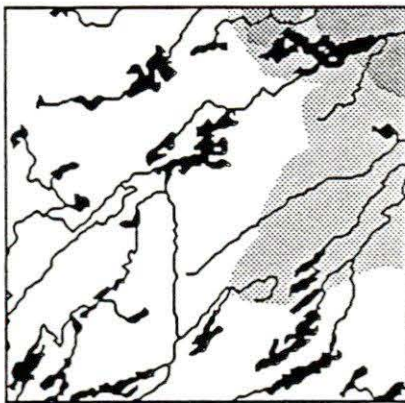




 opaque  
 transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
32	21	5	11/9/85	0	GGGG	271

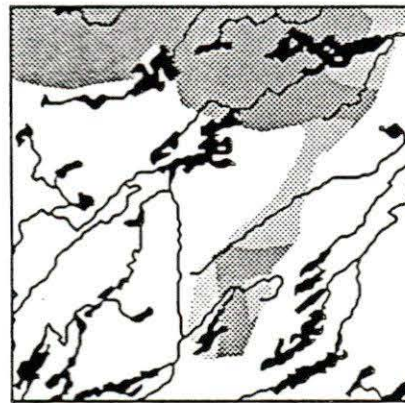


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
32	21	5	11/25/85	0	GGGG	272





 opaque  
 transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
32	21	5	12/27/85	10	GGGG	273

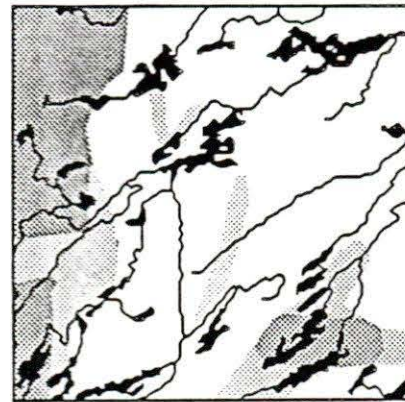


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
32	21	5	3/1/86	25	GGGG	274

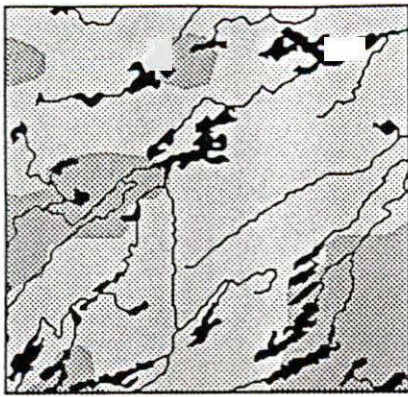




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Path	Row	LS	Date	C/C	Qual. of MSS	App.#
32	21	5	5/20/86	20	GGGG	275

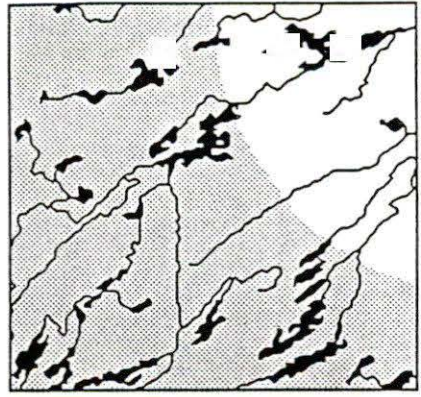


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
32	21	5	6/21/86	15	GGGG	276

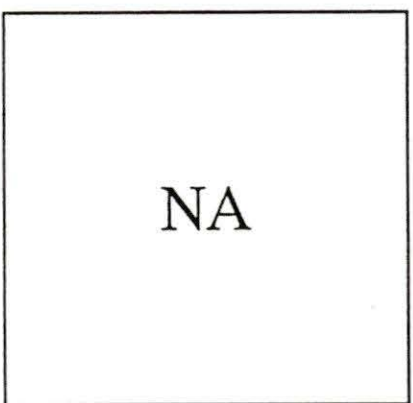




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Path	Row	LS	Date	C/C	Qual. of MSS	App.#
32	21	5	9/9/86	50	GGGG	277

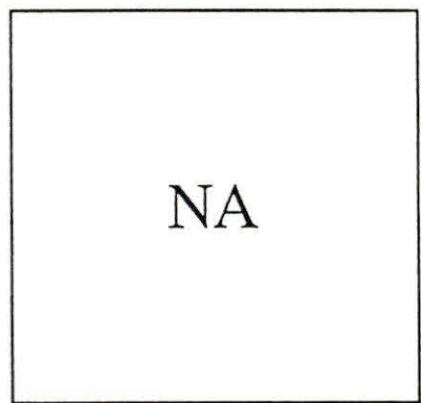


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
32	21	5	10/11/86	5	GGGG	278

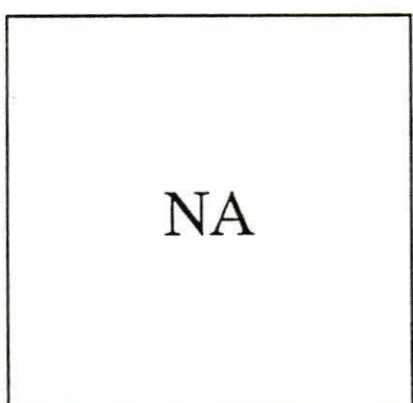




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Path	Row	LS	Date	C/C	Qual. of MSS	App.#
32	22	4	9/22/82	15	GGGG	279

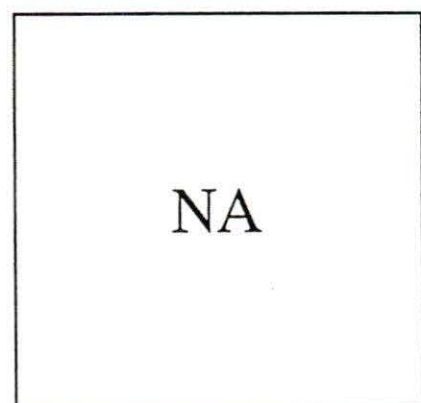


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
32	22	4	10/24/82	40	GGGG	280

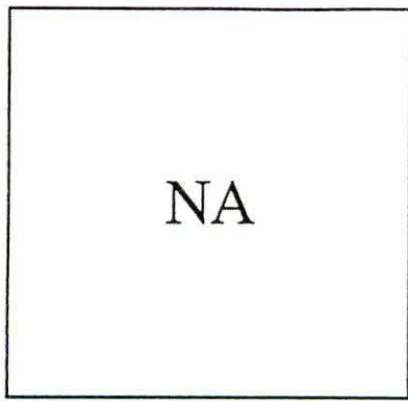




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 transparent

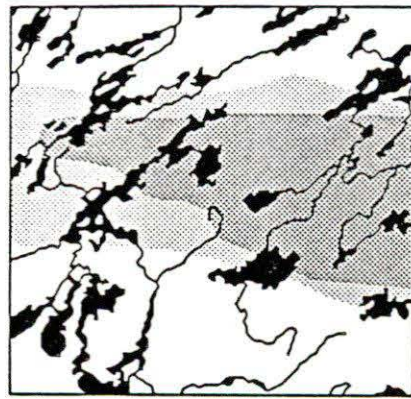
Path	Row	LS	Date	C/C	Qual. of MSS	App.#
32	22	4	11/25/82	5	GGGG	281



Path	Row	LS	Date	C/C	Qual. of MSS	App.#
32	22	4	12/11/82	0	GGGG	282

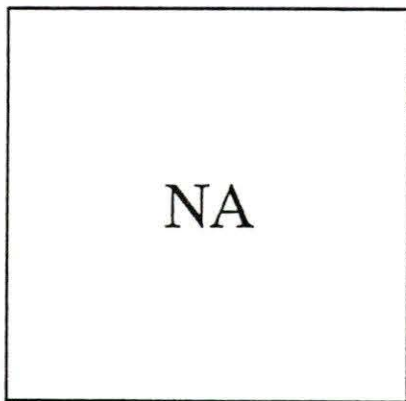




 opaque  
 transparent

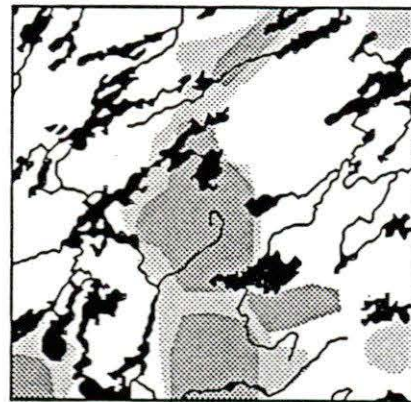


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
32	22	4	12/27/82	10	GGGG	283

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
32	22	4	1/12/83	15	GGGG	284

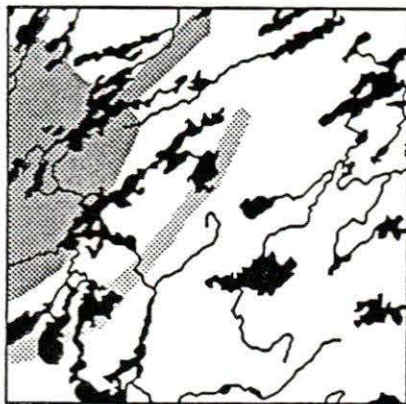




 opaque  
 transparent

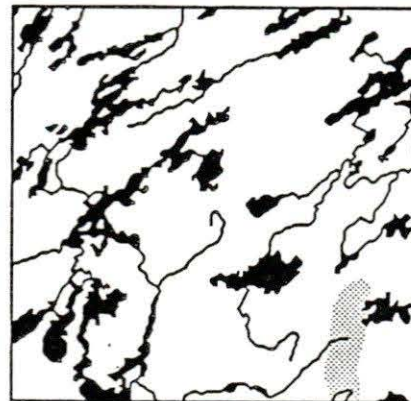


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
32	22	4	4/2/83	0	GGGG	285

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
32	22	4	6/5/83	2	GGGG	286

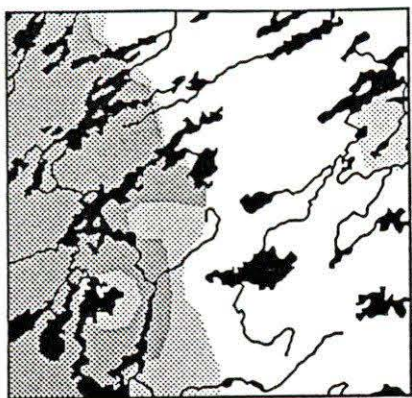




 opaque  
 transparent



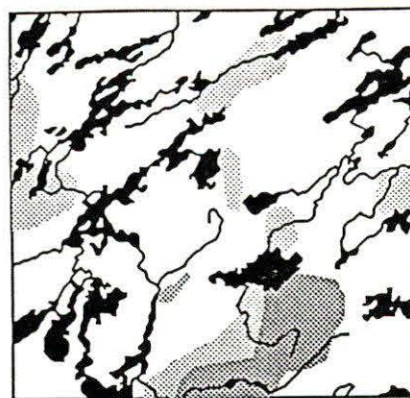
Path	Row	LS	Date	C/C	Qual. of MSS	App.#
32	22	4	6/21/83	15	GGGG	287

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
32	22	4	7/23/83	0	GGGG	288

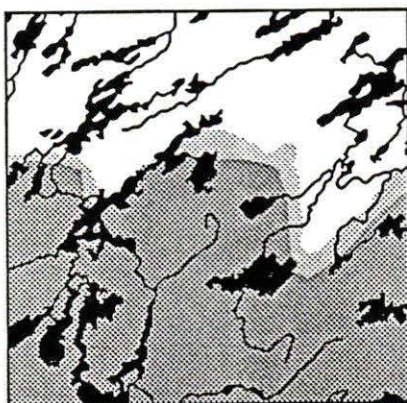




 opaque  
 transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
32	22	4	8/8/83	25	GGGG	289

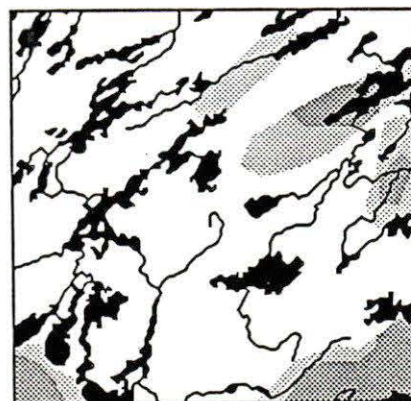


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
32	22	4	8/24/83	15	GGGG	290

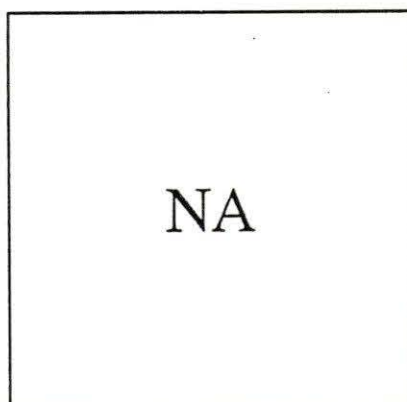




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 transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
32	22	4	12/14/83	50	GGGG	291

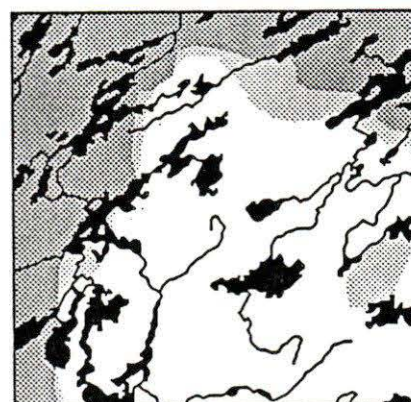


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
32	22	4	4/4/84	10	GGGG	292

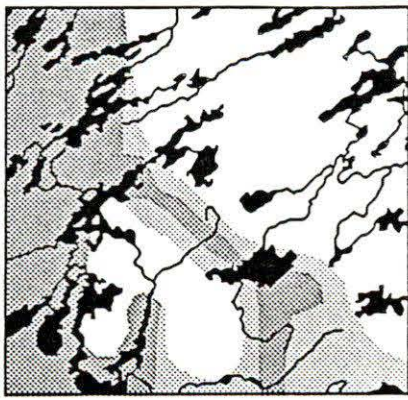




 opaque  
 transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
32	22	4	4/20/84	0	GGGG	293



Path	Row	LS	Date	C/C	Qual. of MSS	App.#
32	22	4	5/6/84	35	GGGG	294

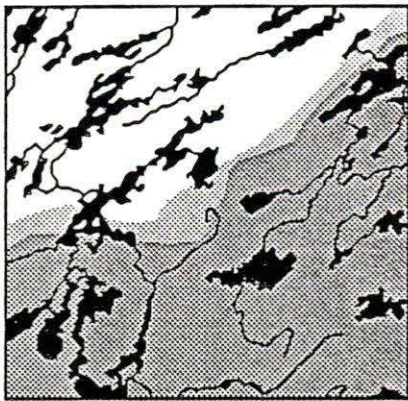




 opaque  
 transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
32	22	4	8/10/84	20	GGGG	295

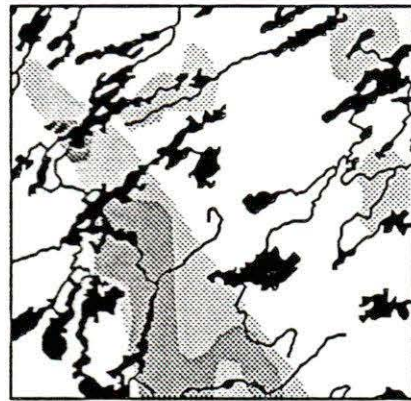


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
32	22	4	10/13/84	30	GGGG	296





 opaque  
 transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
32	22	4	10/29/84	40	GGGG	297

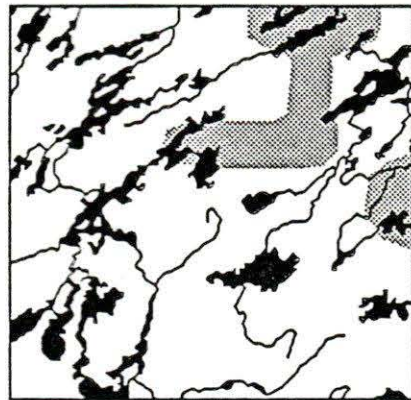


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
32	22	4	11/30/84	20	GGGG	298

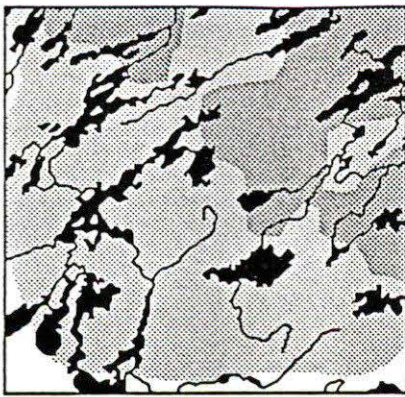




 opaque  
 transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
32	22	4	12/16/84	10	GGGG	299

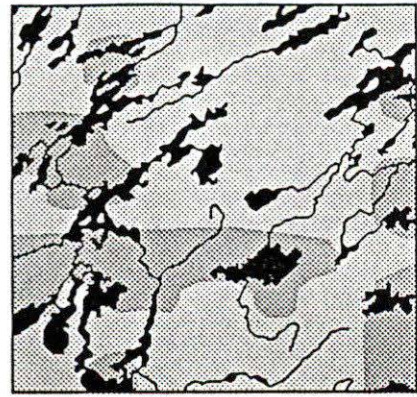


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
32	22	4	2/18/85	5	GGGG	300



 opaque  
 transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
32	22	4	4/7/85	20	GGGG	301



Path	Row	LS	Date	C/C	Qual. of MSS	App.#
32	22	4	5/9/85	30	GGGG	302





 opaque  
 transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
32	22	4	5/25/85	50	GGGG	303

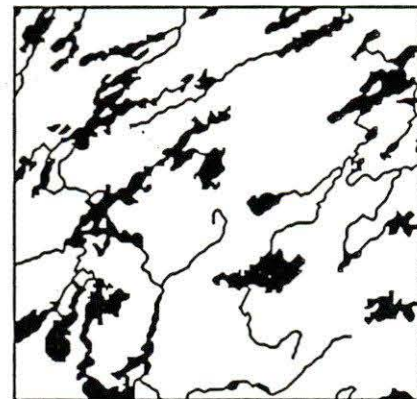


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
32	22	4	7/28/85	25	GGGG	304



 opaque  
 transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
32	22	4	8/29/85	10	GGGG	305

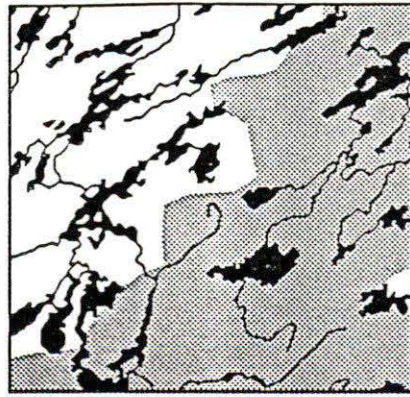


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
32	22	4	9/30/85	0	GGGG	306



opaque  
transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
32	22	4	10/16/85	0	GGGG	307

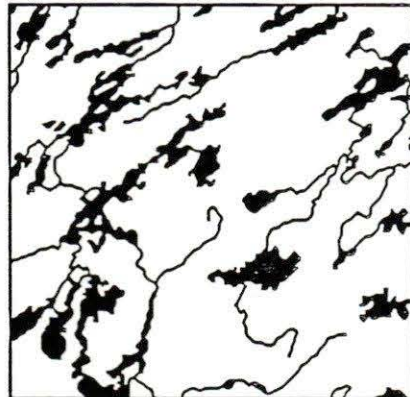


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
32	22	4	11/17/85	50	GGGG	308



opaque  
transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
32	22	4	12/3/85	0	GGGG	309

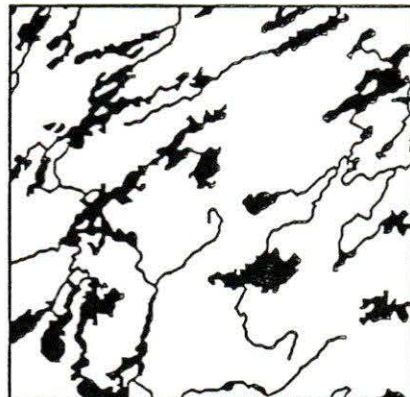


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
32	22	4	12/19/85	0	GGGG	310

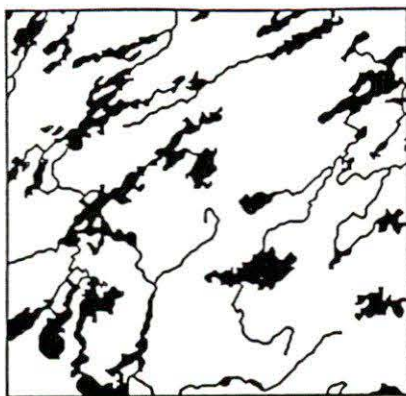


opaque  
transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
32	22	5	5/14/84	0	GGGG	311

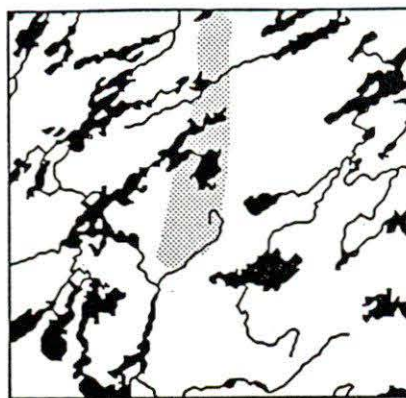


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
32	22	5	5/30/84	0	GGGG	312

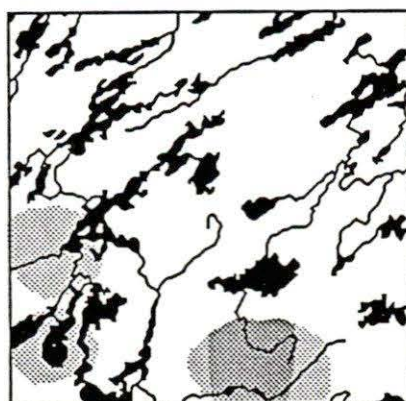


opaque  
transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
32	22	5	6/15/84	0	GGGG	313

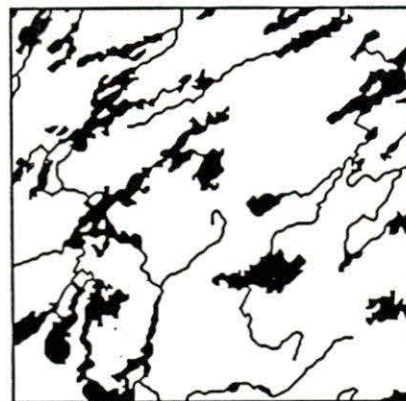


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
32	22	5	7/1/84	2	GGGG	314

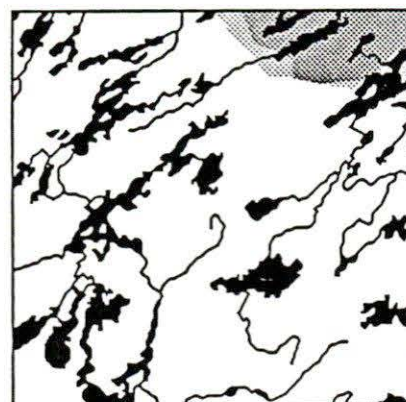


opaque  
transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
32	22	5	8/2/84	5	GGGG	315

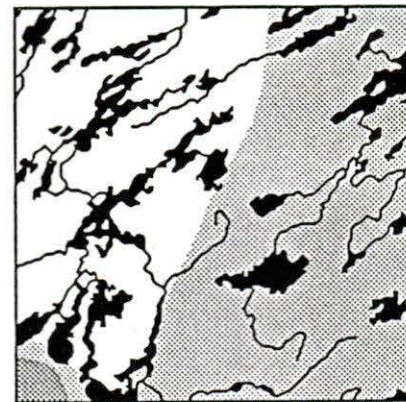


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
32	22	5	1/25/85	0	GGGG	316



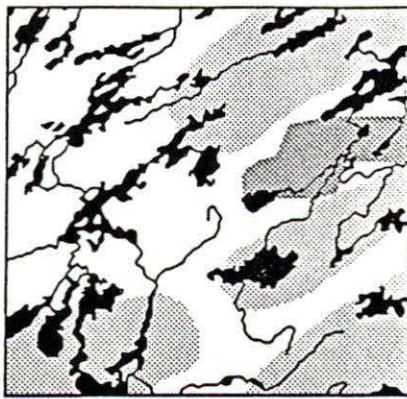
opaque  
transparent



Path	Row	LS	Date	C/C	Qual. of MSS	App.#
32	22	5	2/10/85	10	GGGG	317



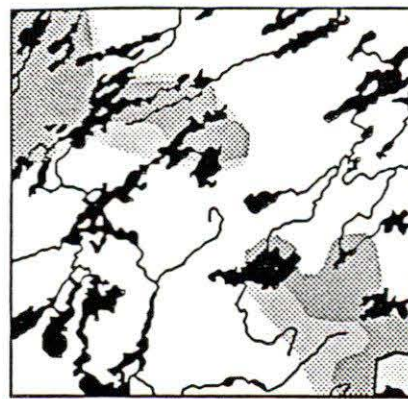
Path	Row	LS	Date	C/C	Qual. of MSS	App.#
32	22	5	2/26/85	0	GGGG	318







 opaque  
 transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
32	22	5	3/30/85	15	GGGG	319



Path	Row	LS	Date	C/C	Qual. of MSS	App.#
32	22	5	5/1/85	15	GGGG	320

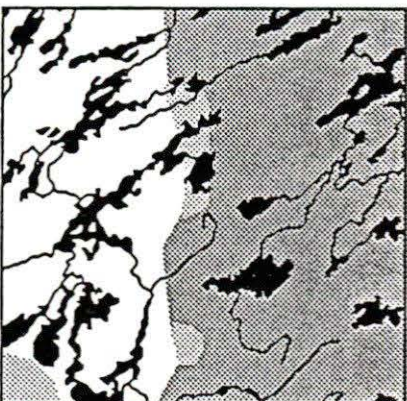




 opaque  
 transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
32	22	5	5/17/85	0	GGGG	321

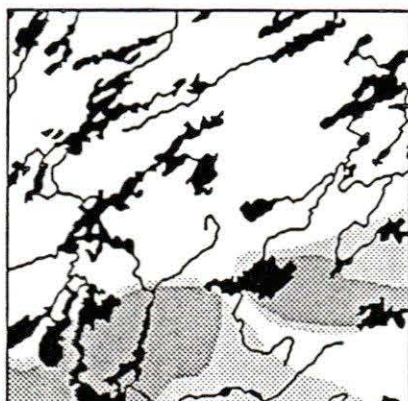


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
32	22	5	6/18/85	10	GGGG	322

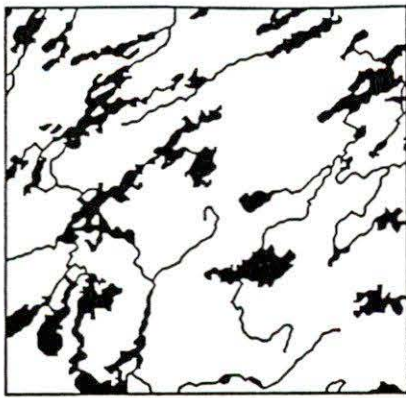


 opaque  
 transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
32	22	5	8/5/85	50	GGGG	323

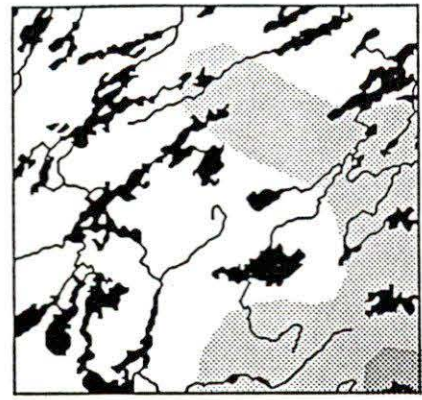


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
32	22	5	11/9/85	15	GGGG	324

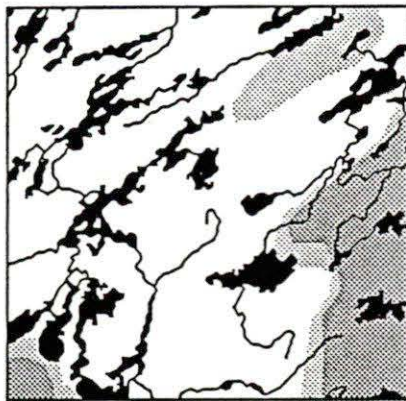


opaque  
transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
32	22	5	11/25/85	0	GGGG	325

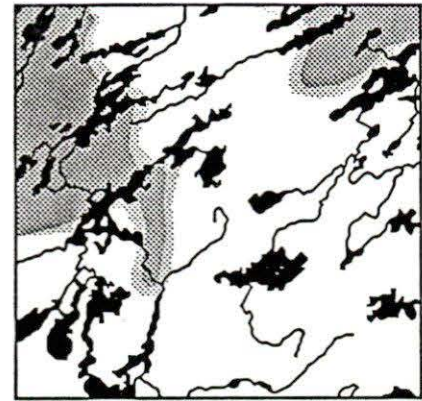


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
32	22	5	12/27/85	0	GGGG	326



opaque  
transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
32	22	5	3/1/86	20	GGGG	327

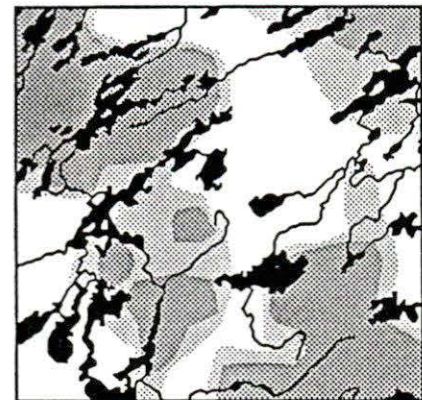


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
32	22	5	5/20/86	25	GGGG	328



opaque  
transparent

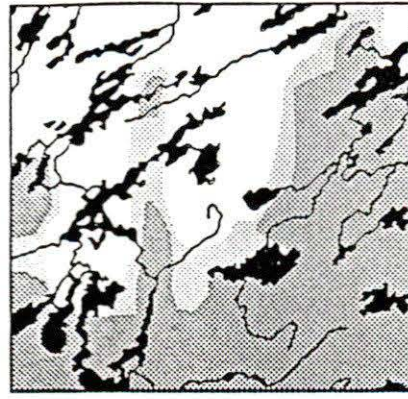
Path	Row	LS	Date	C/C	Qual. of MSS	App.#
32	22	5	6/5/86	30	GGGG	329



Path	Row	LS	Date	C/C	Qual. of MSS	App.#
32	22	5	6/21/86	30	GGGG	330

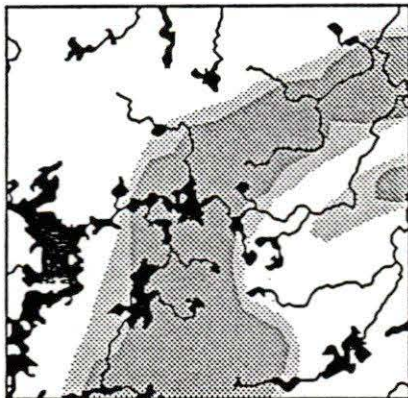


opaque  
transparent

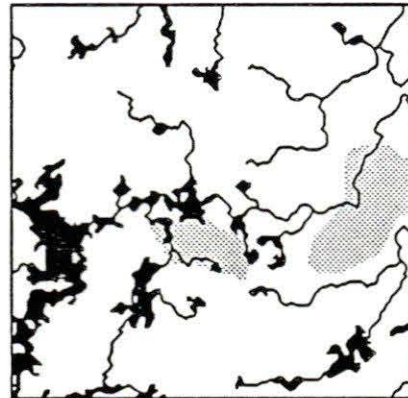


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
32	22	5	9/9/86	50	GGGG	331

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
32	22	5	10/11/86	50	GGGG	332

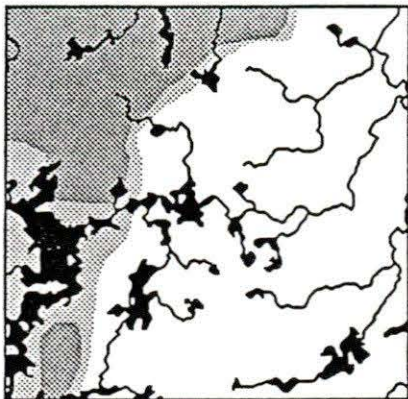


opaque  
transparent

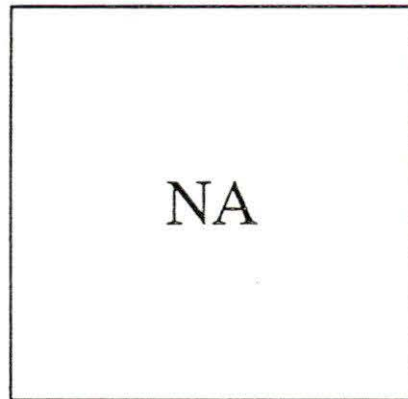


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
33	20	4	1/19/83	30	GGGG	333

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
33	20	4	2/4/83	0	GGGG	334

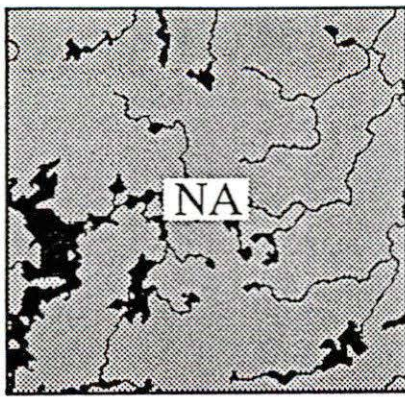


opaque  
transparent



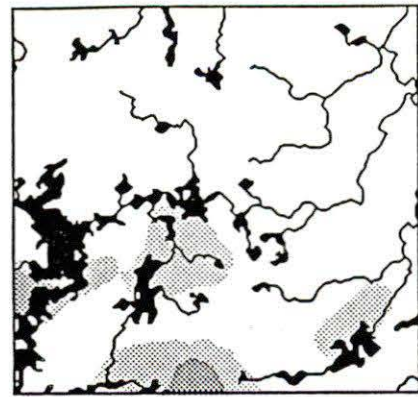
Path	Row	LS	Date	C/C	Qual. of MSS	App.#
33	20	4	2/20/83	25	GGGG	335

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
33	20	4	3/8/83	5	GGGG	336

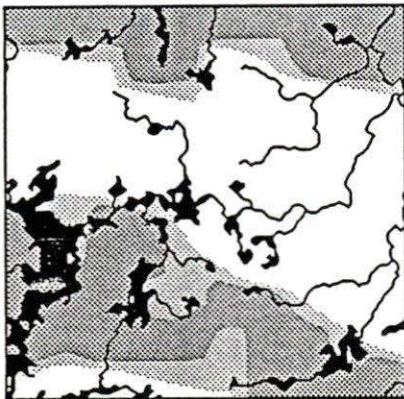


opaque  
transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
33	20	4	5/11/83	10	GGGG	337

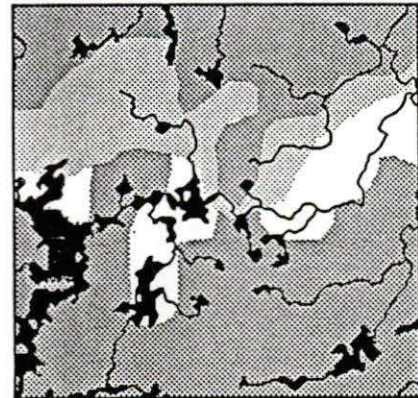


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
33	20	4	6/28/83	5	GGGG	338

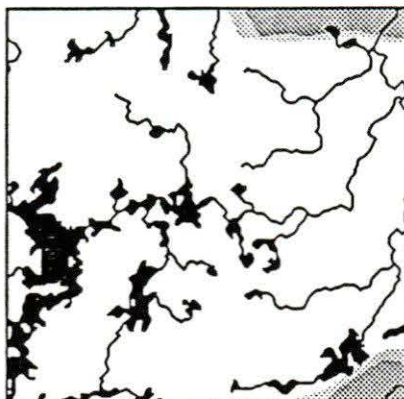


opaque  
transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
33	20	4	7/14/83	40	GGGG	339

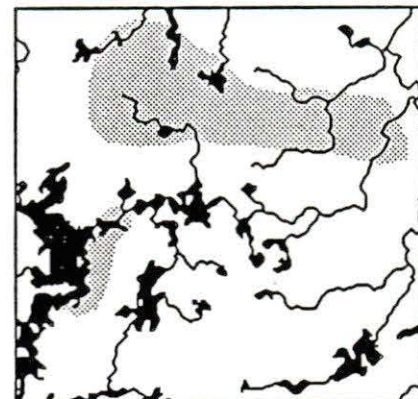


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
33	20	4	7/30/83	20	GGGG	340

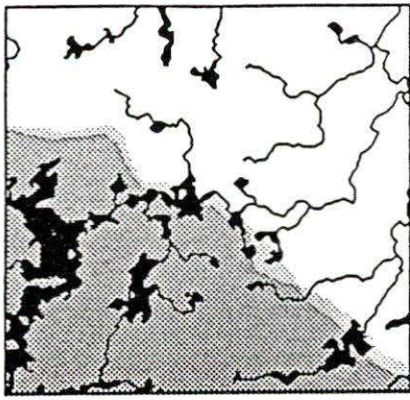




opaque  
transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
33	20	4	10/2/83	5	GGGG	341

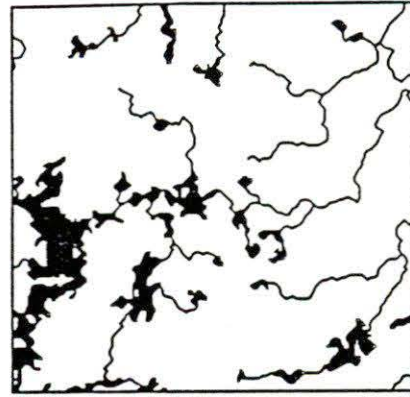


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
33	20	4	12/5/83	10	GGGG	342

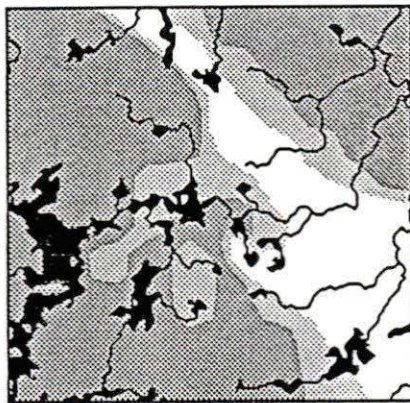




 opaque  
 transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
33	20	4	1/6/84	45	GGGG	343

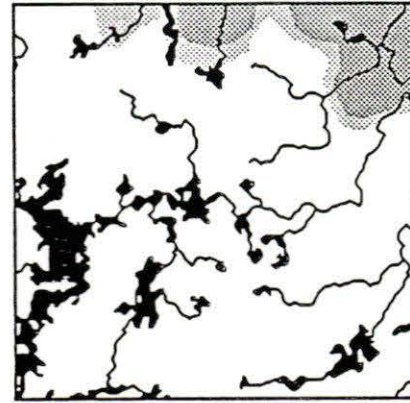


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
33	20	4	1/22/84	0	GGGG	344

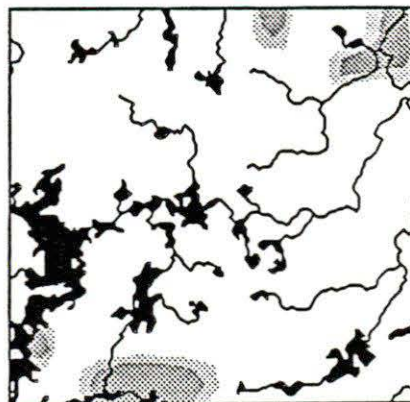




 opaque  
 transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
33	20	4	5/13/84	50	GGGG	345

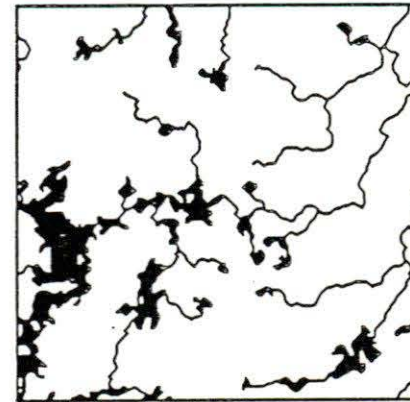


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
33	20	4	8/1/84	15	GGGG	346

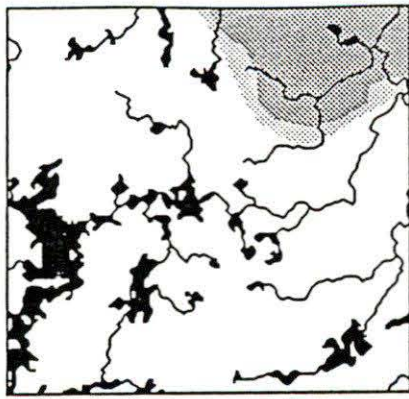


 opaque  
 transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
33	20	4	8/17/84	5	GGGG	347



Path	Row	LS	Date	C/C	Qual. of MSS	App.#
33	20	4	10/4/84	0	GGGG	348

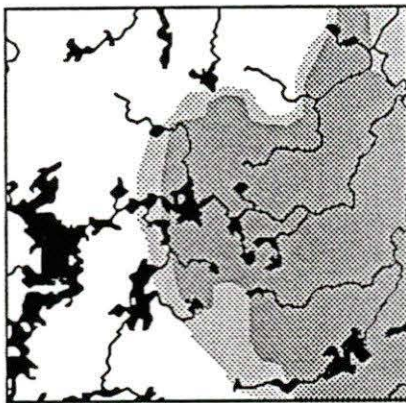


opaque  
transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
33	20	4	10/20/84	5	GGGG	349

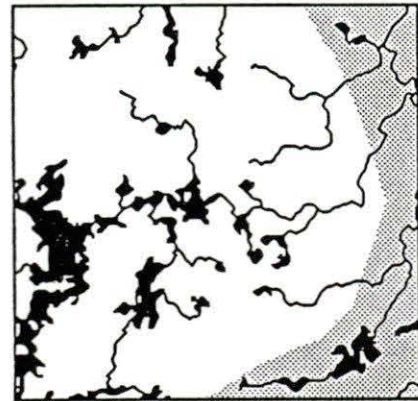


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
33	20	4	12/23/84	0	GGGG	350

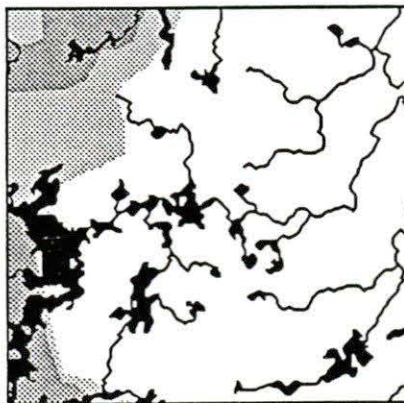


opaque  
transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
33	20	4	1/24/85	35	GGGG	351

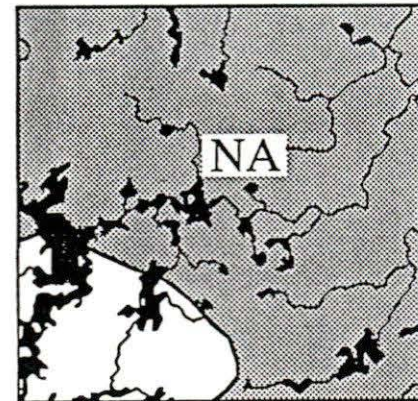


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
33	20	4	2/25/85	0	GGGG	352

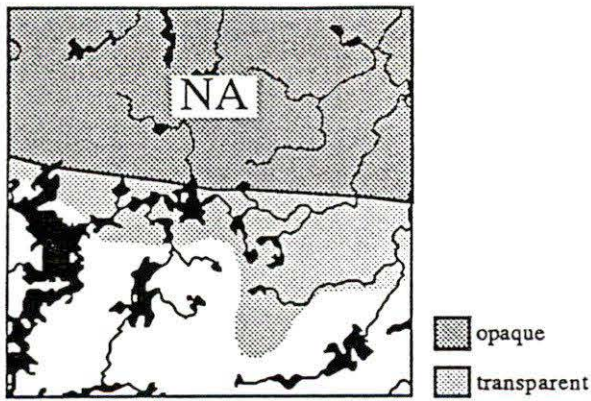


opaque  
transparent

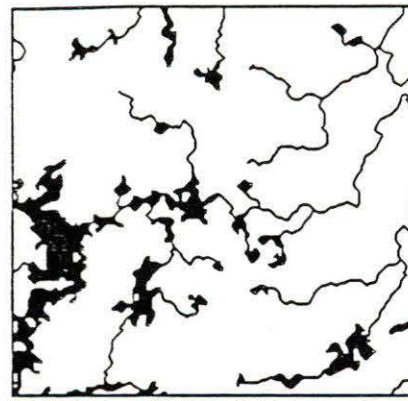
Path	Row	LS	Date	C/C	Qual. of MSS	App.#
33	20	4	3/13/85	10	GGGG	353



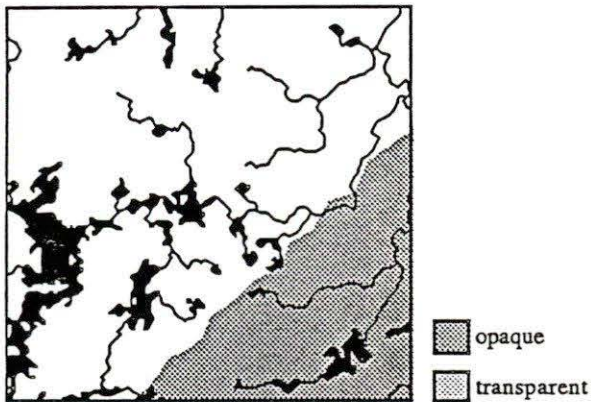
Path	Row	LS	Date	C/C	Qual. of MSS	App.#
33	20	4	3/29/85	0	GGGG	354



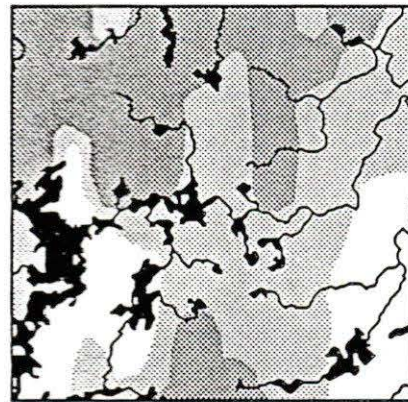
Path	Row	LS	Date	C/C	Qual. of MSS	App.#
33	20	4	4/30/85	40	GGGG	355



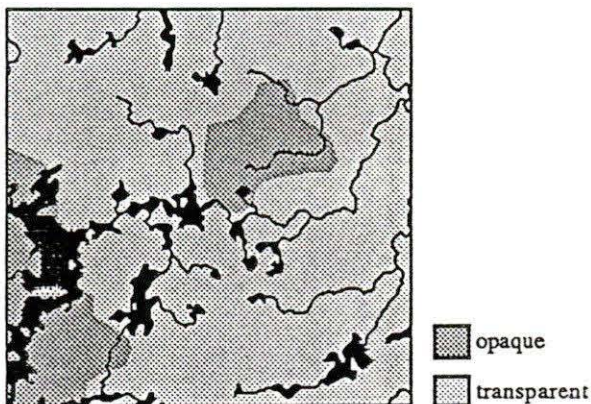
Path	Row	LS	Date	C/C	Qual. of MSS	App.#
33	20	4	5/16/85	0	GGGG	356



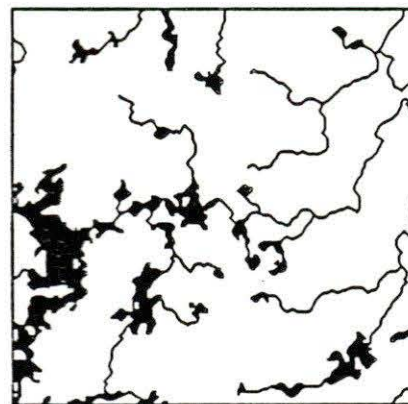
Path	Row	LS	Date	C/C	Qual. of MSS	App.#
33	20	4	6/17/85	20	GGGG	357



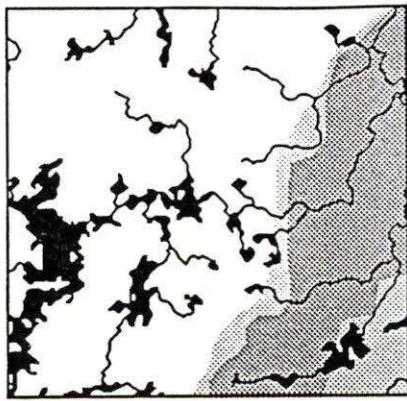
Path	Row	LS	Date	C/C	Qual. of MSS	App.#
33	20	4	8/20/85	35	GGGG	358



Path	Row	LS	Date	C/C	Qual. of MSS	App.#
33	20	4	9/5/85	15	GGGG	359

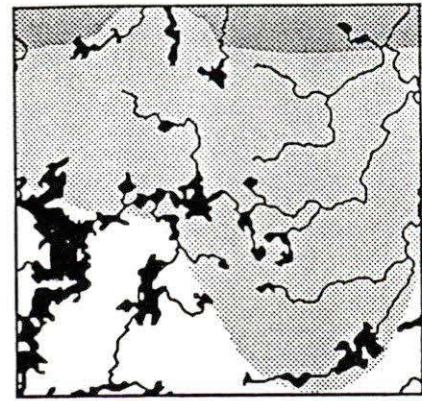


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
33	20	4	11/8/85	0	GGGG	360

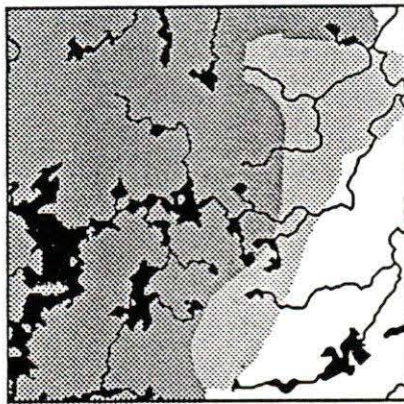


opaque  
transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
33	20	4	12/10/85	25	GGGG	361

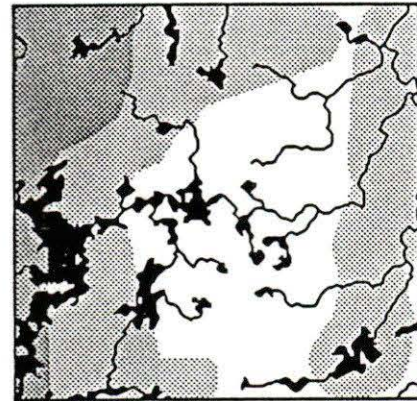


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
33	20	5	4/19/84	15	GGGG	362

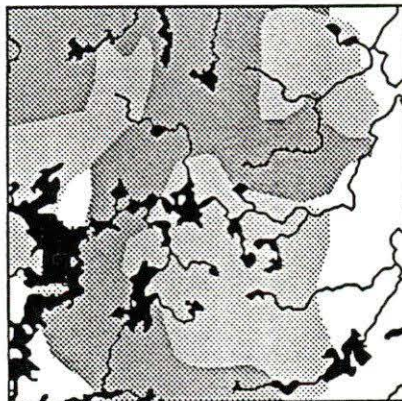


opaque  
transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
33	20	5	6/6/84	50	GGGG	363

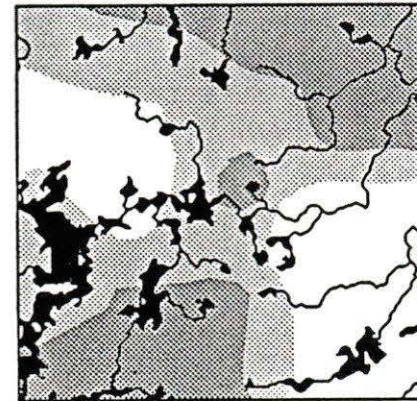


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
33	20	5	6/22/84	20	GGGG	364



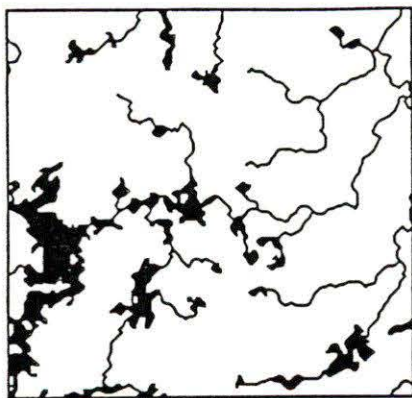
opaque  
transparent



Path	Row	LS	Date	C/C	Qual. of MSS	App.#
33	20	5	7/8/84	35	GGGG	365



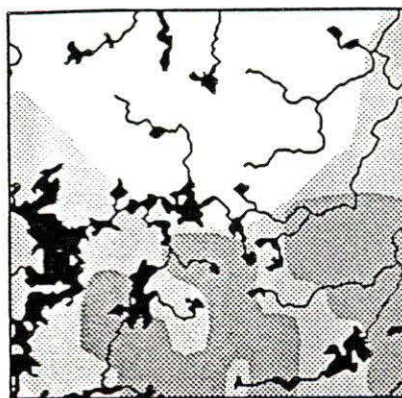
Path	Row	LS	Date	C/C	Qual. of MSS	App.#
33	20	5	8/9/84	30	PPPP	366



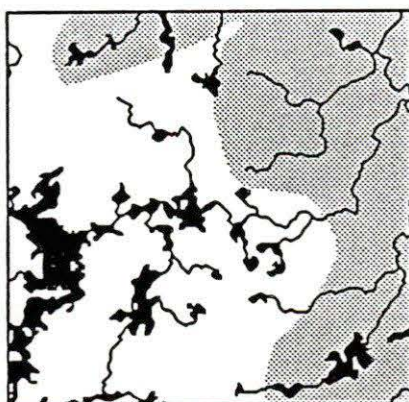




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 transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
33	20	5	1/16/85	1	GGGG	367

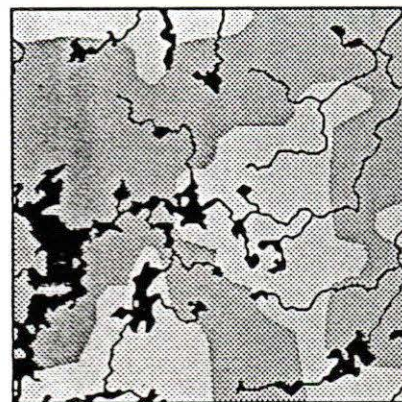


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
33	20	5	2/17/85	40	GGGG	368

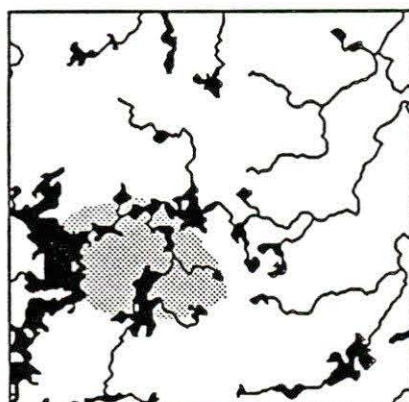




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 transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
33	20	5	3/5/85	15	GGGG	369

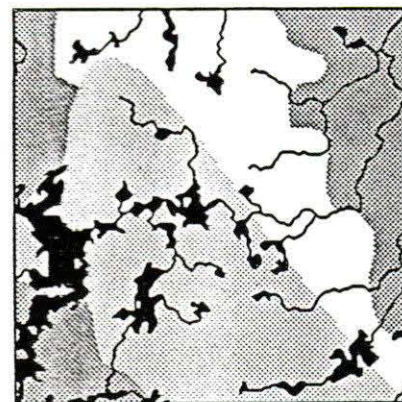


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
33	20	5	5/8/85	45	GGGG	370

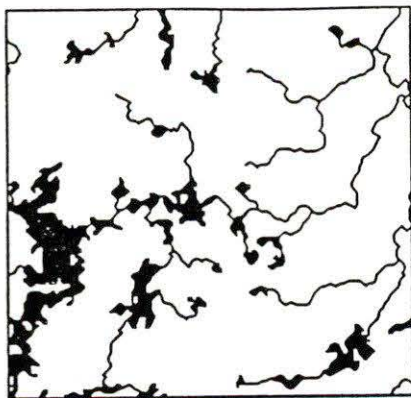


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 transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
33	20	5	9/13/85	2	GGGG	371

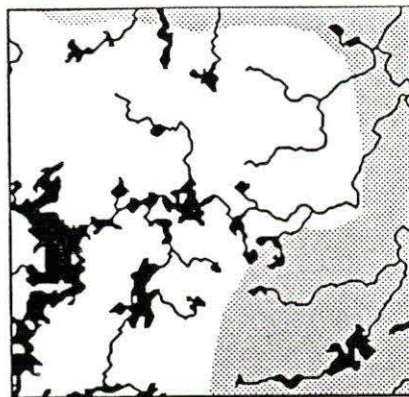


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
33	20	5	9/29/85	40	GGGG	372

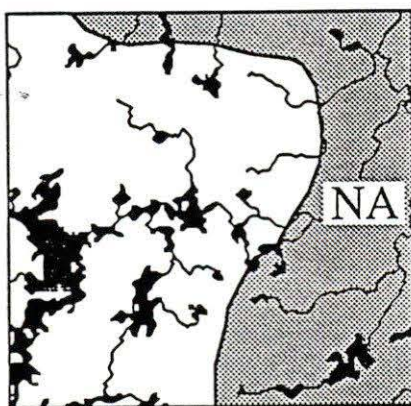


opaque  
transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
33	20	5	12/2/85	0	UUUU	373

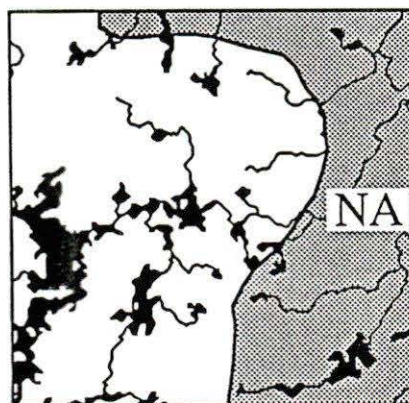


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
33	20	5	2/20/86	20	GGGG	374

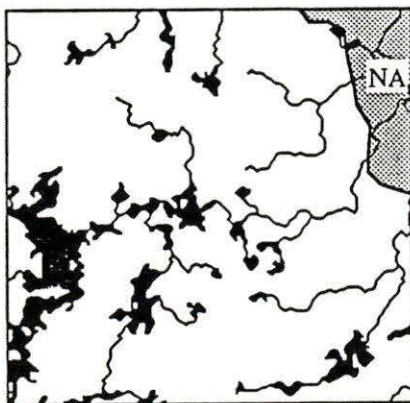


opaque  
transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
33	20	5	3/8/86	0	GGGG	375

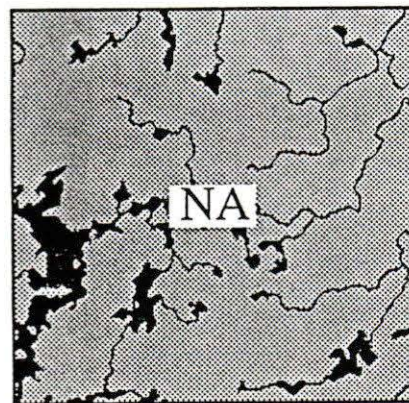


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
33	20	5	3/24/86	0	GGGG	376

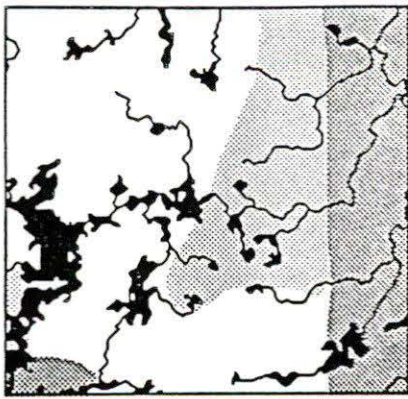




opaque  
transparent

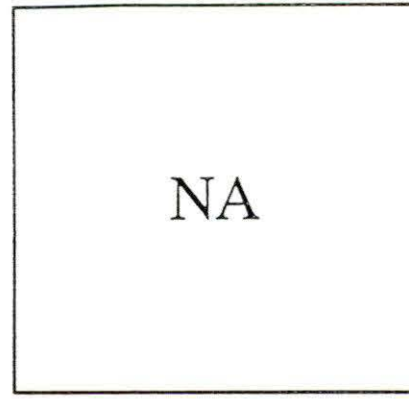
Path	Row	LS	Date	C/C	Qual. of MSS	App.#
33	20	5	4/9/86	0	GGGG	377



Path	Row	LS	Date	C/C	Qual. of MSS	App.#
33	20	5	5/11/86	5	GGGG	378

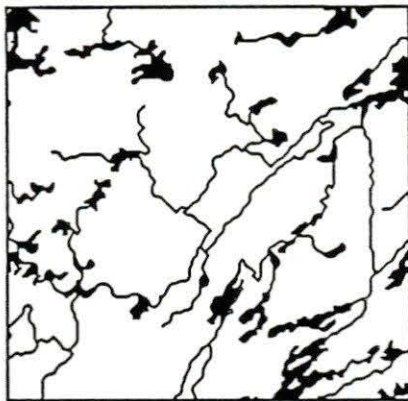



 opaque  
 transparent

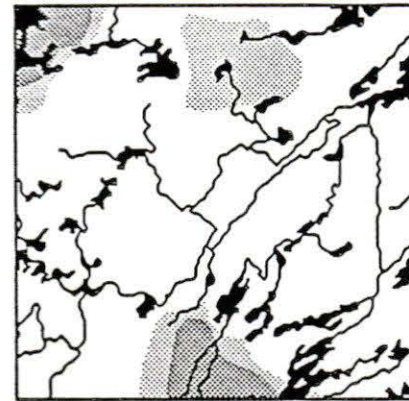


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
33	20	5	8/15/86	30	GGGG	379

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
33	21	4	11/16/82	50	GGGG	380

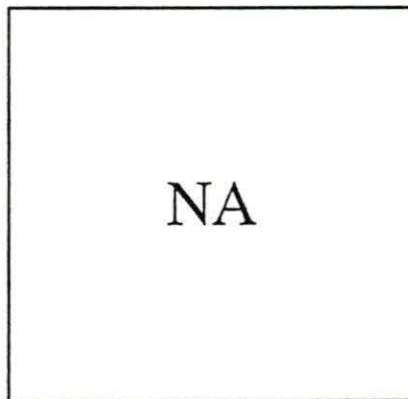




 opaque  
 transparent

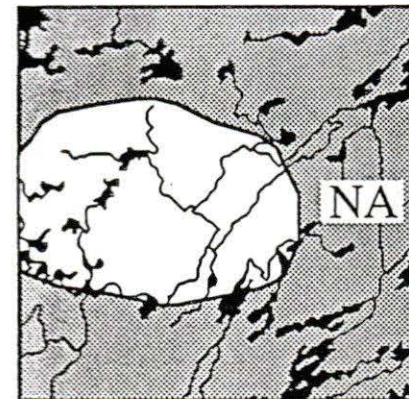


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
33	21	4	2/4/83	0	GGGG	381

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
33	21	4	2/20/83	5	GGGG	382

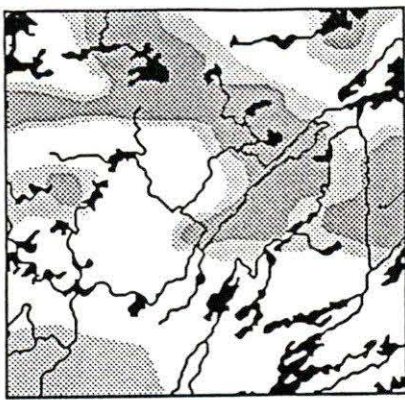




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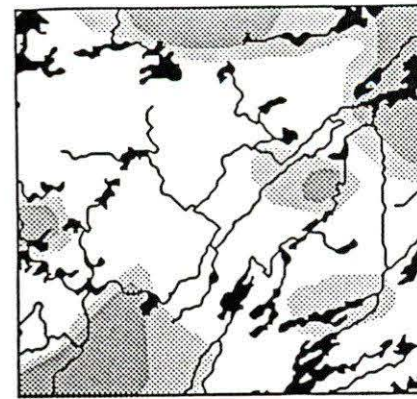
Path	Row	LS	Date	C/C	Qual. of MSS	App.#
33	21	4	3/8/83	0	GGGG	383

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
33	21	4	5/11/83	30	GGGG	384

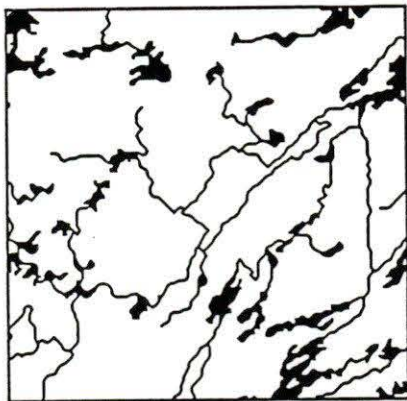




 opaque  
 transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
33	21	4	6/28/83	15	GGGG	385

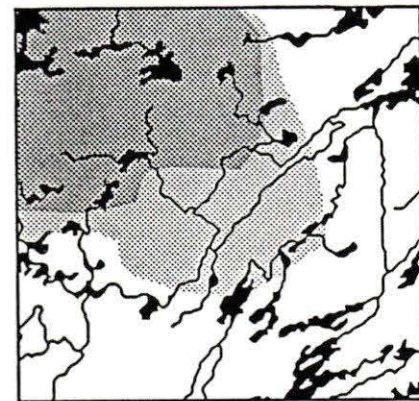


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
33	21	4	8/31/83	15	GGGG	386

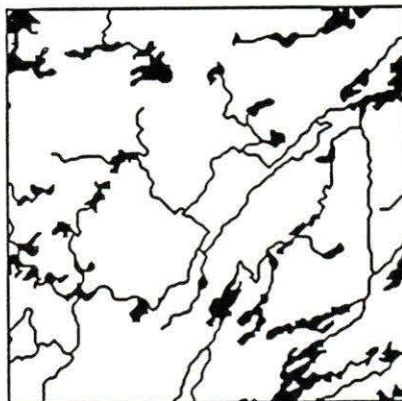



 opaque  
 transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
33	21	4	12/5/83	0	GGGG	387

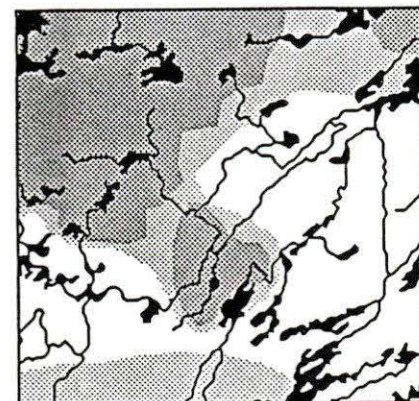


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
33	21	4	12/21/83	25	GGGG	388

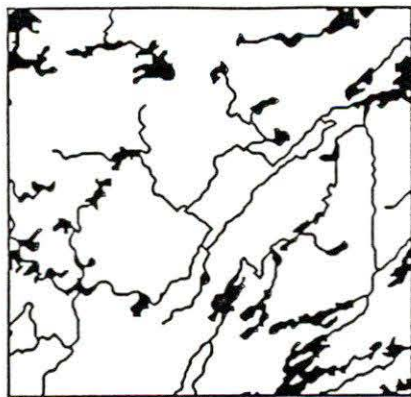




 opaque  
 transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
33	21	4	1/22/84	0	GGGG	389

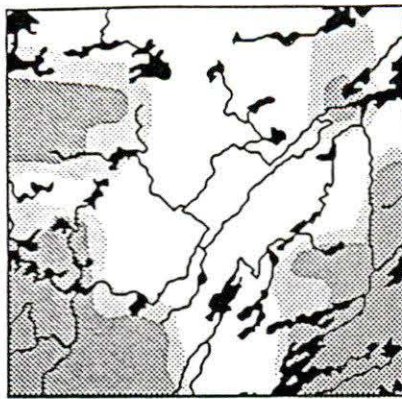


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
33	21	4	6/14/84	40	GGGG	390

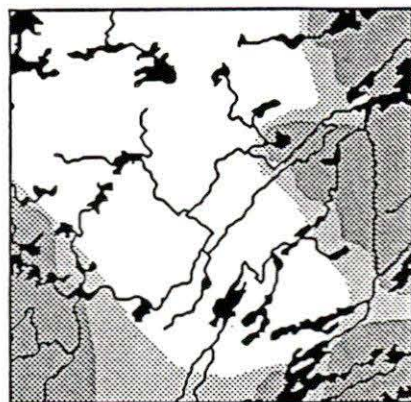




 opaque  
 transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
33	21	4	8/1/84	0	GGGG	391

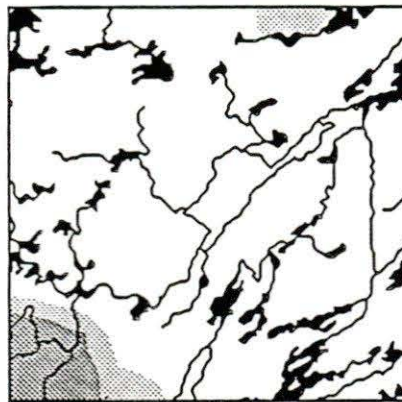


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
33	21	4	8/17/84	25	GGGG	392

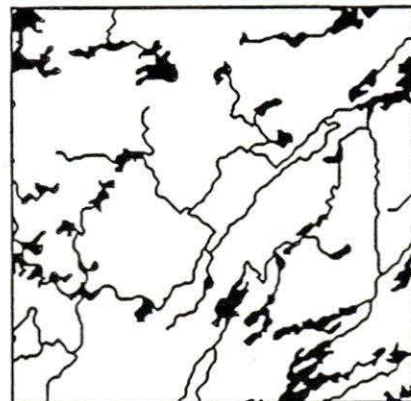




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 transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
33	21	4	9/18/84	30	GGGG	393

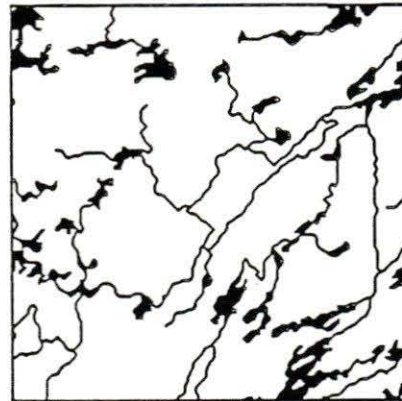


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
33	21	4	10/4/84	5	GGGG	394

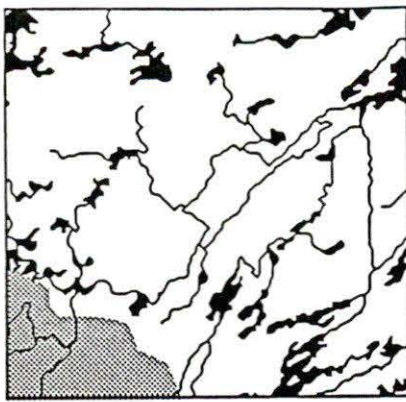




 opaque  
 transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
33	21	4	10/20/84	0	GGGG	395

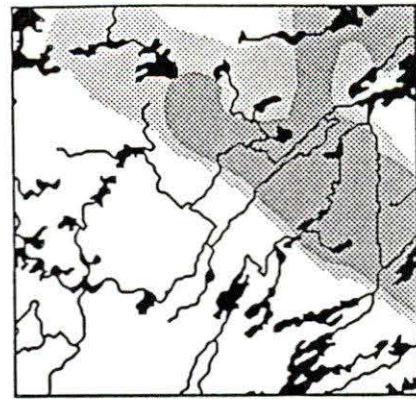


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
33	21	4	12/23/84	0	GGGG	396

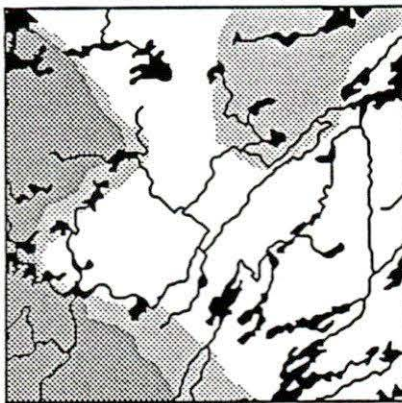




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 transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
33	21	4	1/8/85	5	GGGG	397

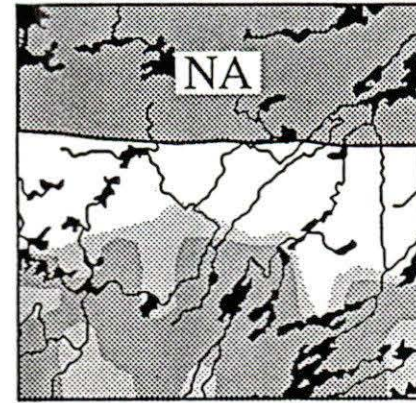


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
33	21	4	1/24/85	10	GGGG	398

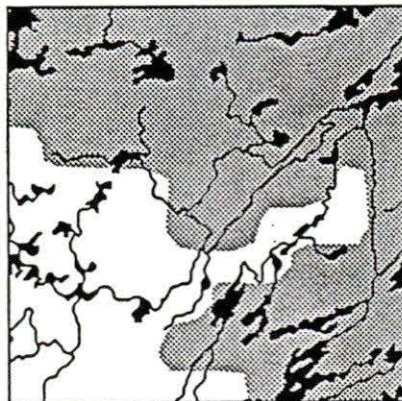




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 transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
33	21	4	3/13/85	15	GGGG	399

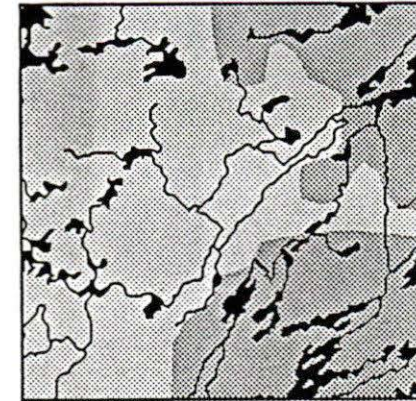


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
33	21	4	3/29/85	10	GGGG	400

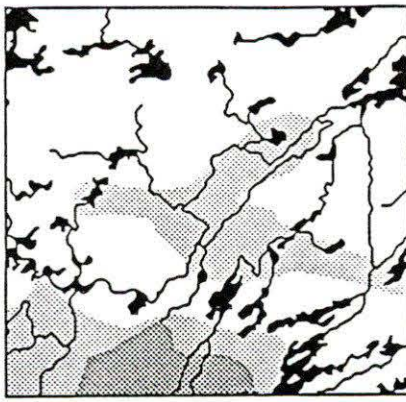




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Path	Row	LS	Date	C/C	Qual. of MSS	App.#
33	21	4	4/14/85	50	GGGG	401

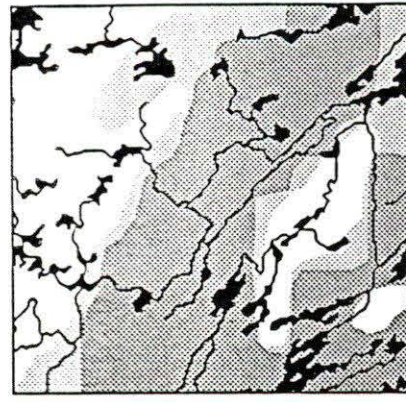


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
33	21	4	4/30/85	30	GGGG	402

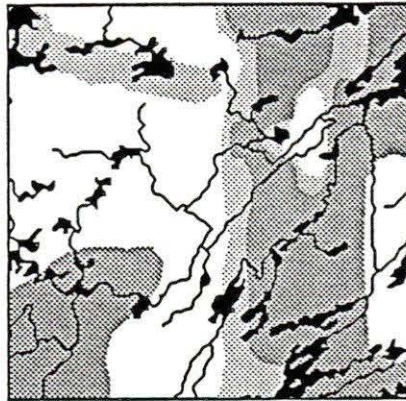




 opaque  
 transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
33	21	4	5/16/85	10	GGGG	403

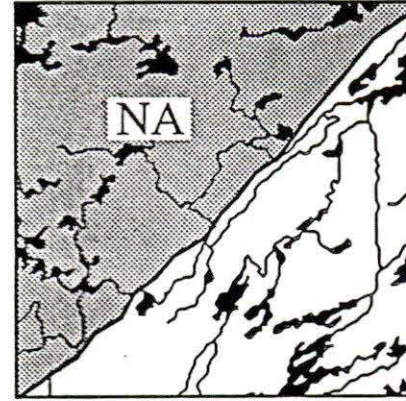


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
33	21	4	6/17/85	50	GGGG	404

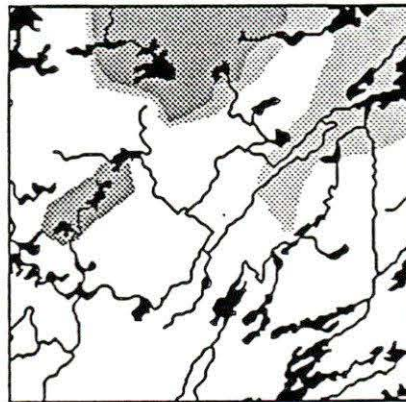




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 transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
33	21	4	7/3/85	30	GGGG	405



Path	Row	LS	Date	C/C	Qual. of MSS	App.#
33	21	4	7/19/85	40	GGGG	406

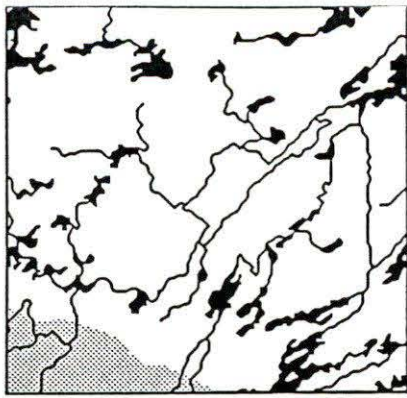




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 transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
33	21	4	8/4/85	20	GGGG	407

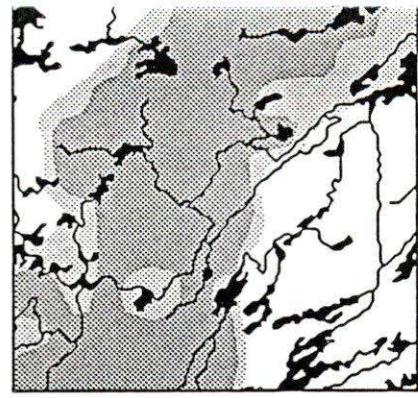


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
33	21	4	8/20/85	20	GGGG	408

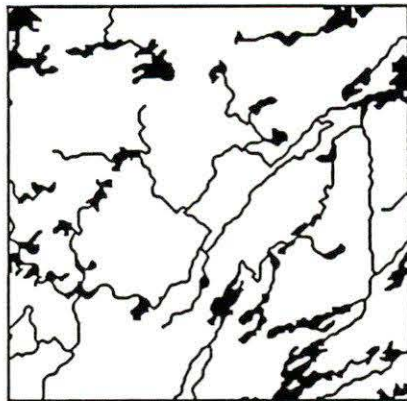




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 transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
33	21	4	11/8/85	0	GGGG	409

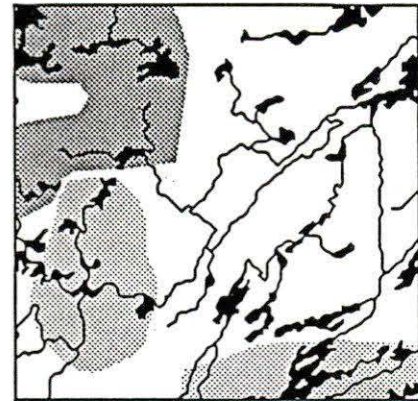


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
33	21	4	12/10/85	30	GGGG	410

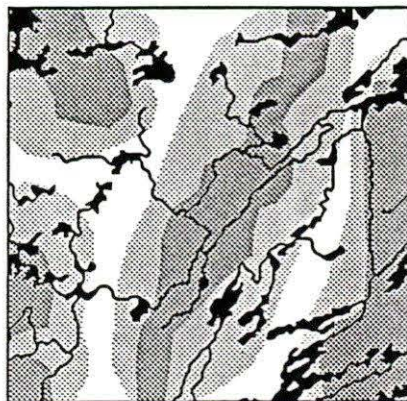




 opaque  
 transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
33	21	5	4/19/84	0	GGGG	411

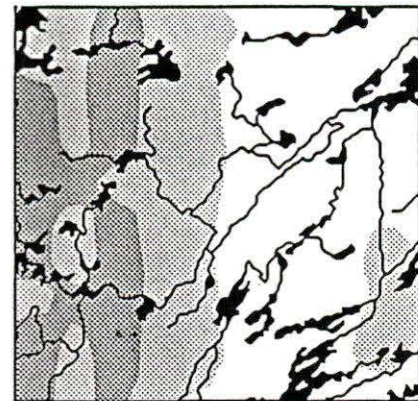


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
33	21	5	6/6/84	10	GGGG	412



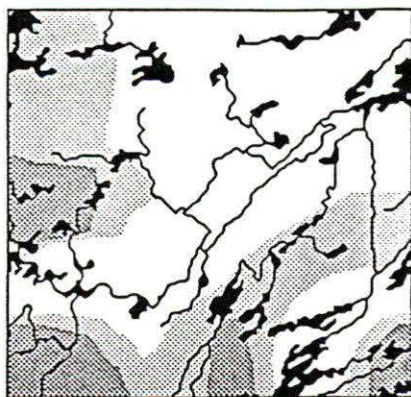
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 transparent



Path	Row	LS	Date	C/C	Qual. of MSS	App.#
33	21	5	6/22/84	50	GGGG	413



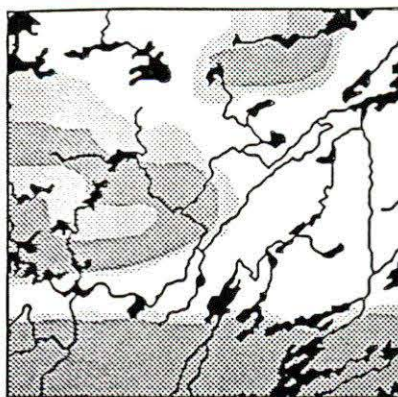
Path	Row	LS	Date	C/C	Qual. of MSS	App.#
33	21	5	7/8/84	10	GGGG	414



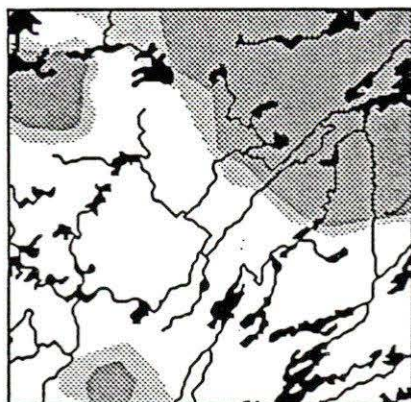




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 transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
33	21	5	1/16/85	20	GGGG	415

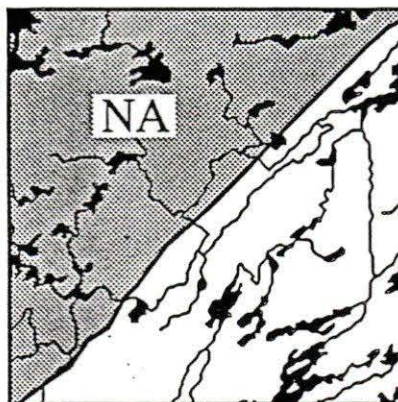


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
33	21	5	3/5/85	30	GGGG	416

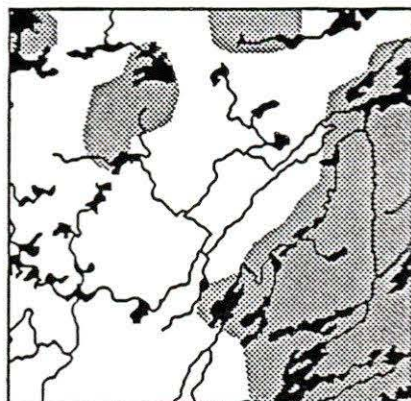




 opaque  
 transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
33	21	5	4/6/85	25	FFFF	417

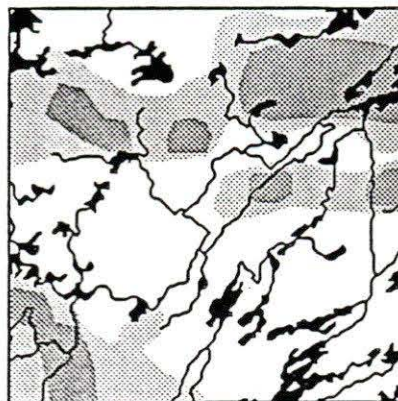


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
33	21	5	4/22/85	40	GGGG	418

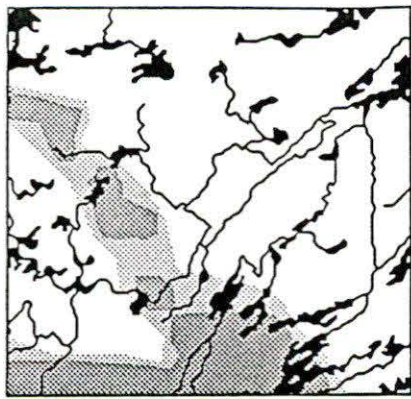




 opaque  
 transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
33	21	5	5/8/85	25	GGGG	419

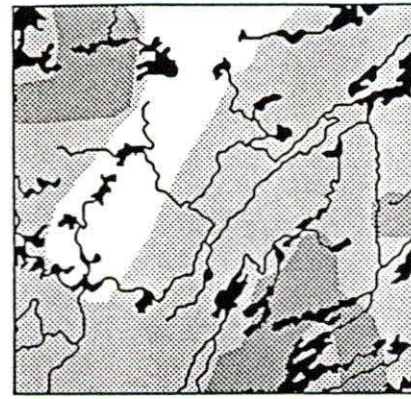


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
33	21	5	7/11/85	25	GGGG	420

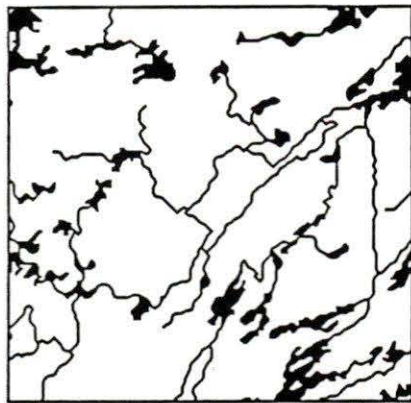



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 transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
33	21	5	9/13/85	15	GGGG	421

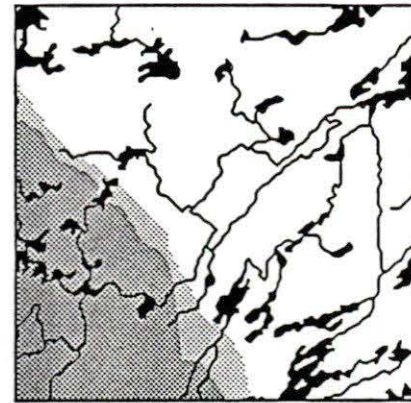


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
33	21	5	11/16/85	40	GGGG	422

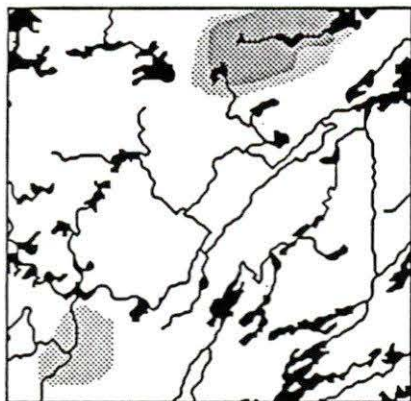




 opaque  
 transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
33	21	5	12/2/85	0	GGGG	423

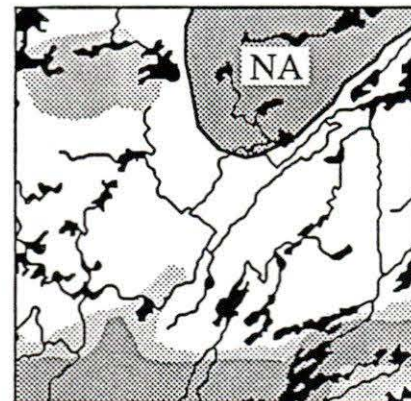


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
33	21	5	12/18/85	30	GGGG	424

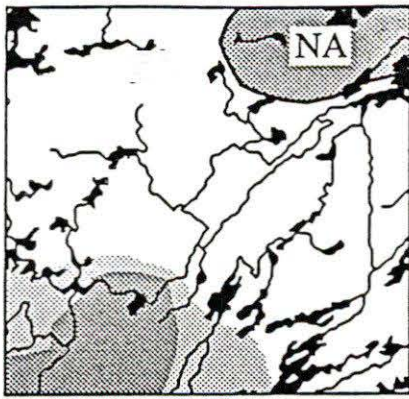




 opaque  
 transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
33	21	5	2/20/86	5	GGGG	425

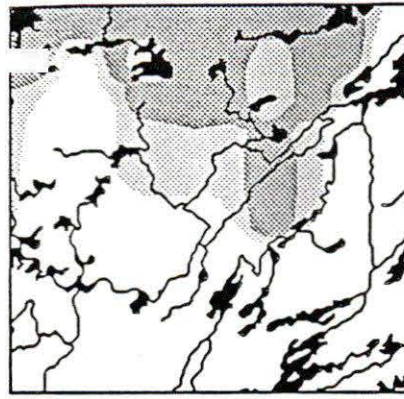


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
33	21	5	3/24/86	0	GGGG	426

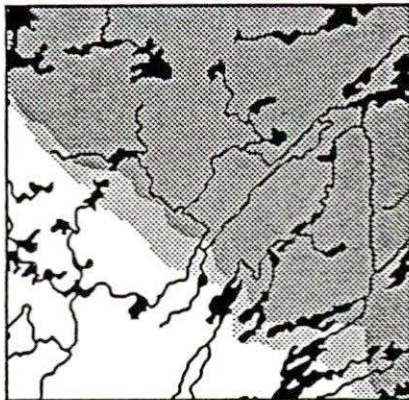




 opaque  
 transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
33	21	5	4/9/86	0	GGGG	427

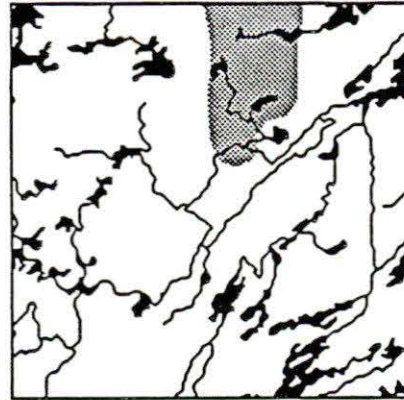


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
33	21	5	5/27/86	40	GGGG	428

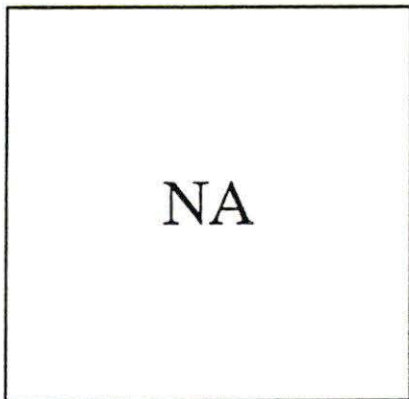




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 transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
33	21	5	6/28/86	50	GGGG	429

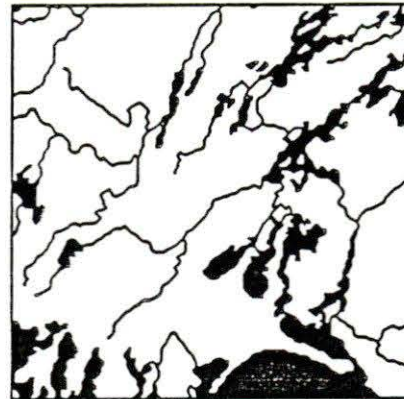


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
33	21	5	10/18/86	10	GGGG	430

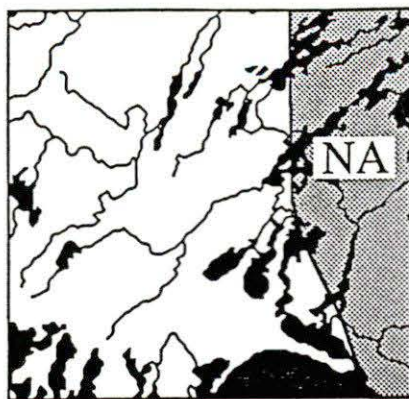


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Path	Row	LS	Date	C/C	Qual. of MSS	App.#
33	22	4	11/16/82	35	GGGG	431

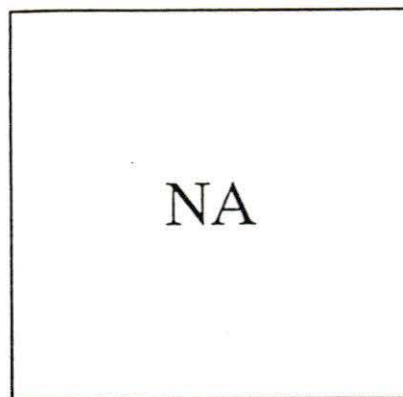


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
33	22	4	2/4/83	0	GGGG	432

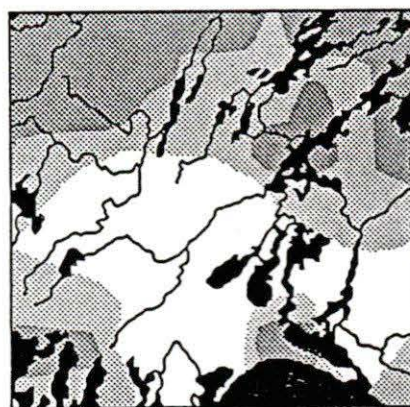


opaque  
 transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
33	22	4	2/20/83	20	GGGG	433

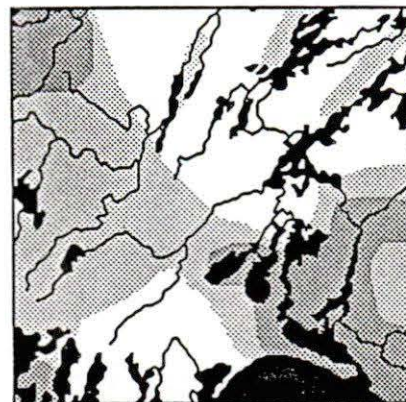


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
33	22	4	3/8/83	0	GGGG	434

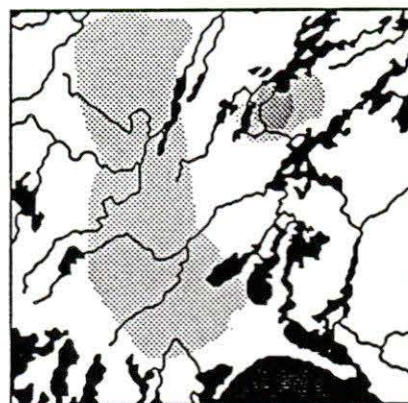


opaque  
 transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
33	22	4	4/25/83	10	GGGG	435

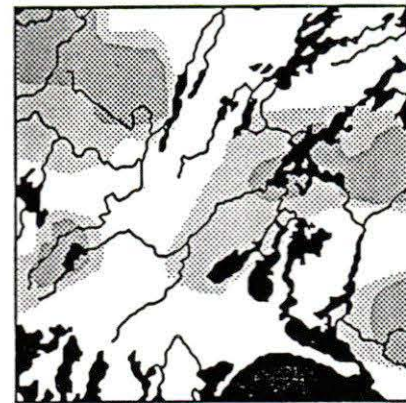


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
33	22	4	5/27/83	10	GGGG	436

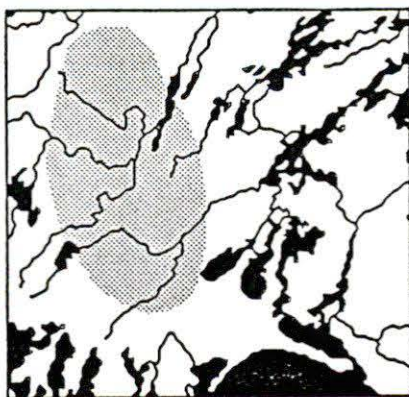




opaque  
 transparent

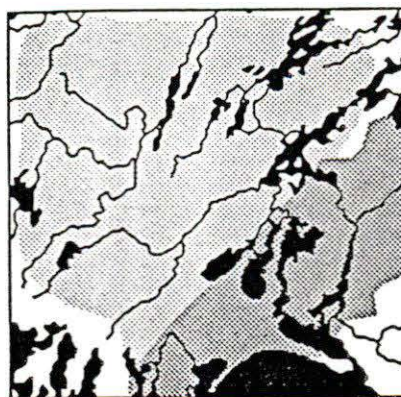
Path	Row	LS	Date	C/C	Qual. of MSS	App.#
33	22	4	6/28/83	5	GGGG	437



Path	Row	LS	Date	C/C	Qual. of MSS	App.#
33	22	4	8/31/83	15	GGGG	438

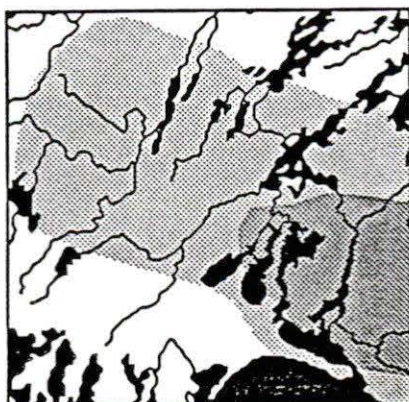




 opaque  
 transparent

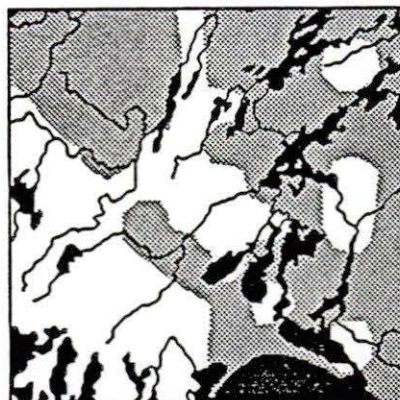


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
33	22	4	12/5/83	0	GGGG	439

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
33	22	4	12/21/83	50	GGGG	440

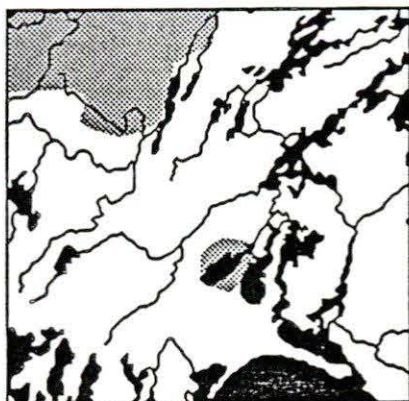




 opaque  
 transparent

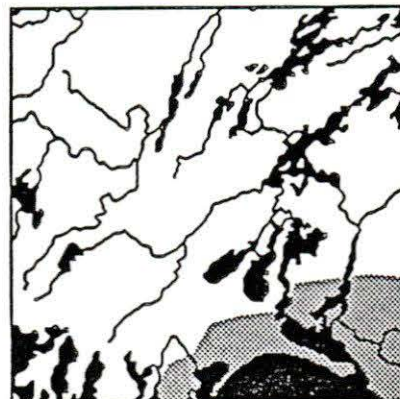


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
33	22	4	1/22/84	15	GGGG	441

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
33	22	4	3/10/84	50	GGGG	442

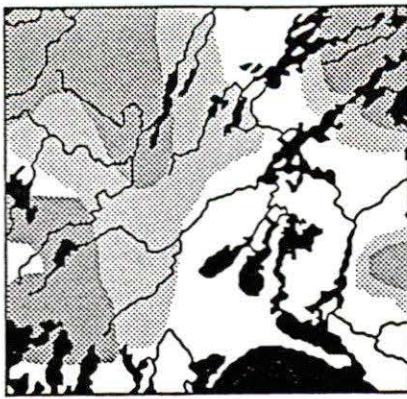




 opaque  
 transparent



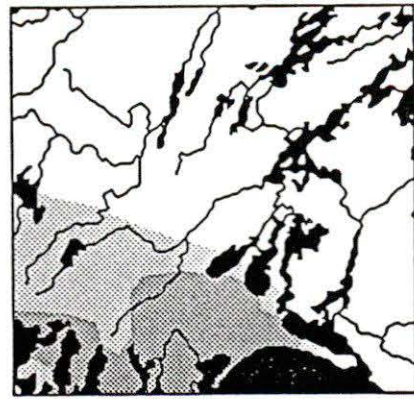
Path	Row	LS	Date	C/C	Qual. of MSS	App.#
33	22	4	6/14/84	20	GGGG	443

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
33	22	4	8/1/84	10	GGGG	444

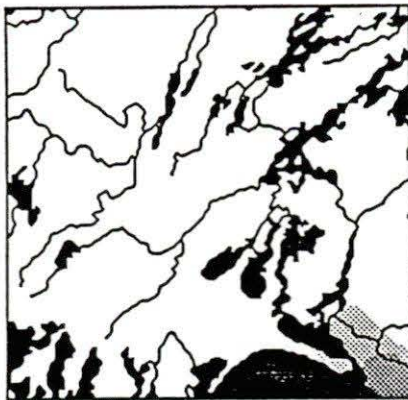




 opaque  
 transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
33	22	4	8/17/84	25	GGGG	445

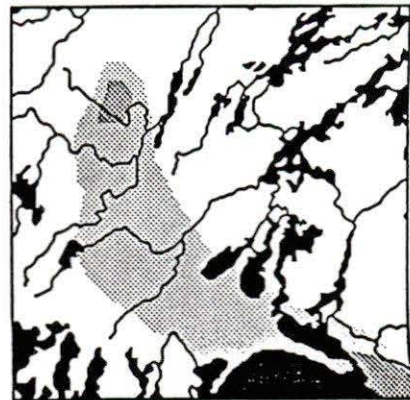


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
33	22	4	10/4/84	20	GGGG	446

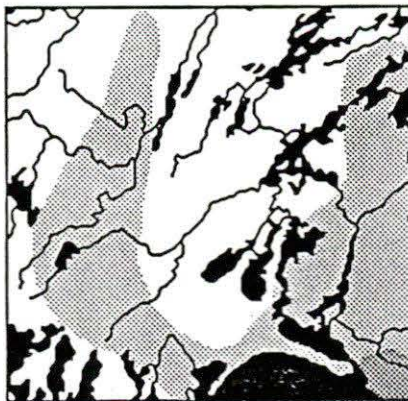




 opaque  
 transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
33	22	4	10/20/84	2	GGGG	447

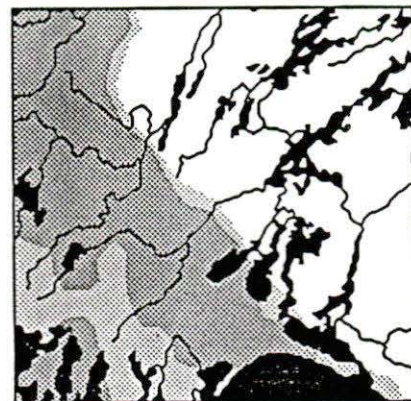


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
33	22	4	12/23/84	5	GGGG	448

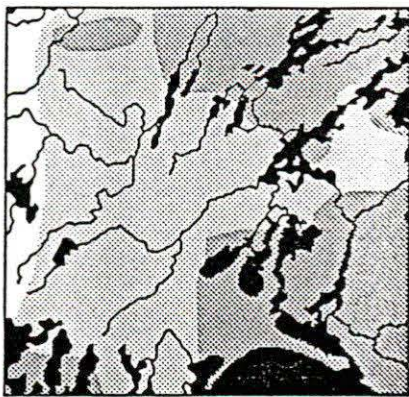




 opaque  
 transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
33	22	4	1/24/85	10	GGGG	449

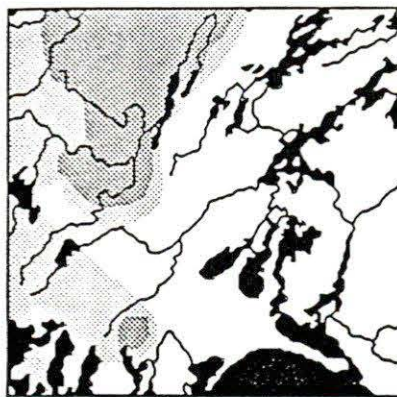


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
33	22	4	3/13/85	25	GGGG	450

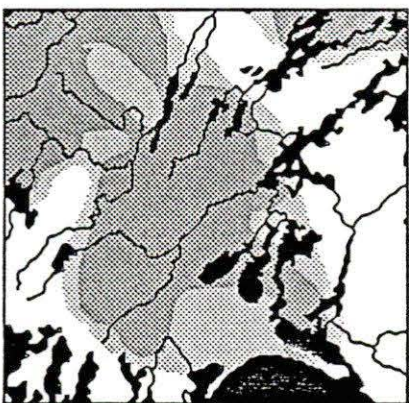




 opaque  
 transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
33	22	4	3/29/85	20	GGGG	451

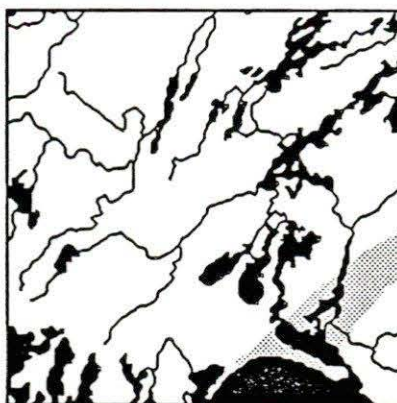


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
33	22	4	5/16/85	15	GGGG	452

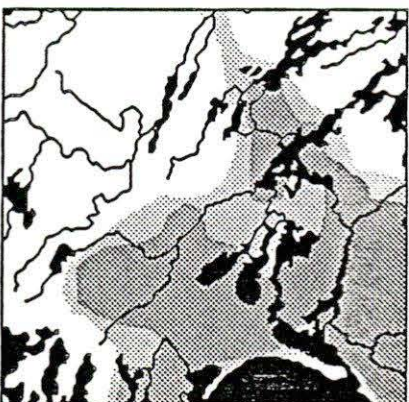




 opaque  
 transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
33	22	4	7/3/85	20	GGGG	453

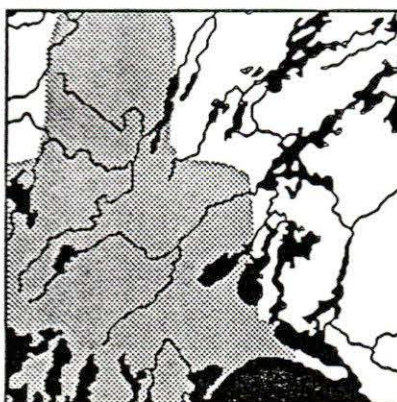


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
33	22	4	8/4/85	2	GGGG	454

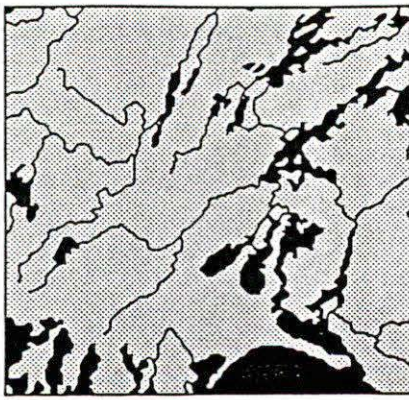


 opaque  
 transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
33	22	4	8/20/85	30	GGGG	455

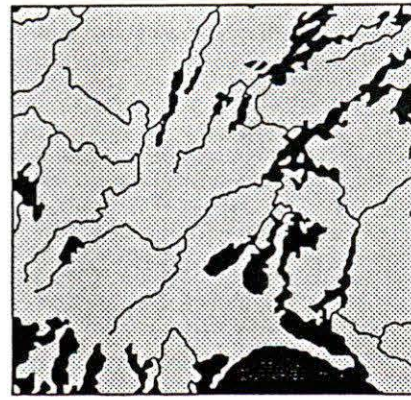


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
33	22	4	12/10/85	40	GGGG	456

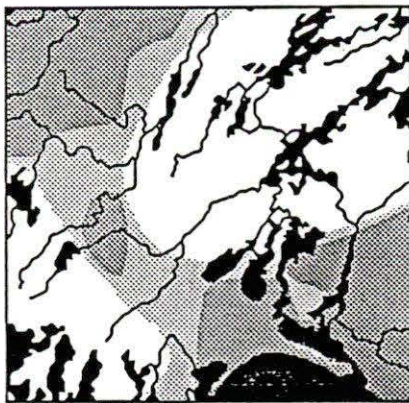


opaque  
transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
33	22	4	2/28/86	50	GGGG	457

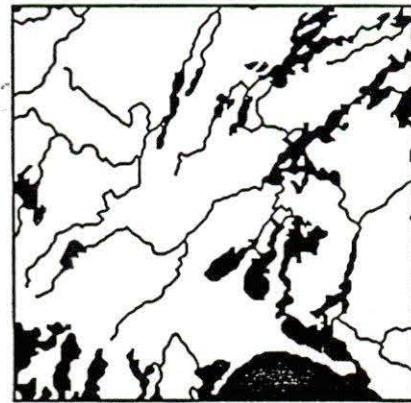


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
33	22	4	3/16/86	50	GGGG	458

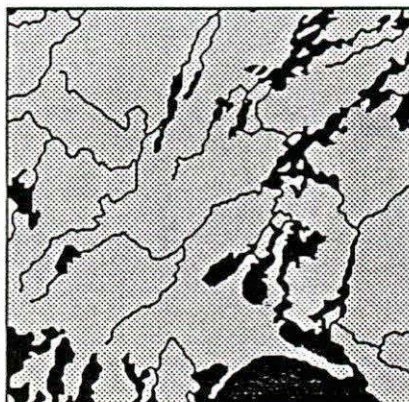


opaque  
transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
33	22	4	4/1/86	15	GGGG	459

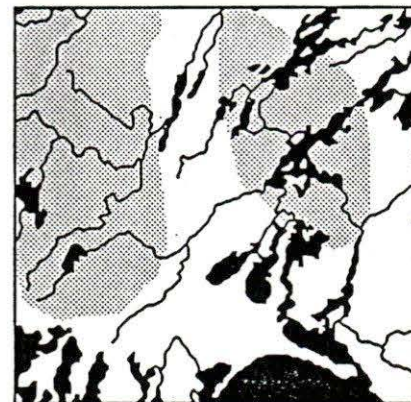


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
33	22	5	4/19/84	0	GGGG	460



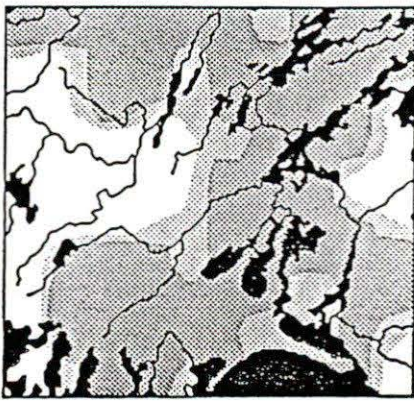
opaque  
transparent



Path	Row	LS	Date	C/C	Qual. of MSS	App.#
33	22	5	6/6/84	40	GGGG	461



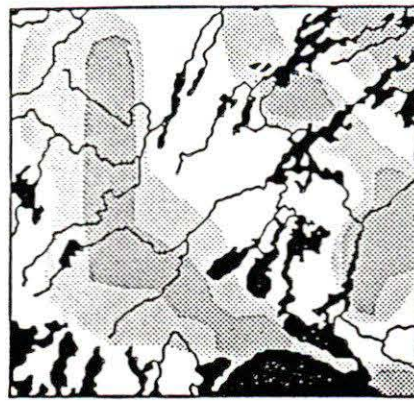
Path	Row	LS	Date	C/C	Qual. of MSS	App.#
33	22	5	7/8/84	5	GGGG	462







 opaque  
 transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
33	22	5	7/24/84	30	GGGG	463

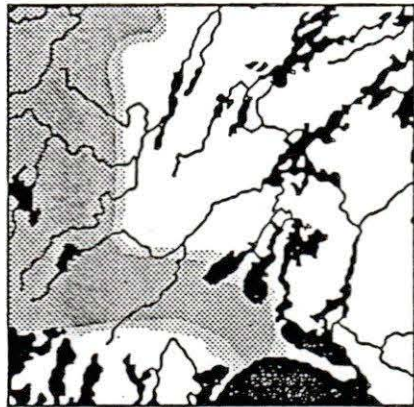


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
33	22	5	2/17/85	50	GGGG	464

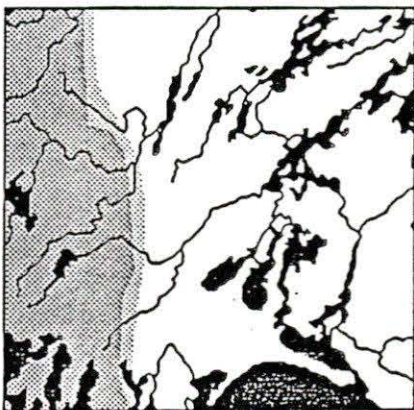




 opaque  
 transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
33	22	5	3/5/85	50	GGGG	465

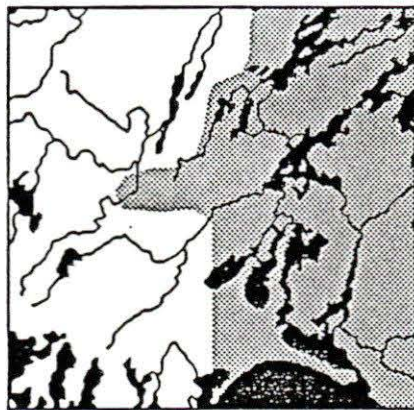


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
33	22	5	3/21/85	30	GGGG	466

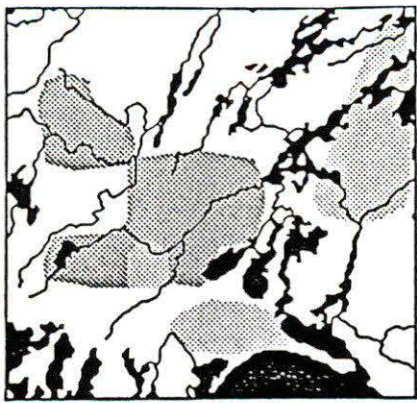




 opaque  
 transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
33	22	5	4/22/85	25	GGGG	467

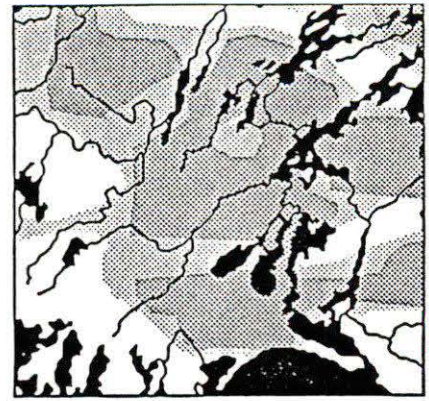


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
33	22	5	5/8/85	30	GGGG	468



 opaque  
 transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
33	22	5	5/24/85	10	GGGG	469

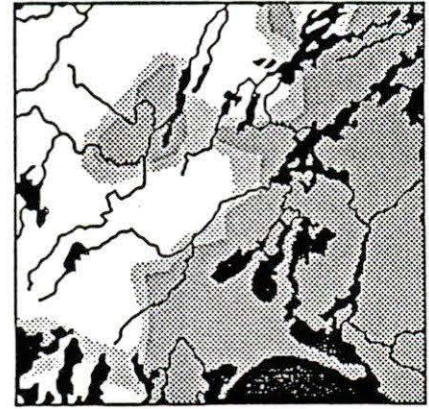


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
33	22	5	7/11/85	40	GGGG	470

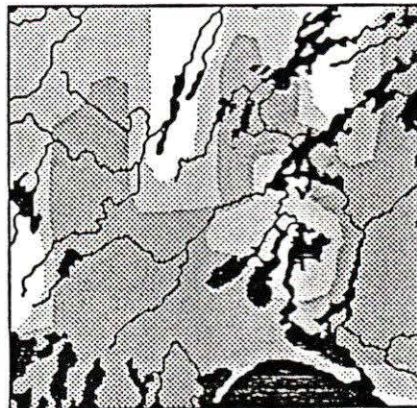




 opaque  
 transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
33	22	5	8/28/85	10	GGGG	471

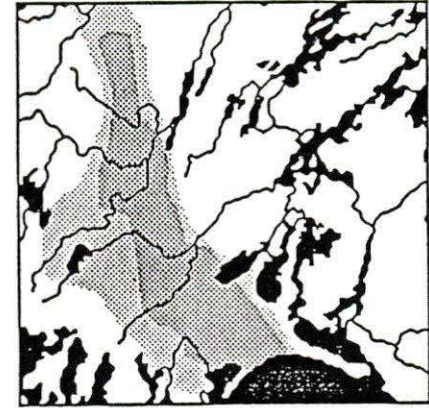


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
33	22	5	9/29/85	50	GGGG	472

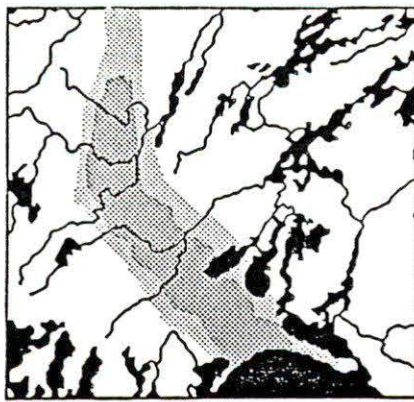


 opaque  
 transparent

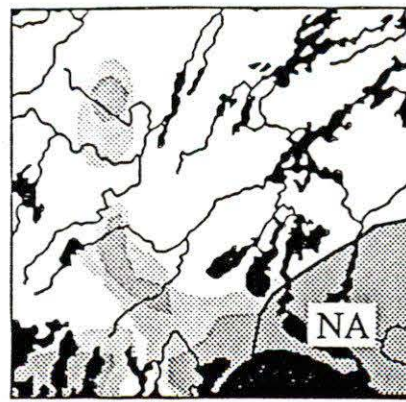
Path	Row	LS	Date	C/C	Qual. of MSS	App.#
33	22	5	11/16/85	50	GGGG	473



Path	Row	LS	Date	C/C	Qual. of MSS	App.#
33	22	5	12/2/85	5	GGGG	474



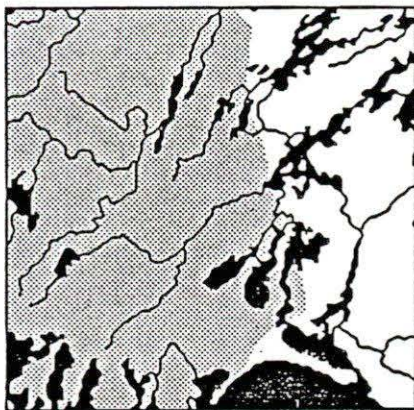
opaque  
transparent



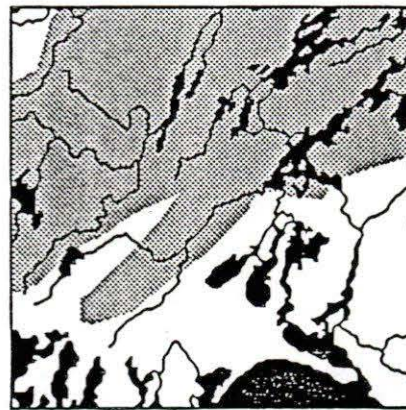
NA

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
33	22	5	2/20/86	5	GGGG	475

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
33	22	5	3/24/86	20	GGGG	476

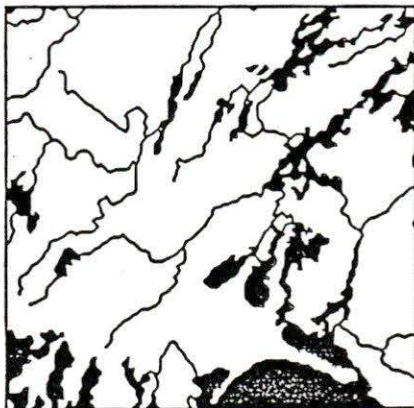


opaque  
transparent

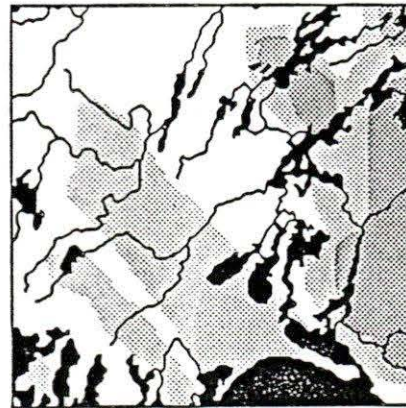


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
33	22	5	4/9/86	0	GGGG	477

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
33	22	5	4/25/86	30	GGGG	478

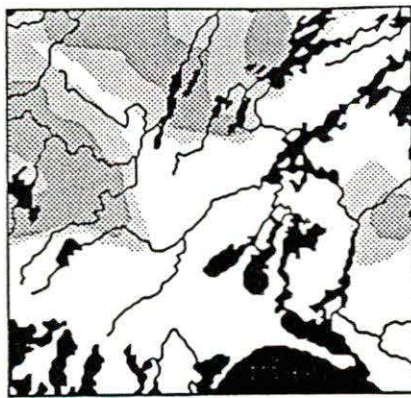




opaque  
transparent

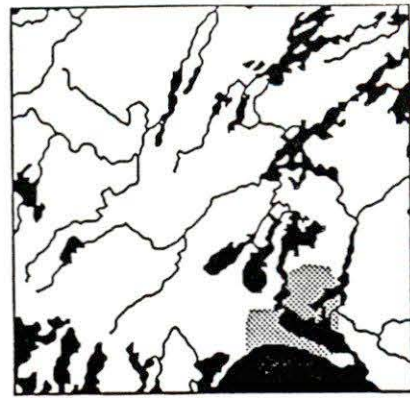


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
33	22	5	5/27/86	0	GGGG	479

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
33	22	5	6/28/86	10	GGGG	480

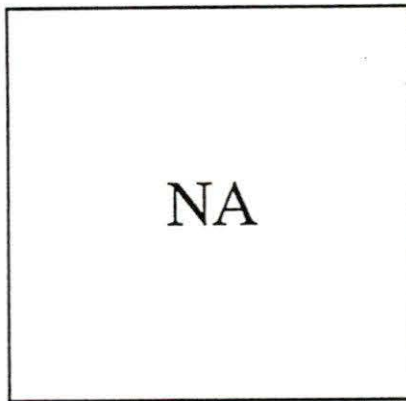




 opaque  
 transparent

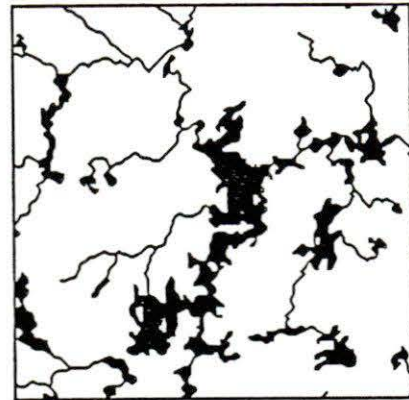


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
33	22	5	8/31/86	20	GGGG	481

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
33	22	5	10/18/86	0	GGGG	482

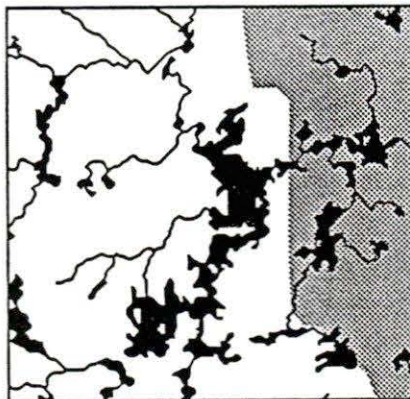




 opaque  
 transparent

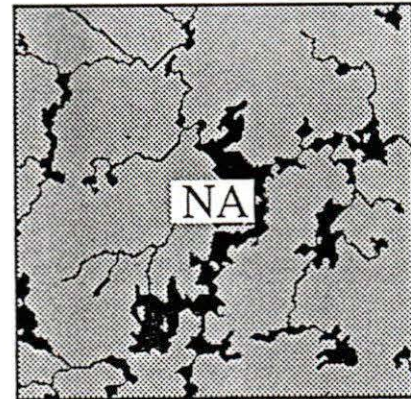


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	20	4	10/22/82	25	GGGG	483

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	20	4	1/10/83	0	GGGG	484

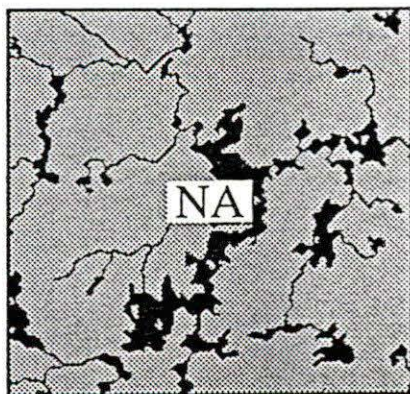




 opaque  
 transparent

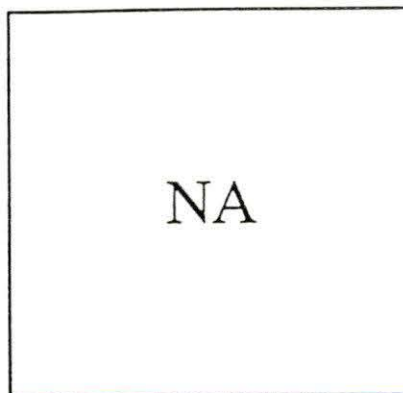


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	20	4	1/26/83	30	GGGG	485

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	20	4	4/16/83	0	GGGG	486

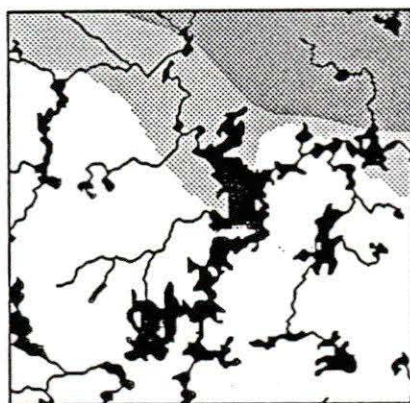




 opaque  
 transparent

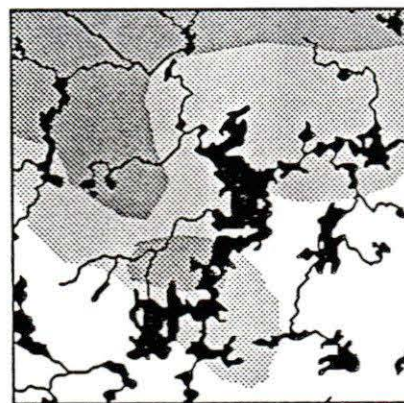


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	20	4	5/2/83	0	GGGG	487

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	20	4	6/3/83	0	GGGG	488

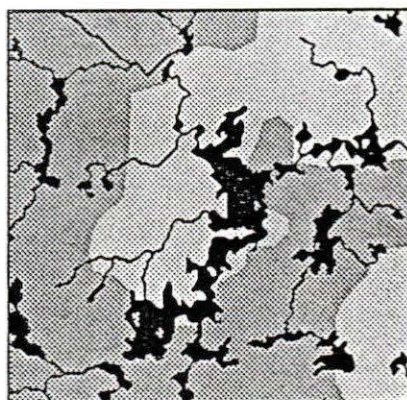




 opaque  
 transparent

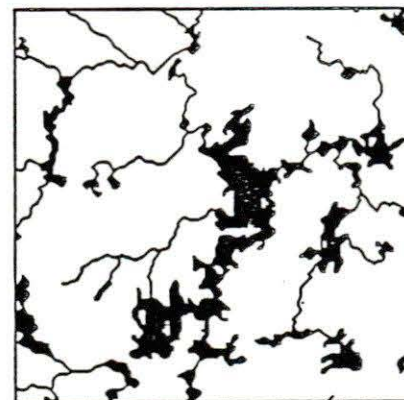


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	20	4	7/5/83	25	GGGG	489

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	20	4	8/6/83	50	GGGG	490

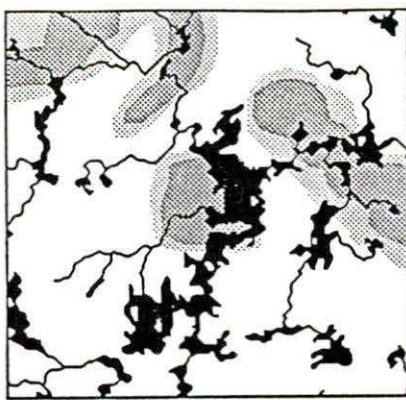


 opaque  
 transparent

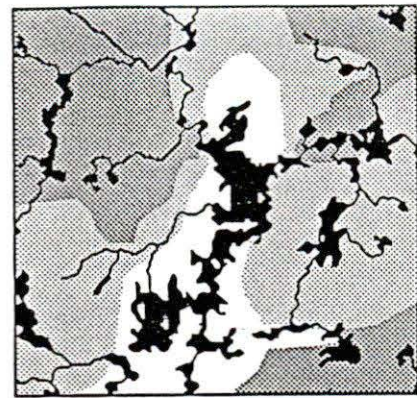


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	20	4	11/10/83	50	GGGG	491

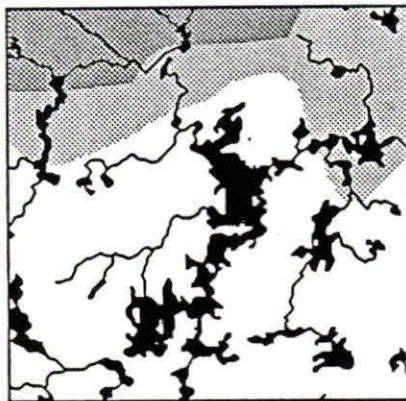
Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	20	4	1/13/84	0	GGGG	492



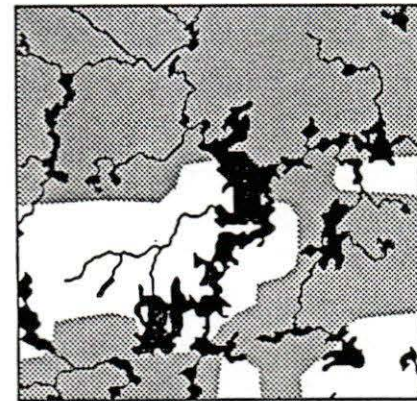
Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	20	4	1/29/84	25	GGGG	493



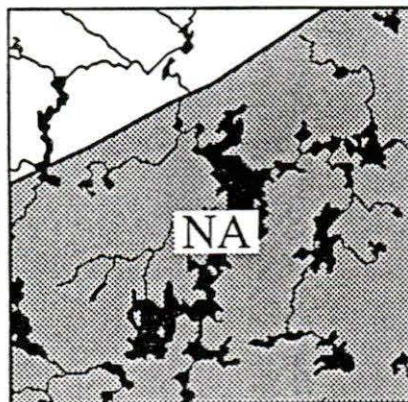
Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	20	4	3/17/84	20	GGGG	494



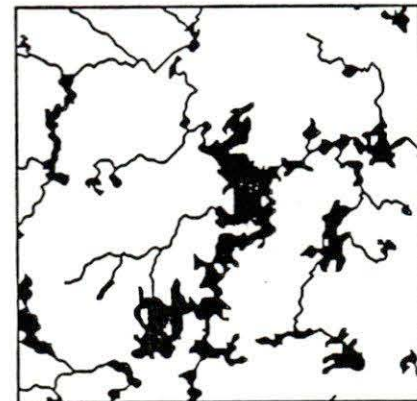
Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	20	4	4/2/84	15	GGGG	495



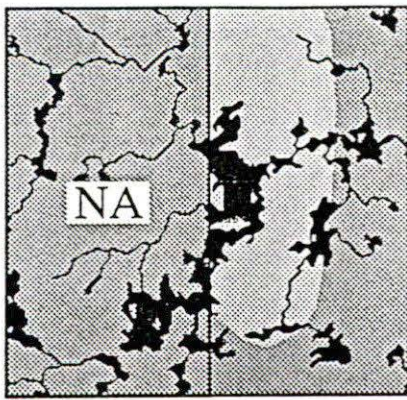
Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	20	4	6/5/84	40	GGGG	496





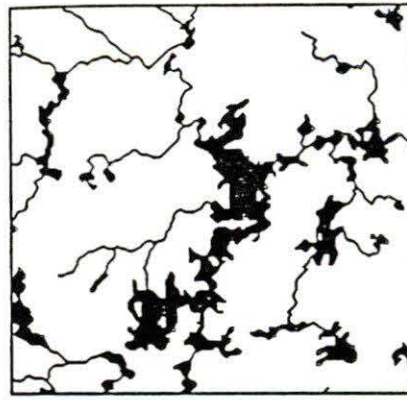
Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	20	4	11/12/84	30	GGGG	497



Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	20	4	11/28/84	0	GGGG	498

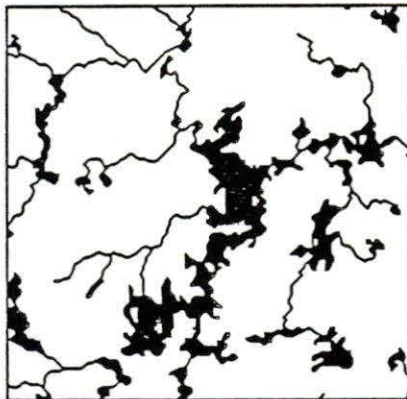




 opaque  
 transparent

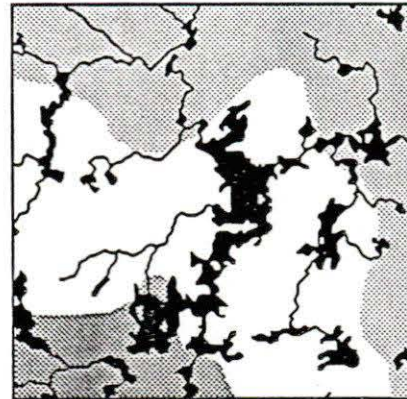


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	20	4	12/14/84	50	GGGG	499

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	20	4	12/30/84	15	GGGG	500

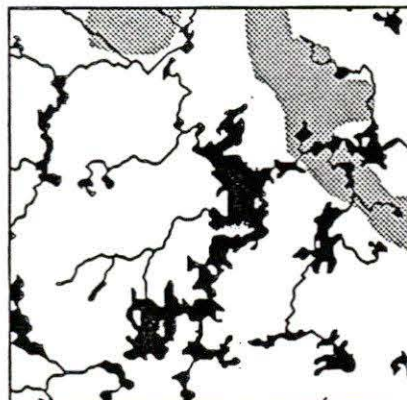


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 transparent

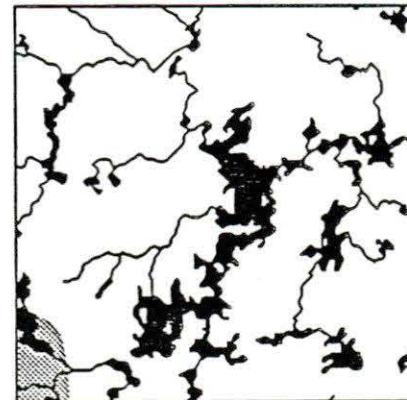


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	20	4	1/15/85	0	GGGG	501

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	20	4	6/24/85	10	GGGG	502

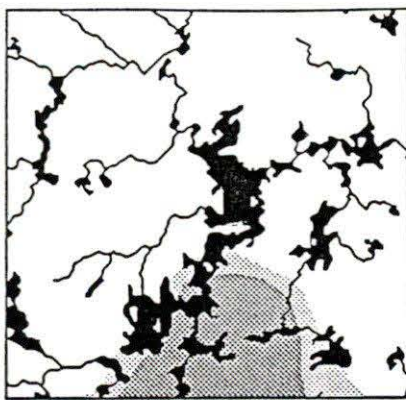


 opaque  
 transparent



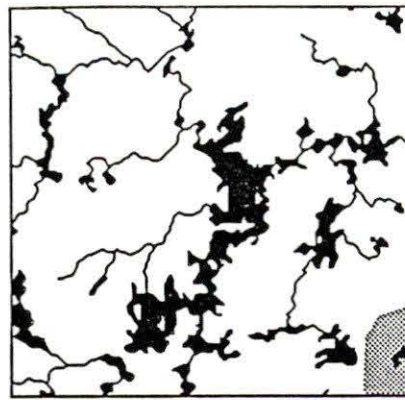
Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	20	4	8/11/85	25	GGGG	503

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	20	4	9/12/85	3	GGGG	504

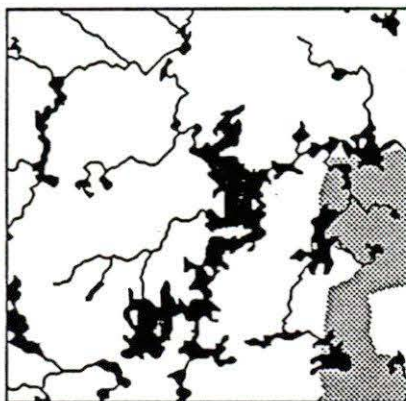


opaque  
transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	20	4	10/30/85	0	GGGG	505

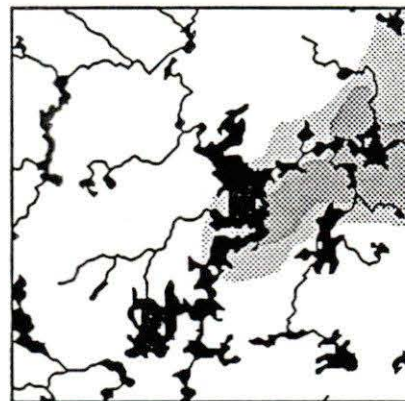


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	20	4	12/1/85	5	GGGG	506

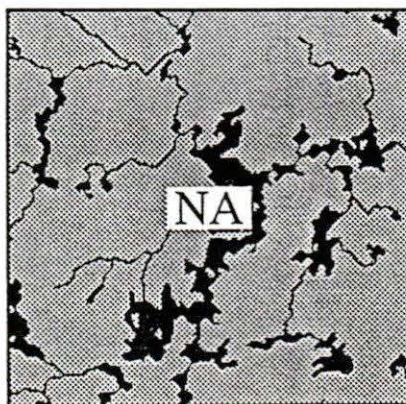


opaque  
transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	20	4	12/17/85	5	GGGG	507

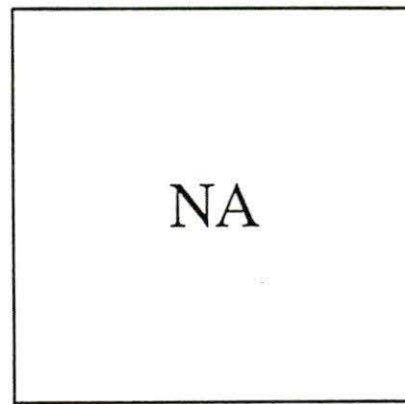


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	20	4	2/19/86	10	GGGG	508



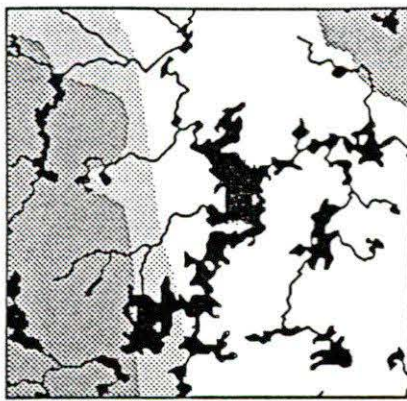
opaque  
transparent



Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	20	4	3/23/86	10	GGGG	509

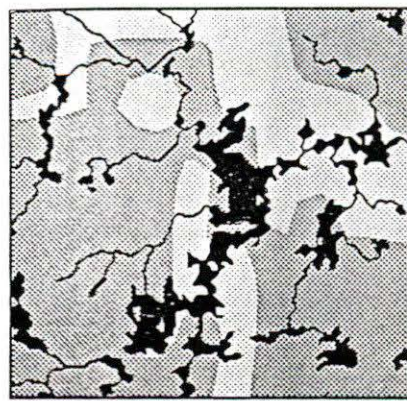


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	20	4	7/13/86	50	GGGG	510



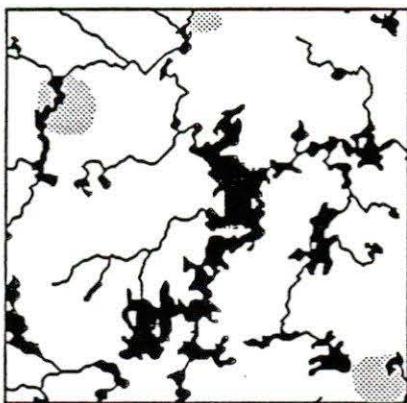




 opaque  
 transparent

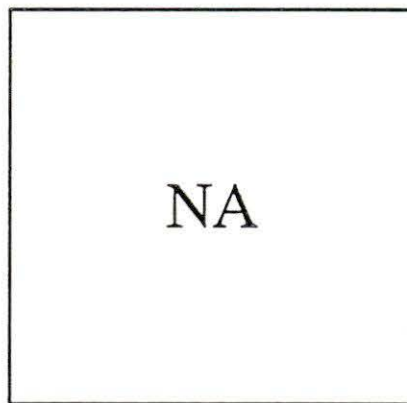


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	20	5	5/12/84	30	GGGG	511

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	20	5	5/28/84	50	GGGG	512

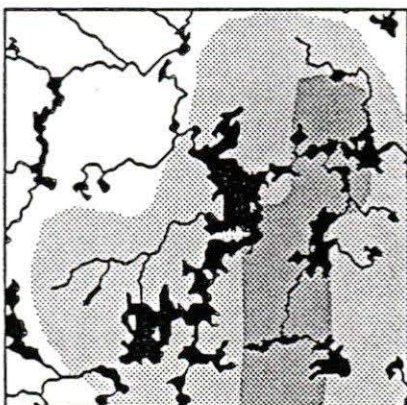




 opaque  
 transparent

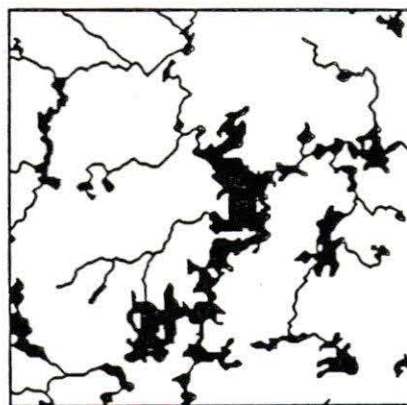


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	20	5	6/29/84	5	GGGG	513

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	20	5	7/31/84	35	FFFF	514

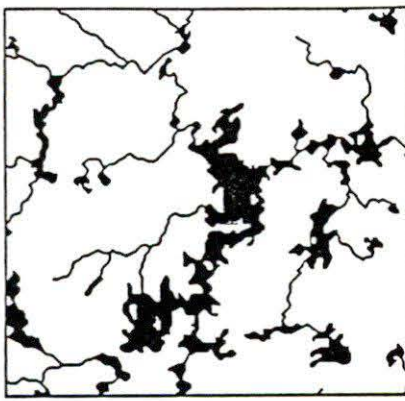




 opaque  
 transparent



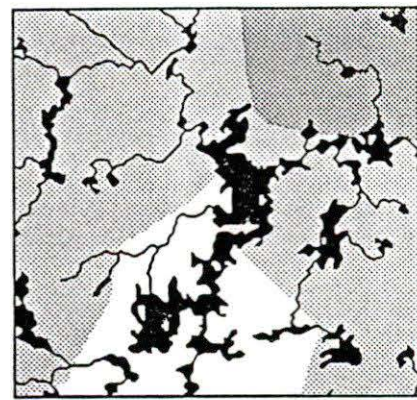
Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	20	5	10/3/84	45	GGGG	515

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	20	5	1/7/85	0	GGGG	516

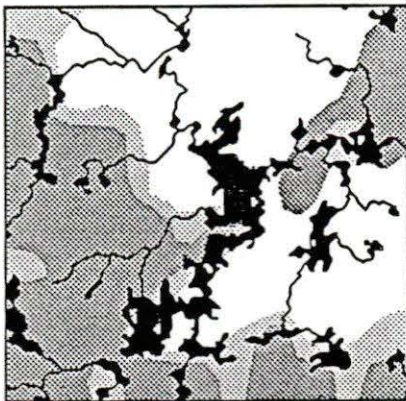




 opaque  
 transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	20	5	2/8/85	0	GGGG	517

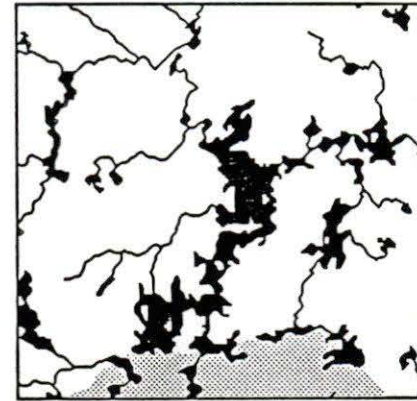


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	20	5	3/28/85	10	GGGG	518

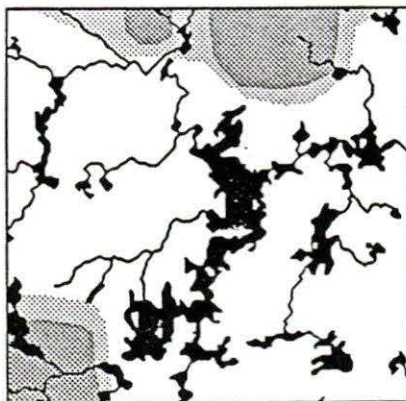



 opaque  
 transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	20	5	4/13/85	40	GGGG	519

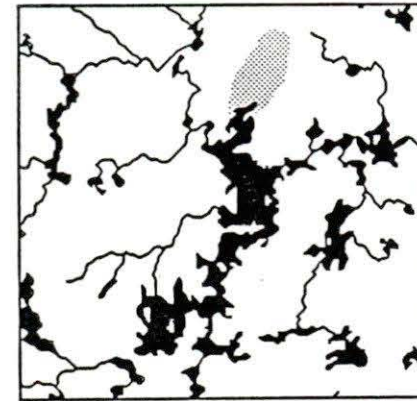


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	20	5	7/18/85	2	GGGG	520

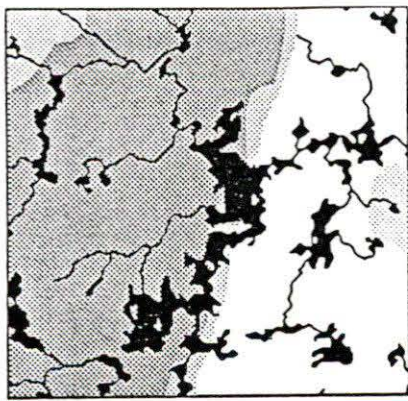


 opaque  
 transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	20	5	8/3/85	10	GGGG	521

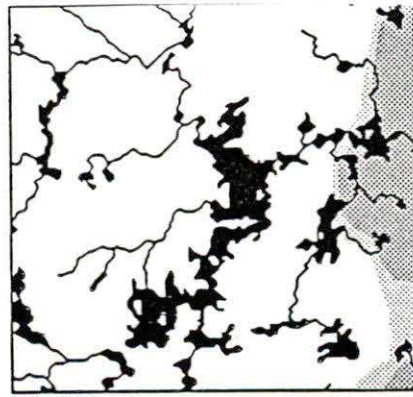


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	20	5	8/19/85	0	GGGG	522

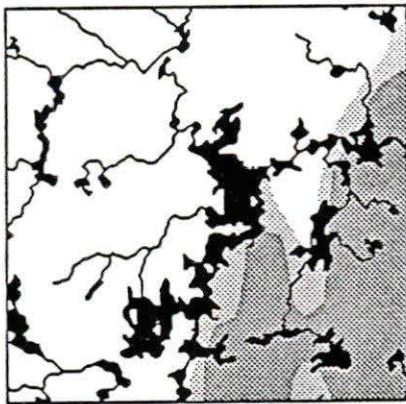


opaque  
 transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	20	5	9/4/85	50	GGGG	523

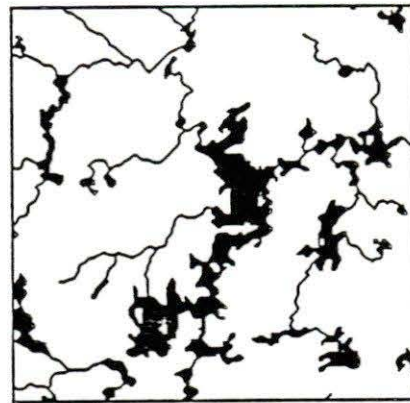


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	20	5	11/7/85	10	GGGG	524

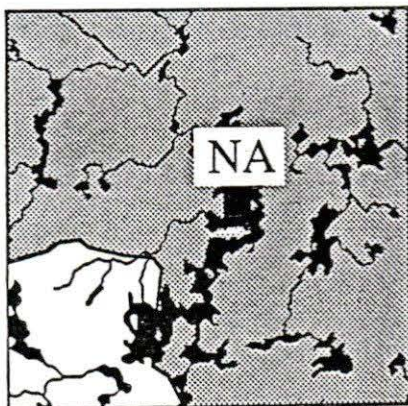


opaque  
 transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	20	5	11/23/85	25	GGGG	525

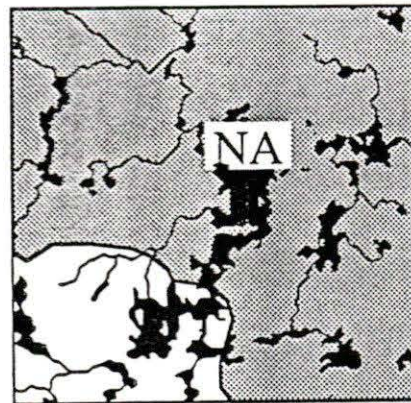


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	20	5	1/26/86	0	GGGG	526

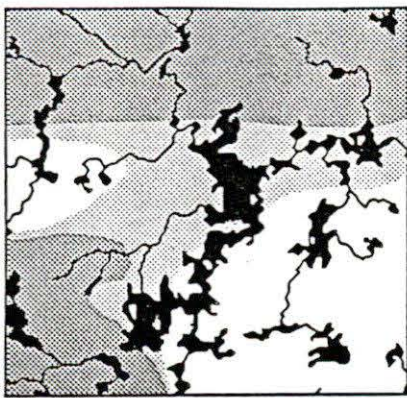




opaque  
 transparent

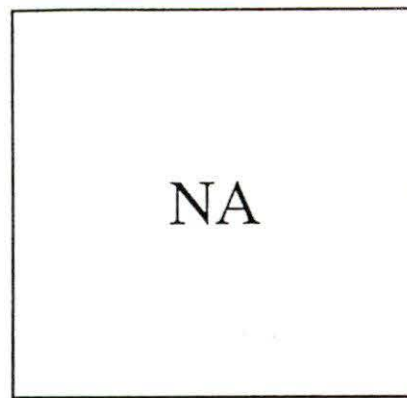
Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	20	5	4/16/86	0	GGGG	527



Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	20	5	5/2/86	0	GGGG	528

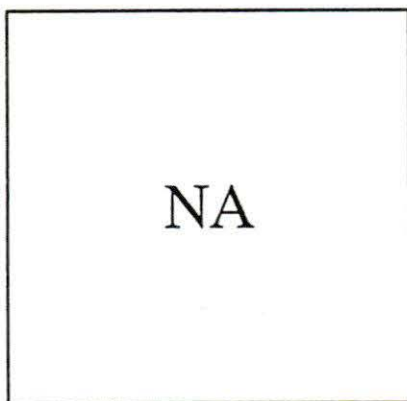




 opaque  
 transparent

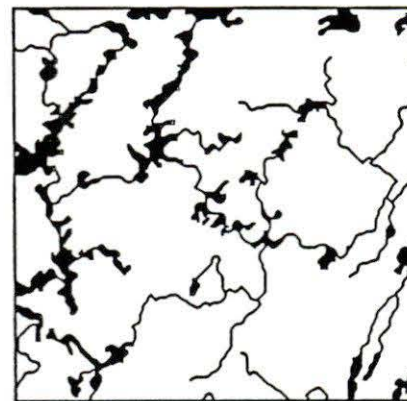


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	20	5	5/18/86	25	GGGG	529

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	21	4	10/22/82	15	GGGG	530

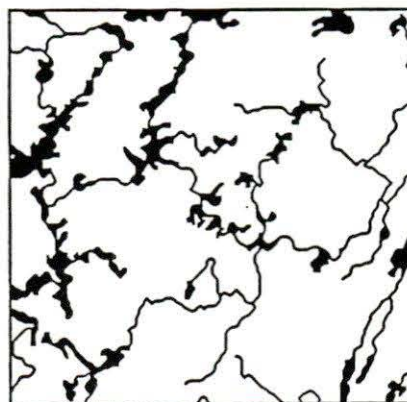




 opaque  
 transparent

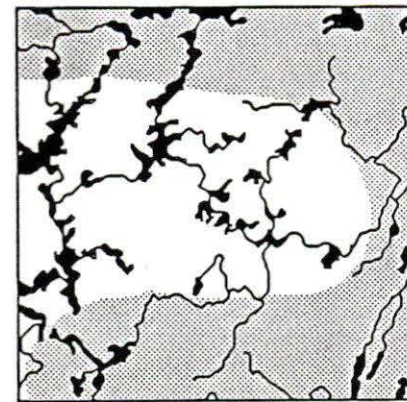


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	21	4	12/25/82	40	GGGG	531

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	21	4	1/10/83	0	GGGG	532

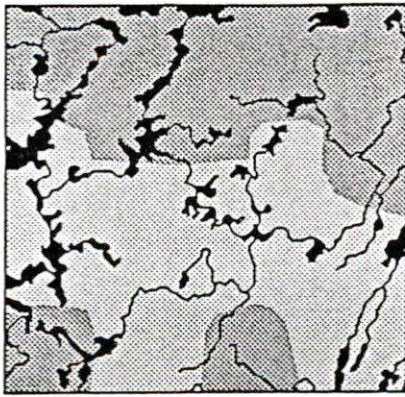




 opaque  
 transparent

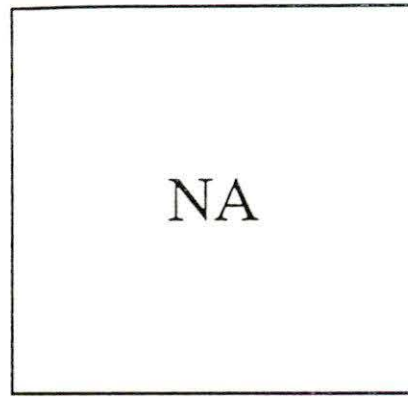


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	21	4	1/26/83	0	GGGG	533

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	21	4	4/16/83	0	GGGG	534

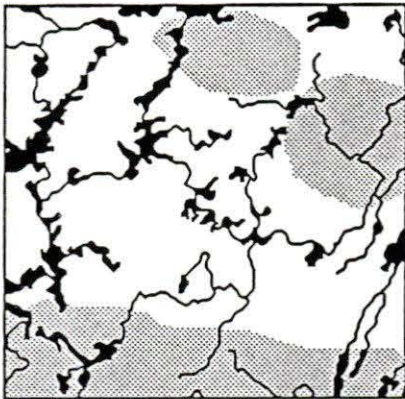




 opaque  
 transparent

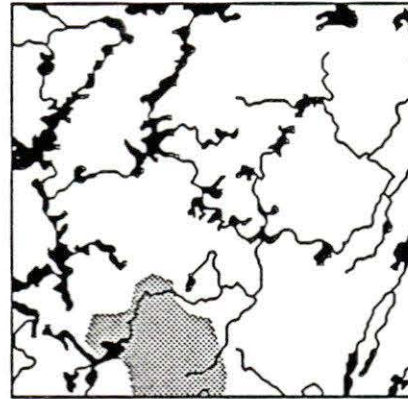


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	21	4	5/2/83	5	GGGG	535

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	21	4	6/3/83	15	GGGG	536

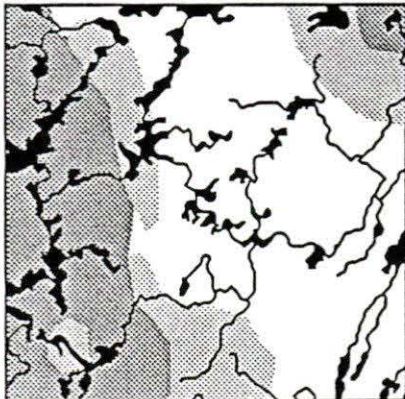




 opaque  
 transparent

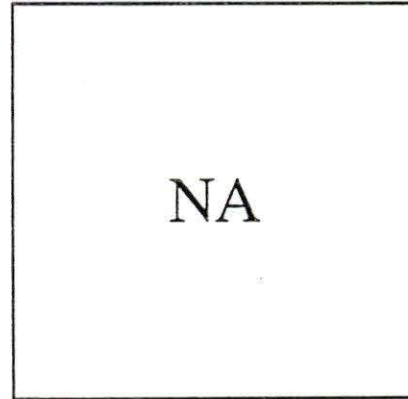


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	21	4	7/5/83	2	GGGG	537

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	21	4	8/6/83	5	GGGG	538

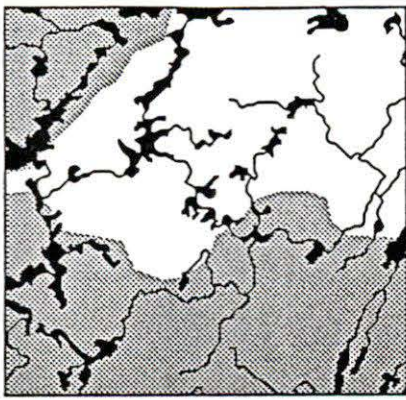




 opaque  
 transparent



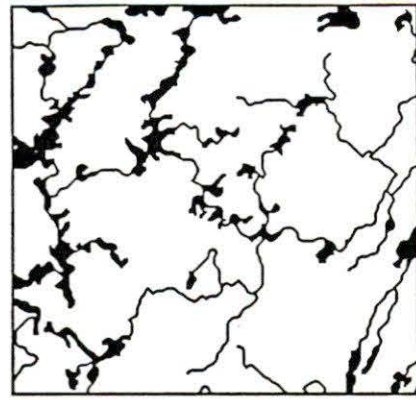
Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	21	4	8/22/83	25	GGGG	539

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	21	4	9/23/83	40	GGGG	540

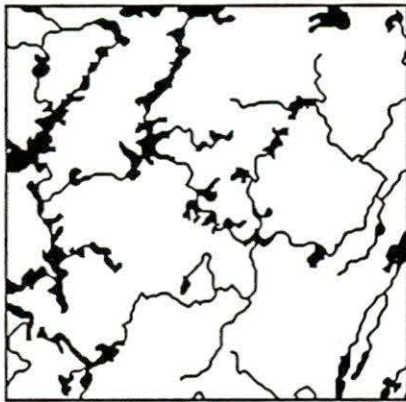




 opaque  
 transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	21	4	11/10/83	50	GGGG	541

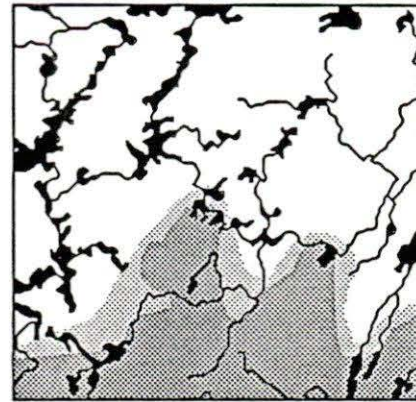


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	21	4	12/28/83	0	GGGG	542

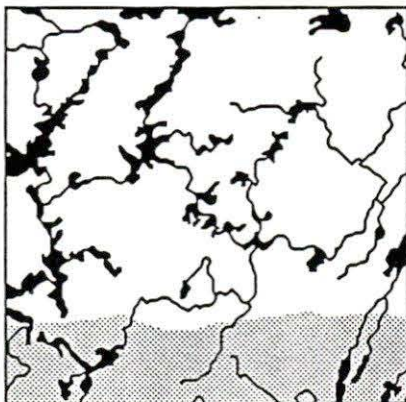




 opaque  
 transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	21	4	1/13/84	0	GGGG	543

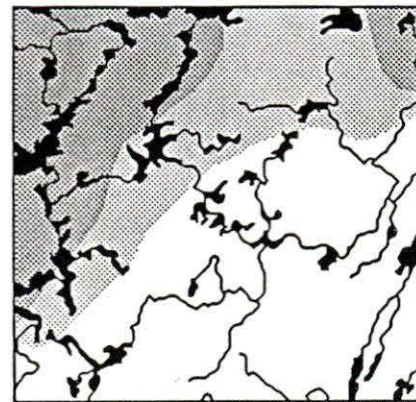


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	21	4	1/29/84	35	GGGG	544

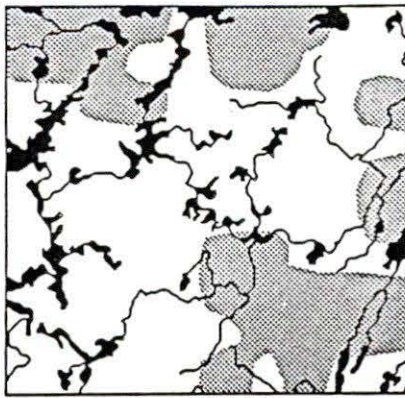




 opaque  
 transparent

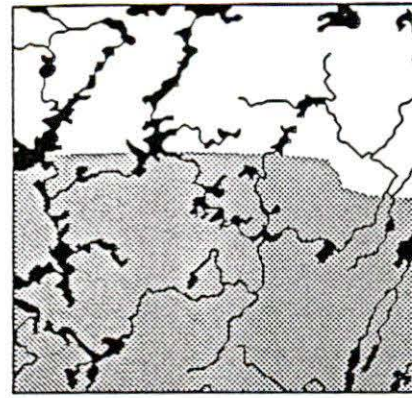
Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	21	4	4/2/84	5	GGGG	545



Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	21	4	4/18/84	10	GGGG	546

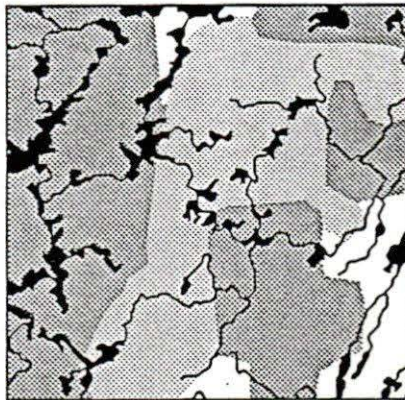




 opaque  
 transparent

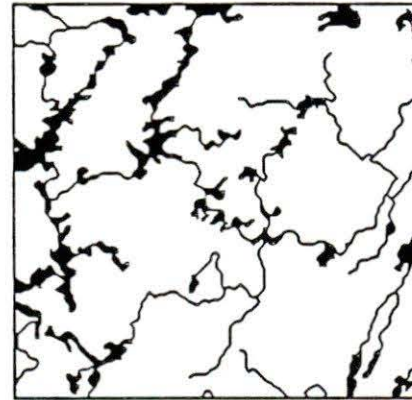


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	21	4	6/5/84	30	GGGG	547

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	21	4	11/28/84	50	GGGG	548

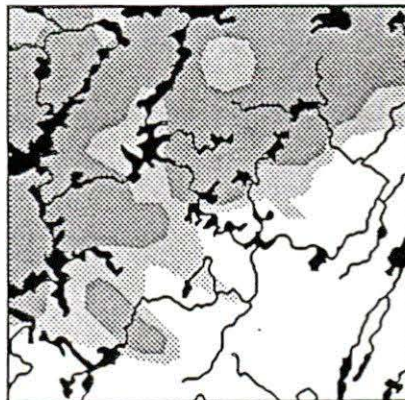




 opaque  
 transparent

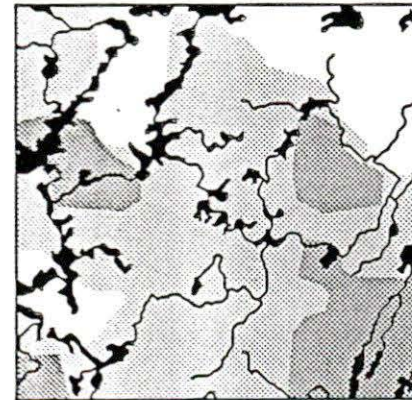


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	21	4	12/14/84	40	GGGG	549

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	21	4	12/30/84	0	GGGG	550

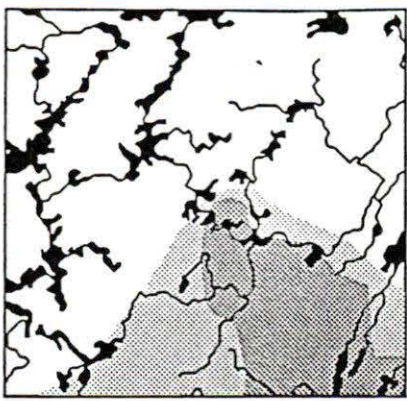




 opaque  
 transparent



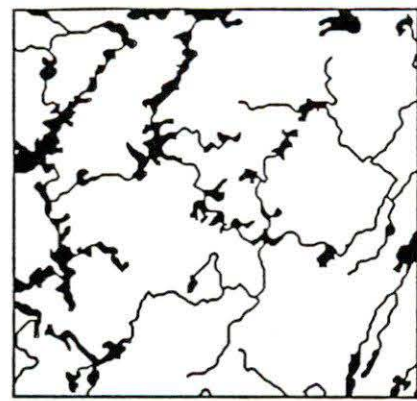
Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	21	4	5/23/85	40	GGGG	551

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	21	4	8/11/85	25	GGGG	552





 opaque  
 transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	21	4	9/12/85	25	GGGG	553

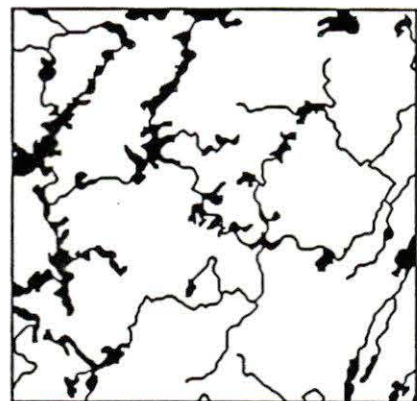


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	21	4	11/15/85	2	GGGG	554

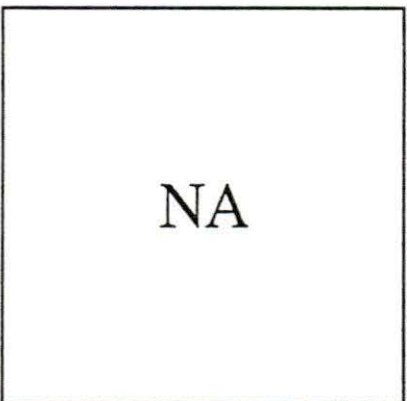




 opaque  
 transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	21	4	12/1/85	2	GGGG	555

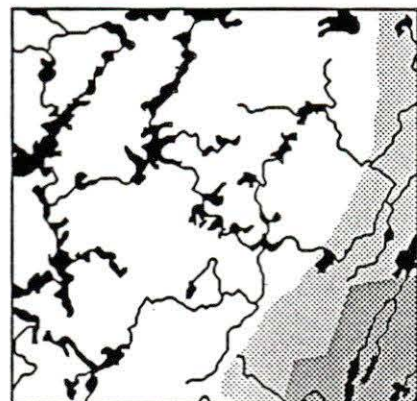


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	21	4	2/19/86	0	GGGG	556



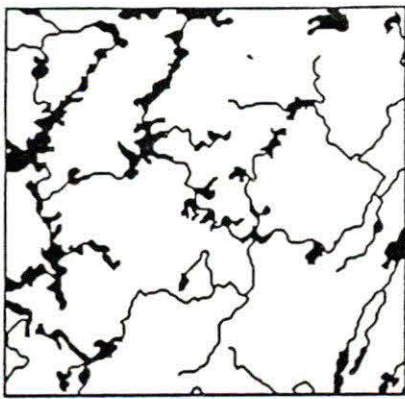
 opaque  
 transparent



Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	21	4	7/13/86	25	GGGG	557



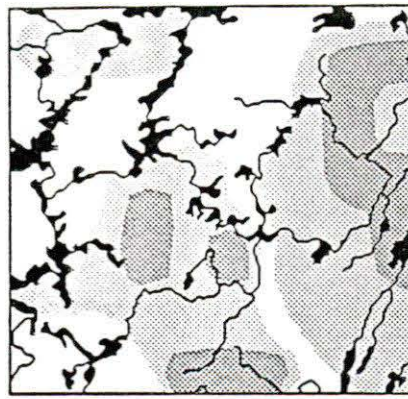
Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	21	5	6/13/84	20	GGGG	558



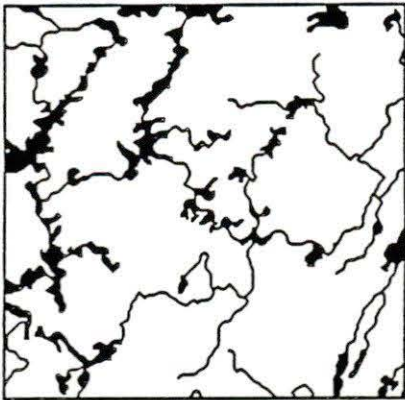




 opaque  
 transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	21	5	6/29/84	0	GGGG	559

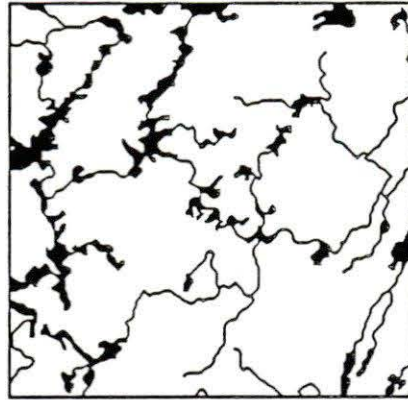


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	21	5	7/31/84	25	PPPP	560

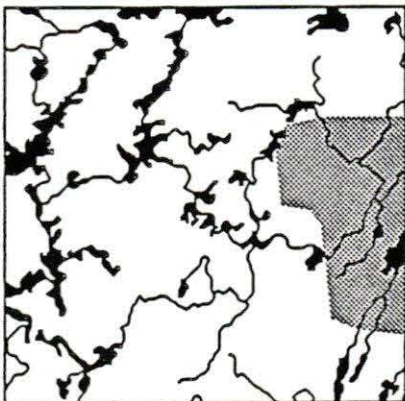




 opaque  
 transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	21	5	1/7/85	0	GGGG	561

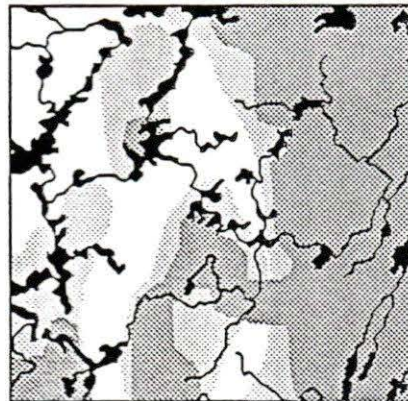


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	21	5	2/8/85	0	GGGG	562

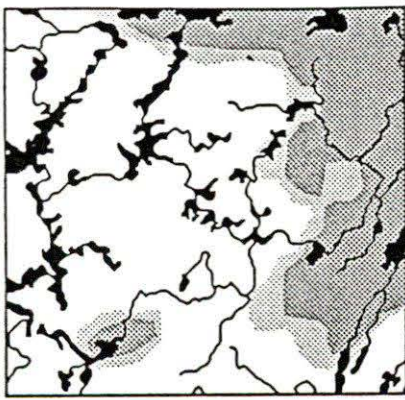




 opaque  
 transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	21	5	3/28/85	10	GGGG	563

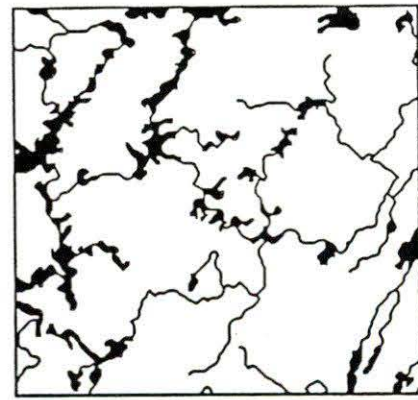


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	21	5	5/15/85	50	GGGG	564

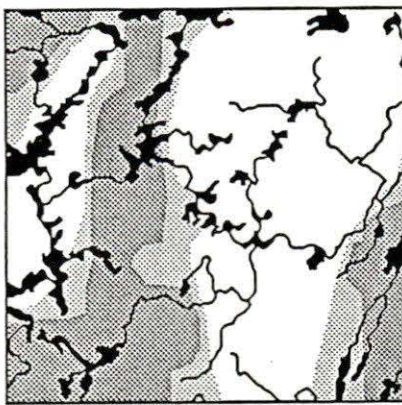




 opaque  
 transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	21	5	7/2/85	30	GGGG	565

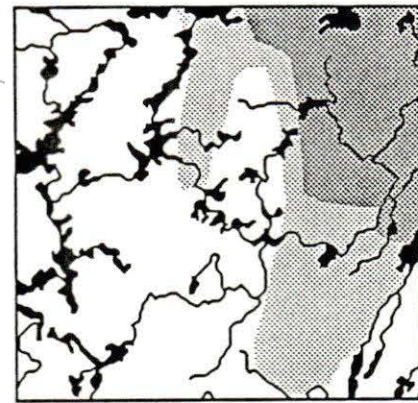


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	21	5	8/19/85	0	GGGG	566

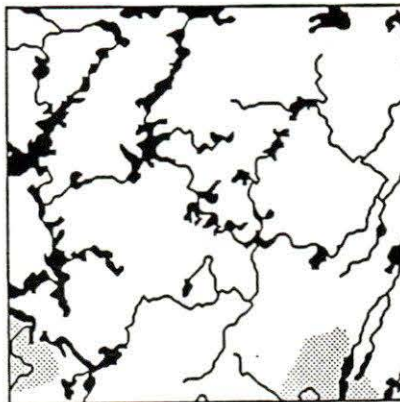




 opaque  
 transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	21	5	9/4/85	20	GGGG	567

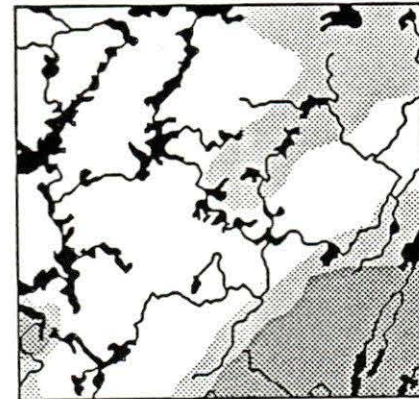


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	21	5	11/23/85	25	GGGG	568

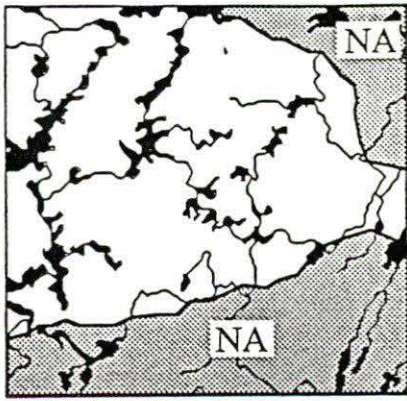




 opaque  
 transparent

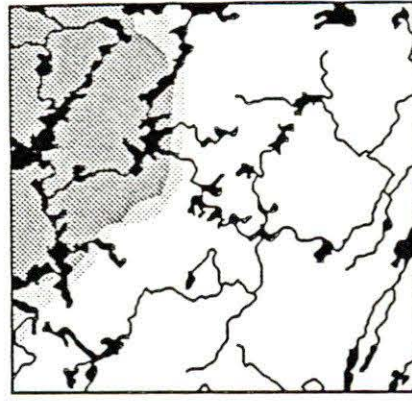
Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	21	5	1/26/86	0	GGGG	569



Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	21	5	4/16/86	15	GGGG	570



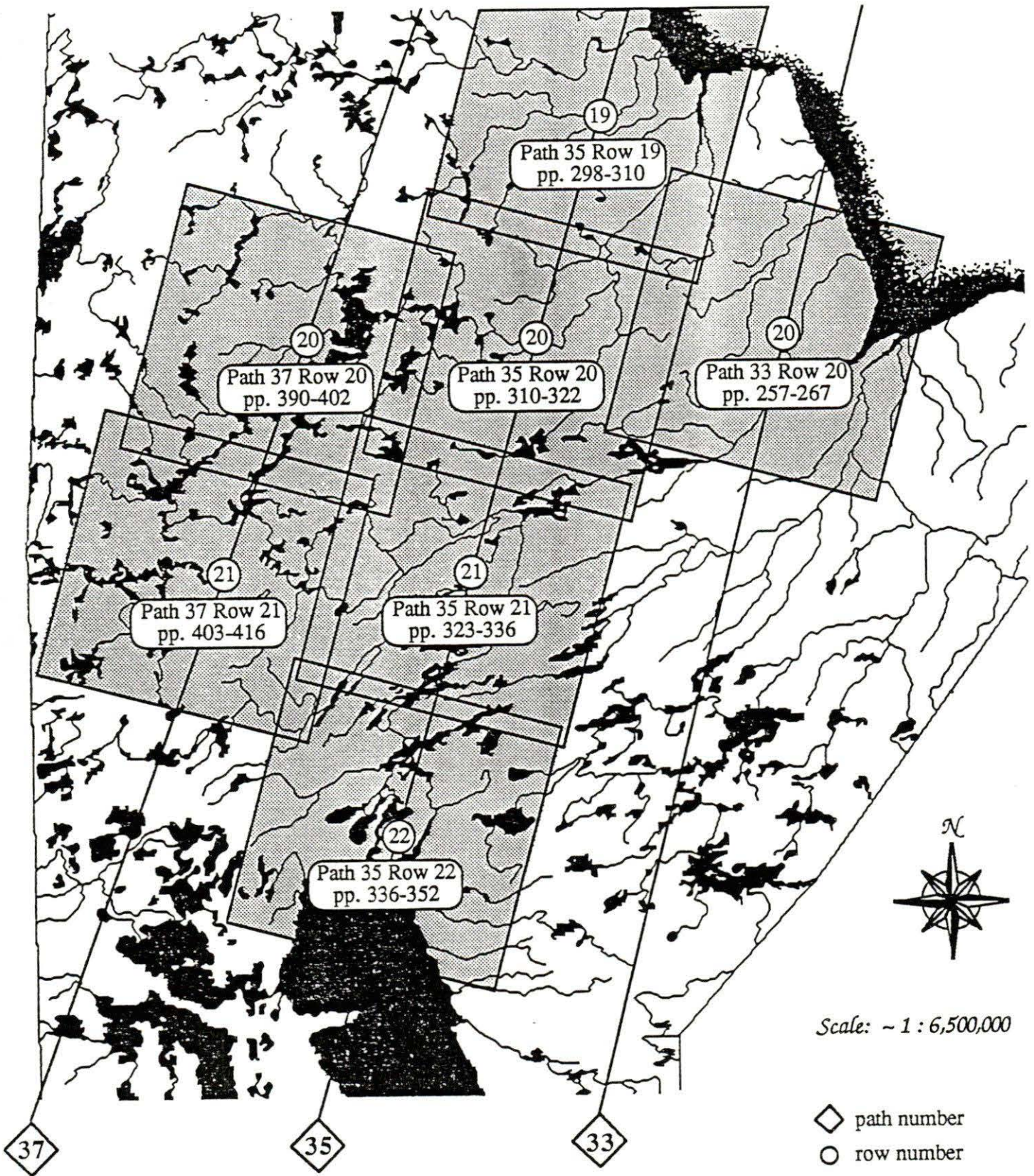
 opaque  
 transparent



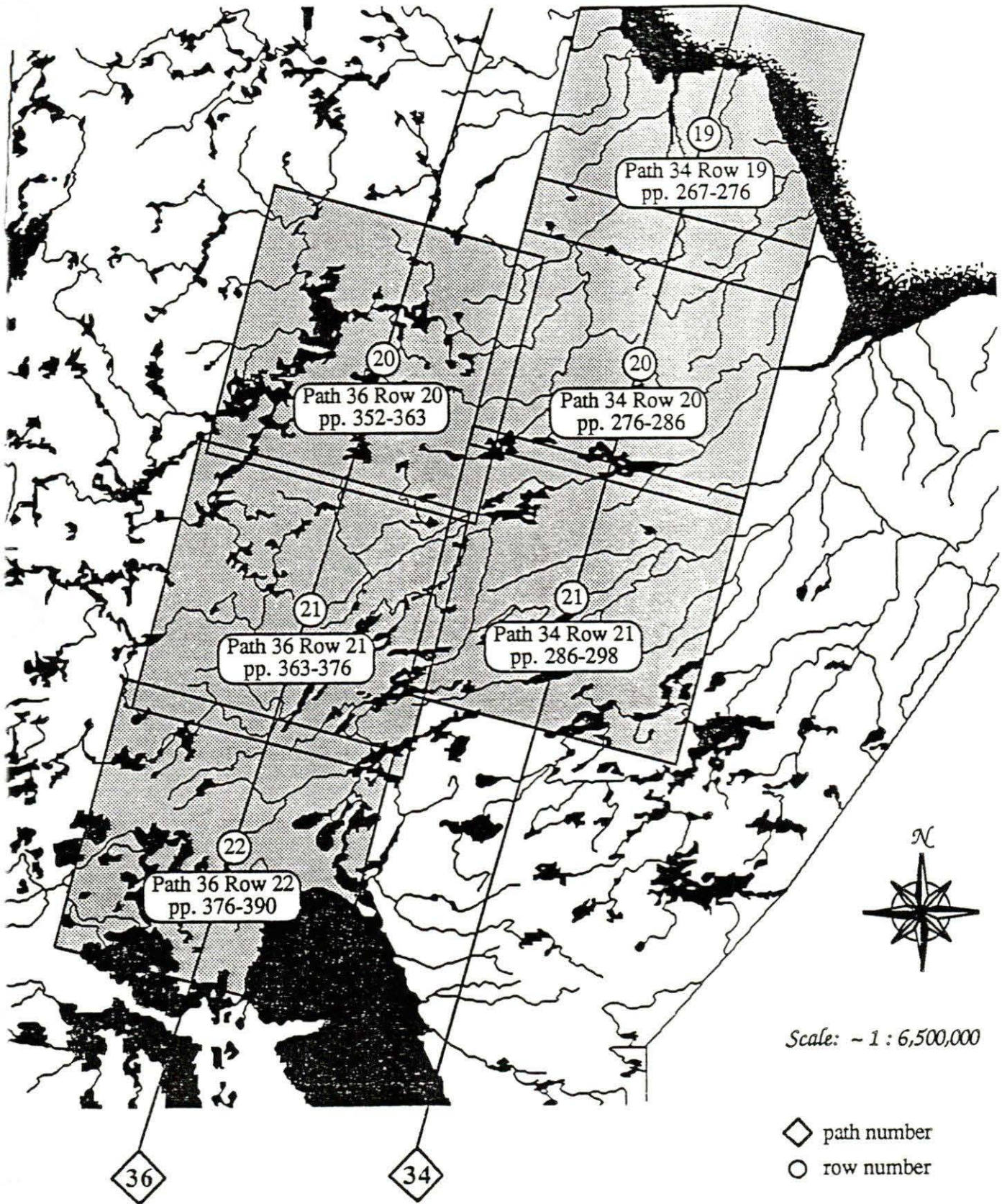
Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	21	5	5/2/86	0	GGGG	571

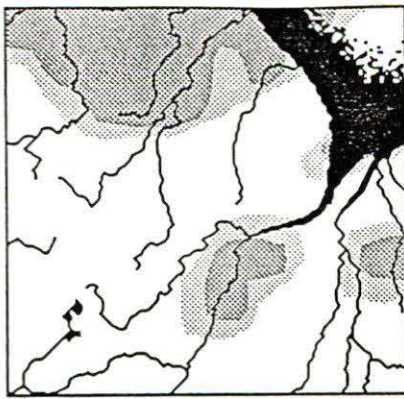
Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	21	5	5/18/86	25	GGGG	572



# Landsat 1,2,&3 Index Map



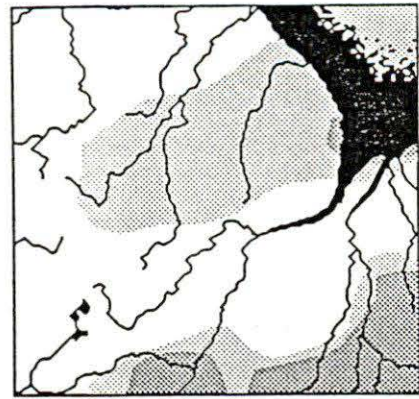
# Landsat 1,2,&3 Index Map



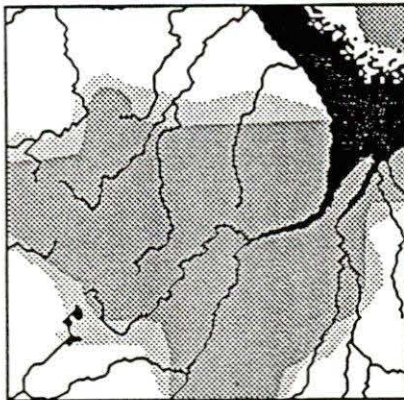




 opaque  
 transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
33	20	1	8/17/72	15	**G*	573

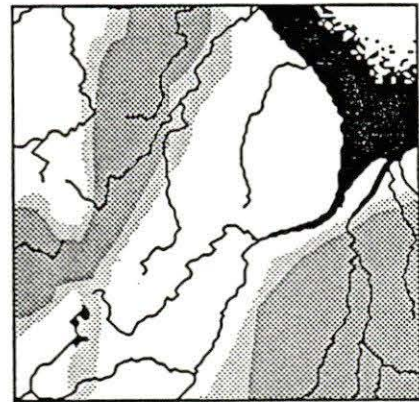


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
33	20	1	6/19/73	10	GGGG	574

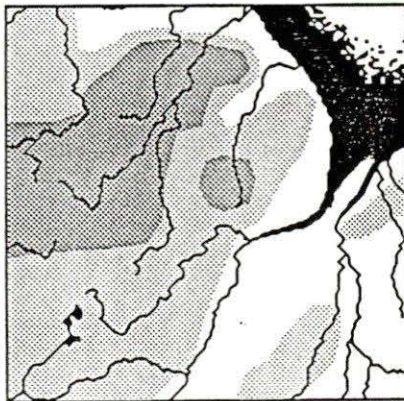




 opaque  
 transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
33	20	1	7/25/73	50	FGFG	575

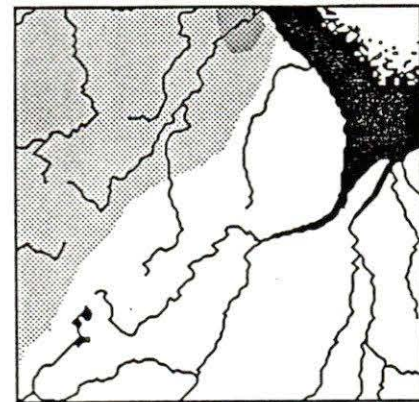


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
33	20	1	8/12/73	20	FFFF	576

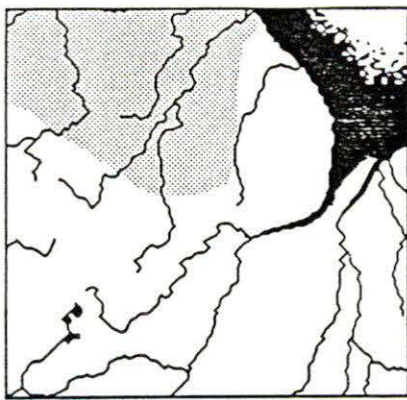


 opaque  
 transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
33	20	1	8/30/73	45	GEFE	577

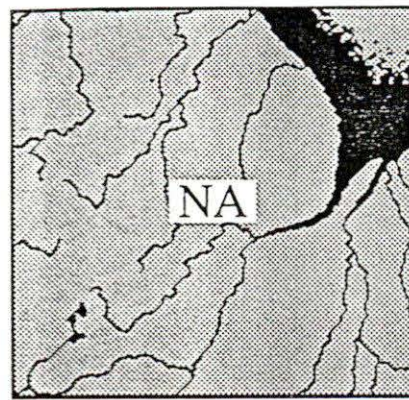


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
33	20	1	2/8/74	10	GGGG	578

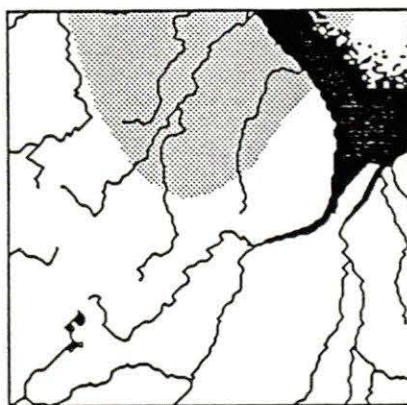


opaque  
transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
33	20	1	3/16/74	0	GGGG	579

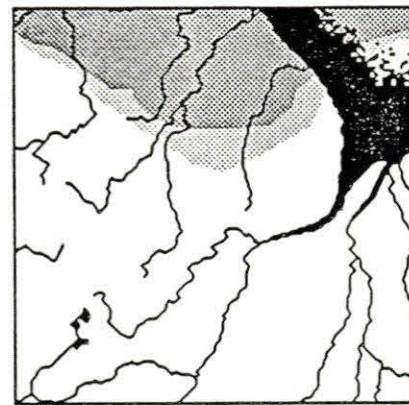


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
33	20	1	4/3/74	15	GGGG	580

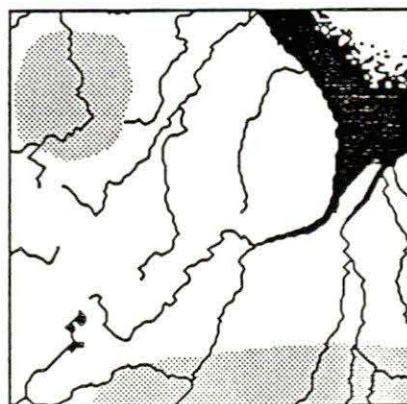


opaque  
transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
33	20	1	4/21/74	15	FFFF	581

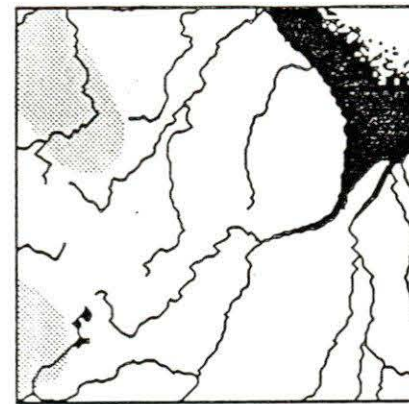


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
33	20	1	5/27/74	20	FGGE	582

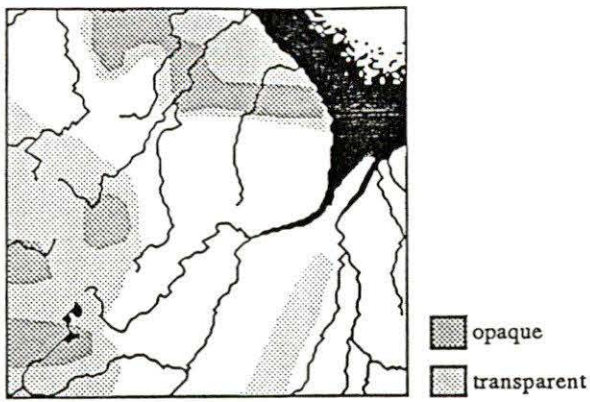


opaque  
transparent

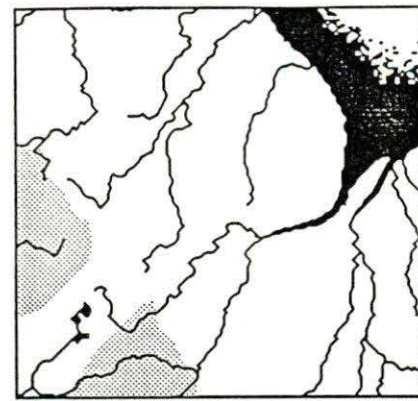
Path	Row	LS	Date	C/C	Qual. of MSS	App.#
33	20	1	11/5/74	0	GEEG	583



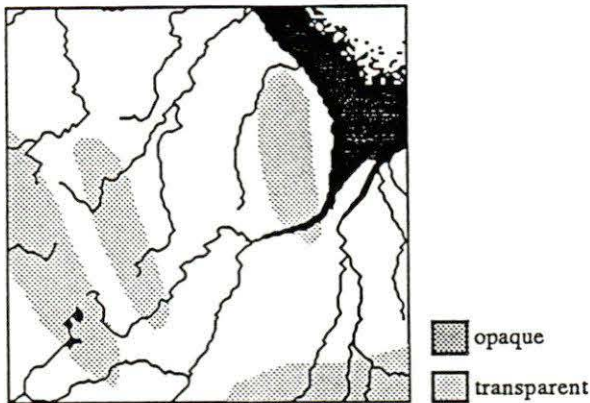
Path	Row	LS	Date	C/C	Qual. of MSS	App.#
33	20	1	4/16/75	0	GFFF	584



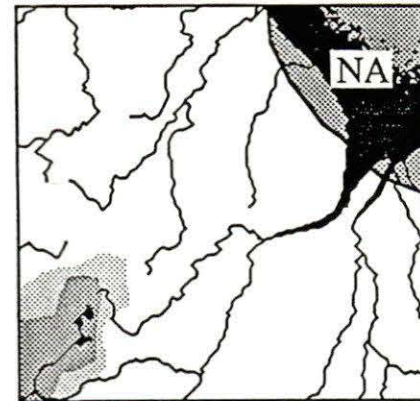
Path	Row	LS	Date	C/C	Qual. of MSS	App.#
33	20	1	8/20/75	35	GGGG	585



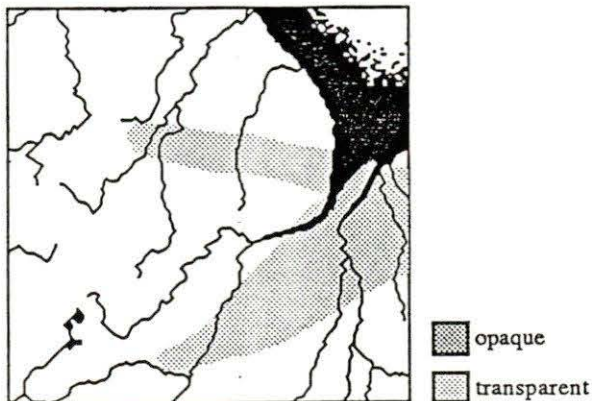
Path	Row	LS	Date	C/C	Qual. of MSS	App.#
33	20	1	9/7/75	5	PFGG	586



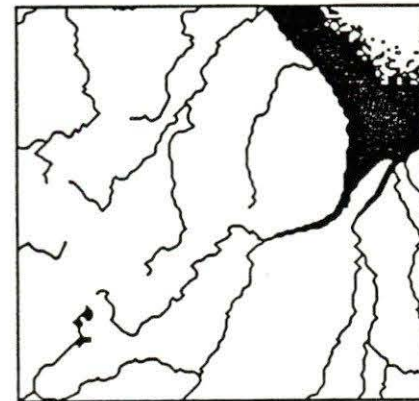
Path	Row	LS	Date	C/C	Qual. of MSS	App.#
33	20	1	11/18/75	10	GFGG	587



Path	Row	LS	Date	C/C	Qual. of MSS	App.#
33	20	1	3/5/76	5	GFGG	588

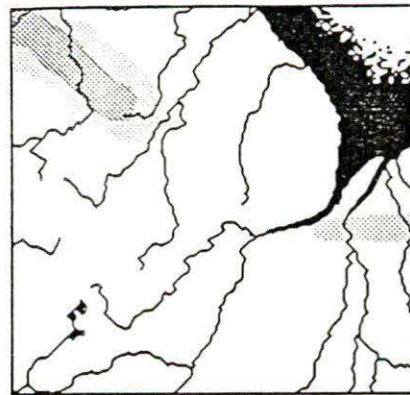
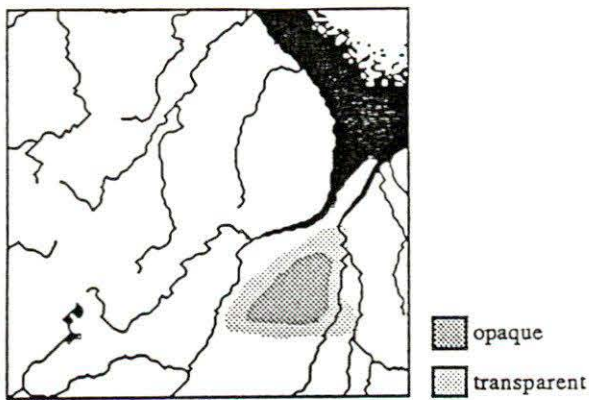


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
33	20	1	3/23/76	10	GGGG	589



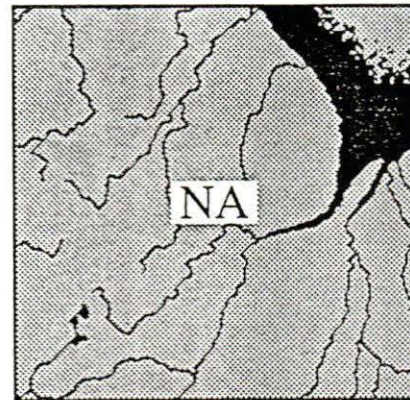
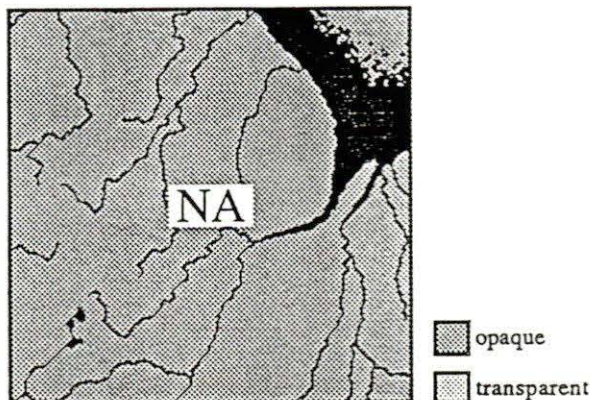
Path	Row	LS	Date	C/C	Qual. of MSS	App.#
33	20	1	8/14/76	1	FPPF	590





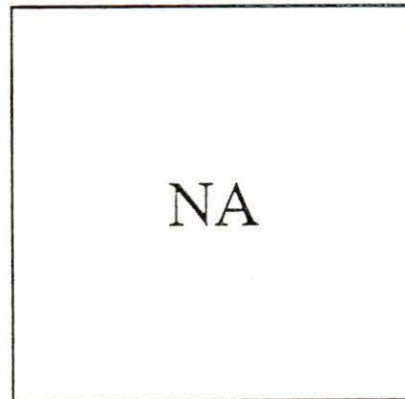
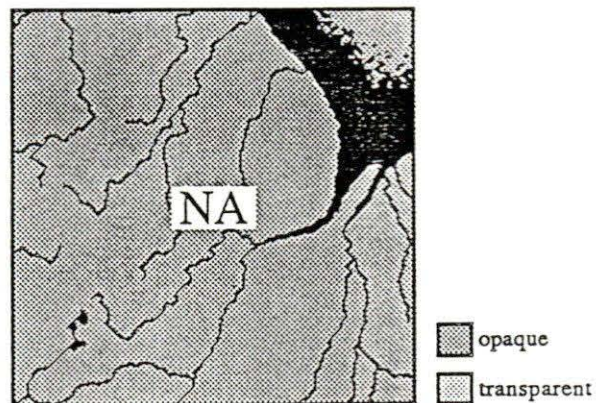
Path	Row	LS	Date	C/C	Qual. of MSS	App.#
33	20	1	9/1/76	5	GGGG	591

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
33	20	1	9/19/76	5	GGGG	592



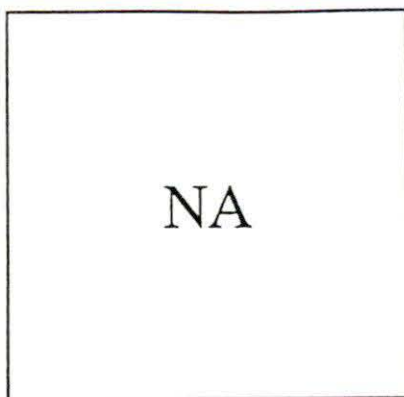
Path	Row	LS	Date	C/C	Qual. of MSS	App.#
33	20	1	7/1/77	10	*GGG	593



Path	Row	LS	Date	C/C	Qual. of MSS	App.#
33	20	1	7/19/77	50	*GGG	594



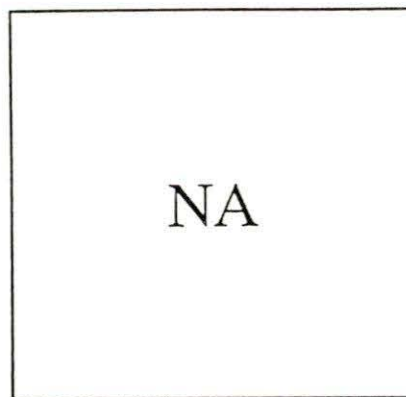
Path	Row	LS	Date	C/C	Qual. of MSS	App.#
33	20	1	9/29/77	20	*GFG	595

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
33	20	2	4/25/75	40	GGGG	596

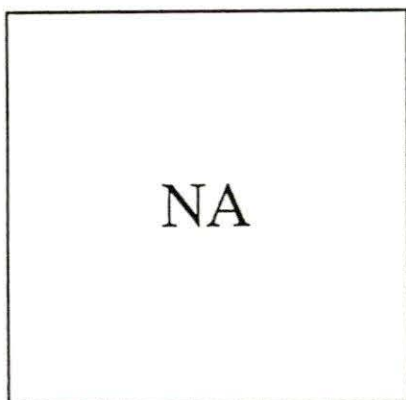




 opaque  
 transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
33	20	2	8/29/75	0	GGGG	597

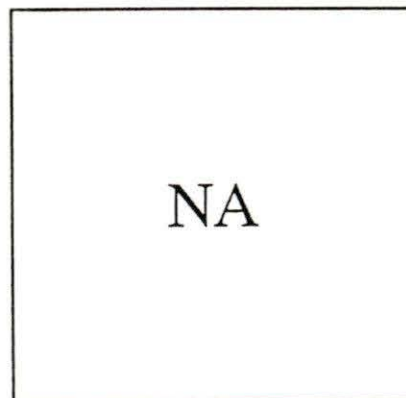


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
33	20	2	5/7/76	5	G*GG	598

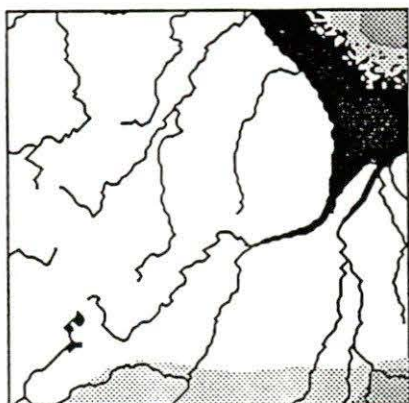




 opaque  
 transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
33	20	2	6/30/76	15	*GGG	599

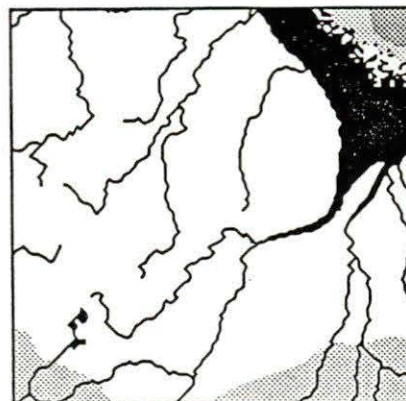


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
33	20	2	8/5/76	15	GGGG	600

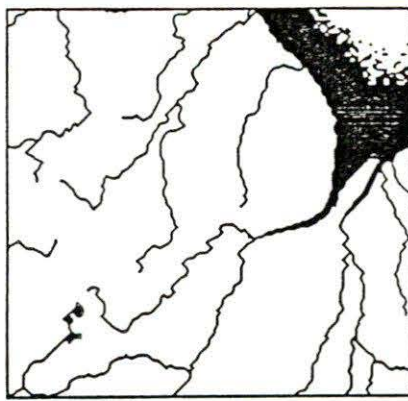


 opaque  
 transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
33	20	2	12/9/76	3	GGGG	601

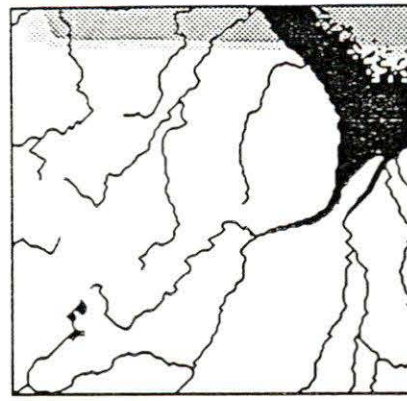


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
33	20	2	1/14/77	3	GGGG	602

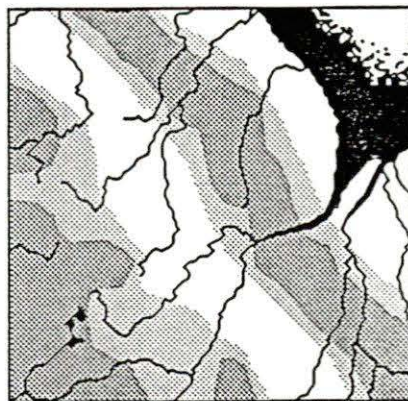


opaque  
transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
33	20	2	2/19/77	0	GGGG	603

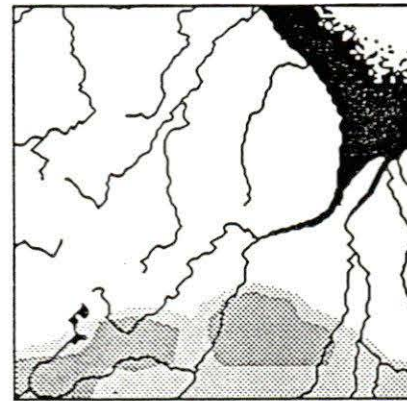


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
33	20	2	5/2/77	5	FFFF	604

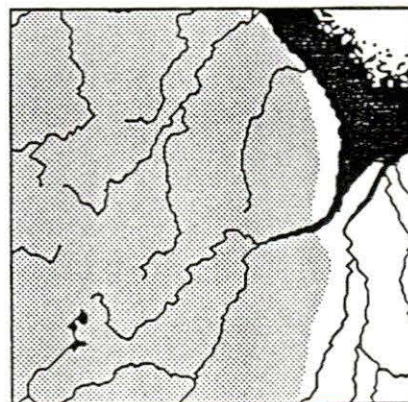


opaque  
transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
33	20	2	9/23/77	40	GGGF	605

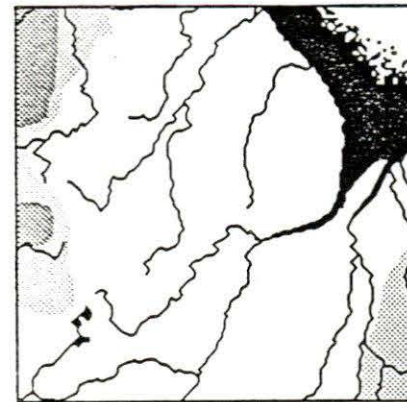


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
33	20	2	10/29/77	10	GGGG	606

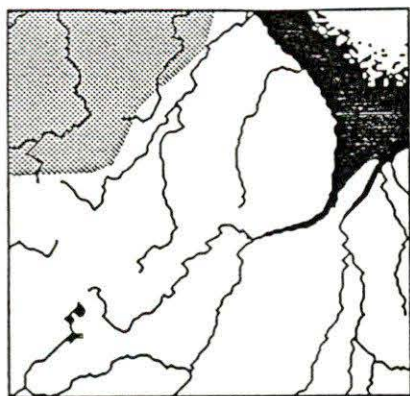


opaque  
transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
33	20	2	3/4/78	25	GGGG	607

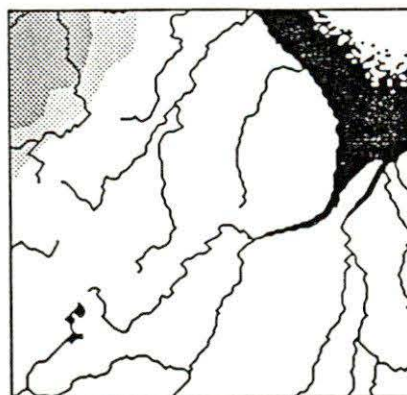


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
33	20	2	6/20/78	10	FFFF	608

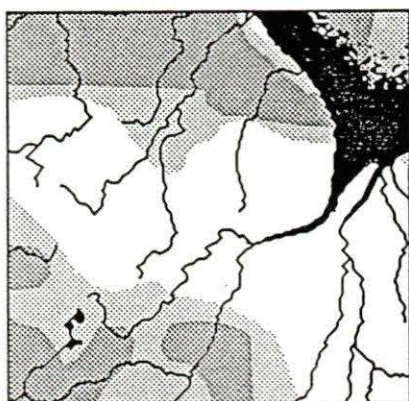


opaque  
transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
33	20	2	9/18/78	15	FFFF	609

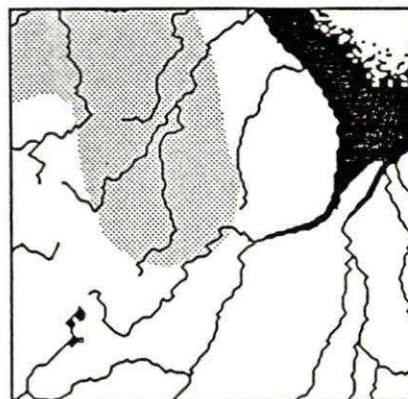


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
33	20	2	11/29/78	5	FFFF	610

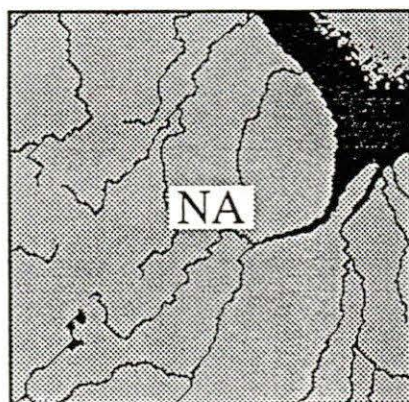


opaque  
transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
33	20	2	1/22/79	40	GGGG	611

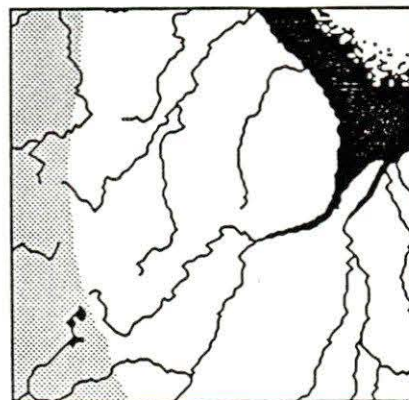


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
33	20	2	4/4/79	10	FGGG	612

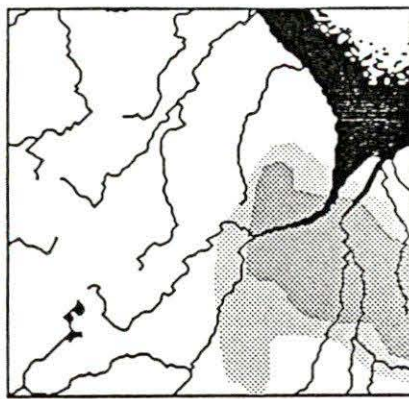


opaque  
transparent

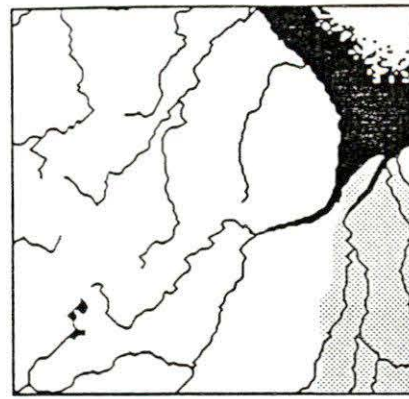
Path	Row	LS	Date	C/C	Qual. of MSS	App.#
33	20	2	4/22/79	15	GGGG	613



Path	Row	LS	Date	C/C	Qual. of MSS	App.#
33	20	2	5/28/79	10	GGGG	614

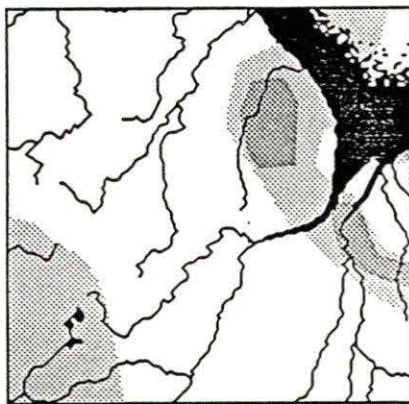


opaque  
transparent

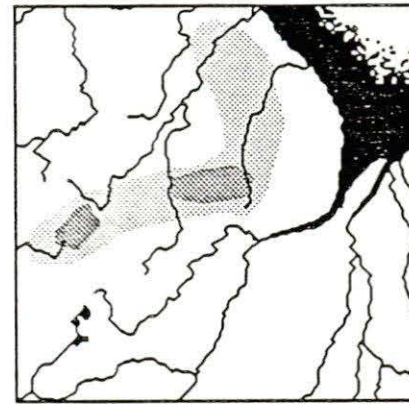


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
33	20	2	7/3/79	10	GGGG	615

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
33	20	2	6/27/80	5	GGGG	616

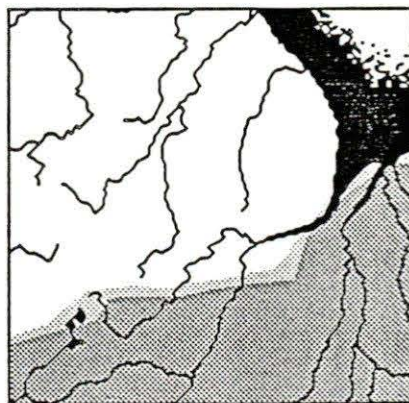


opaque  
transparent

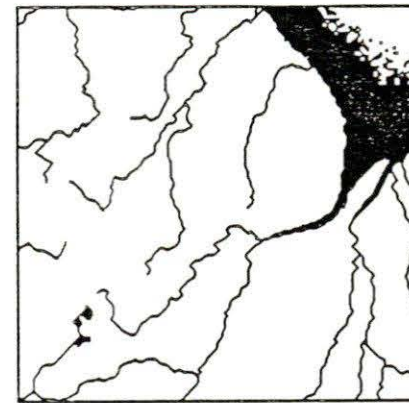


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
33	20	2	7/15/80	15	GGGG	617

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
33	20	2	8/20/80	5	GGGG	618

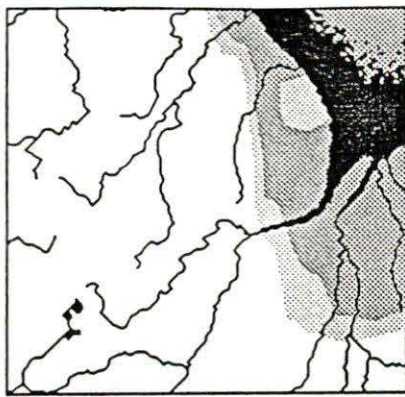


opaque  
transparent



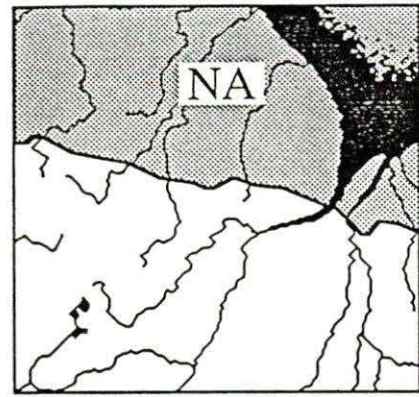
Path	Row	LS	Date	C/C	Qual. of MSS	App.#
33	20	2	11/18/80	20	GGGG	619

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
33	20	2	1/29/81	0	GGGG	620

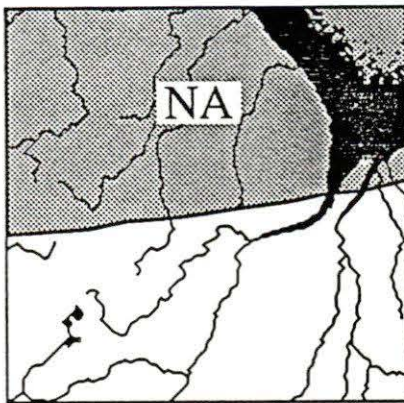


opaque  
transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
33	20	2	3/24/81	15	GGGG	621

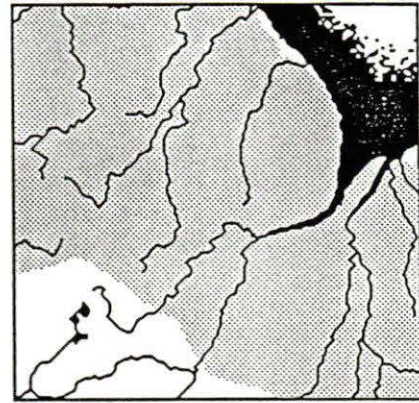


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
33	20	2	4/11/81	0	GGGG	622

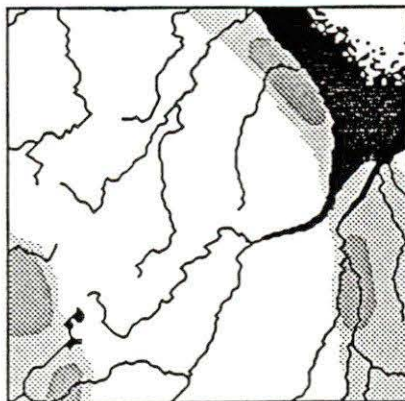


opaque  
transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
33	20	2	4/29/81	0	GGGG	623

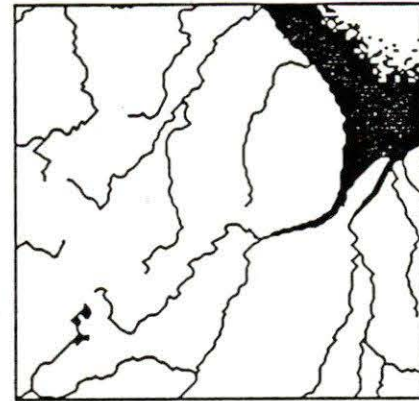


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
33	20	2	5/17/81	0	GGGG	624

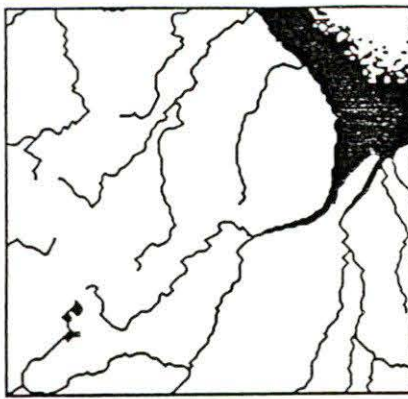


opaque  
transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
33	20	2	6/22/81	10	GGGG	625

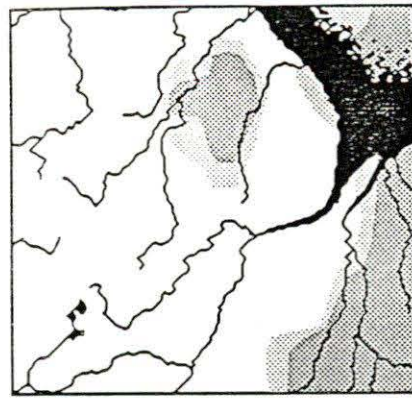


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
33	20	2	8/15/81	0	GGGG	626

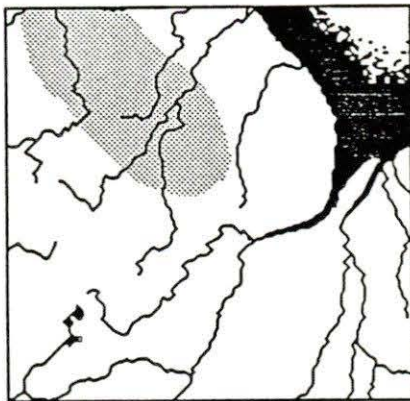


opaque  
transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
33	20	2	10/8/81	0	GGGG	627

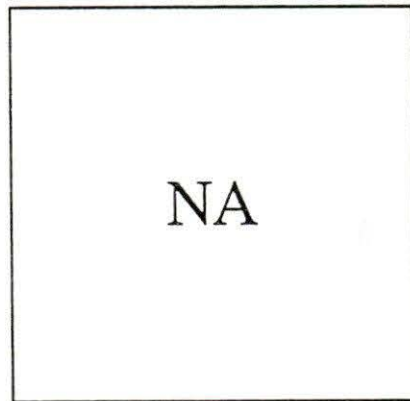


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
33	20	2	12/1/81	10	GGGG	628

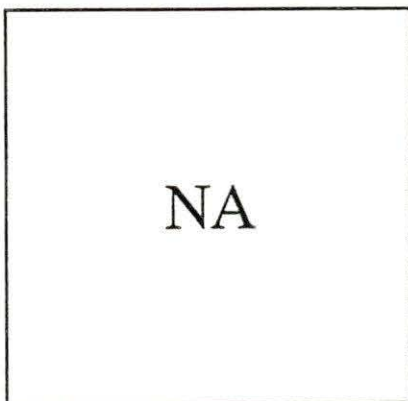


opaque  
transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
33	20	2	1/24/82	0	GGGG	629

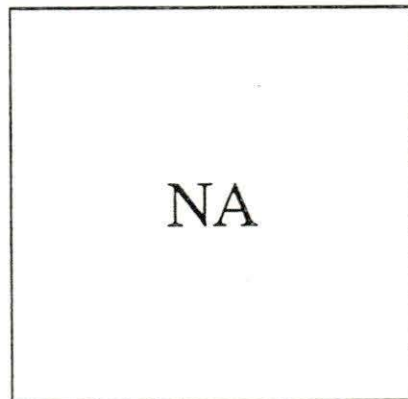


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
33	20	3	8/22/78	50	FFFF	630

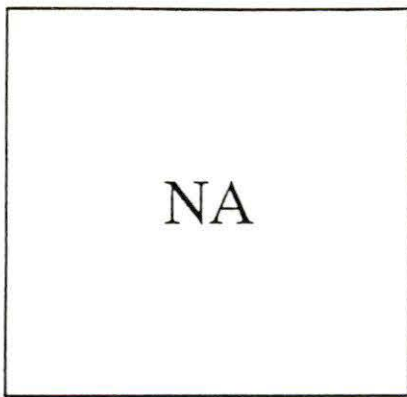




opaque  
transparent

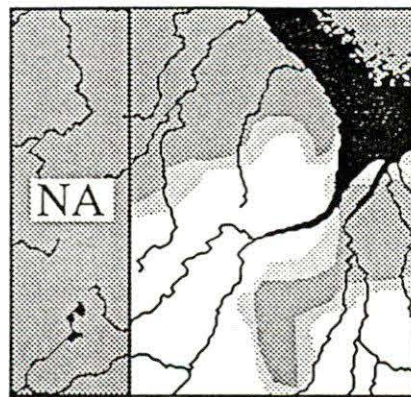
Path	Row	LS	Date	C/C	Qual. of MSS	App.#
33	20	3	10/15/78	15	FFFF	631



Path	Row	LS	Date	C/C	Qual. of MSS	App.#
33	20	3	3/26/79	10	FFFG	632

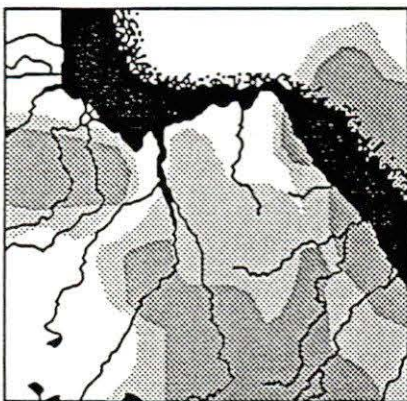




 opaque  
 transparent

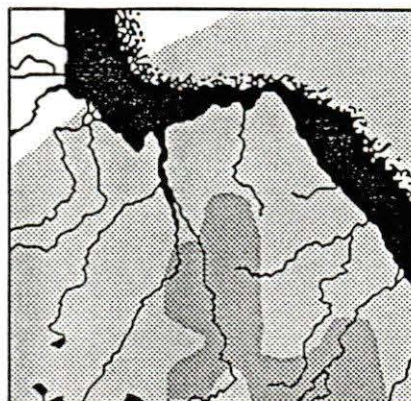


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
33	20	3	5/21/82	2	GGGG	633

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
33	20	3	6/26/82	40	FFFF	634

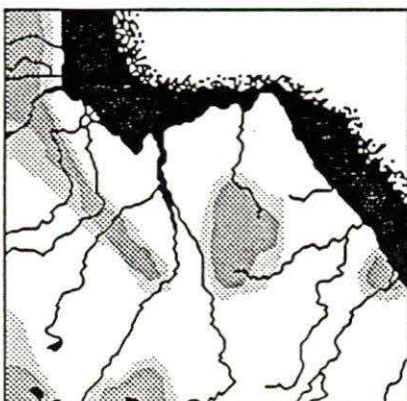




 opaque  
 transparent

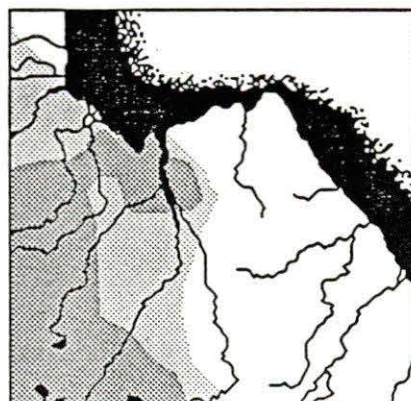


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	19	1	8/18/72	25	G*EE	635

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	19	1	12/4/72	30	GGGG	636



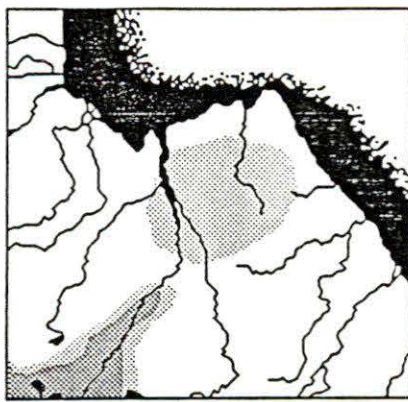
 opaque  
 transparent





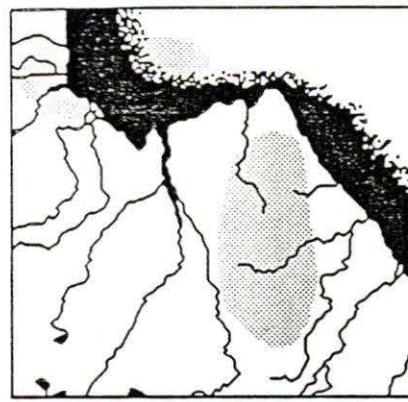
Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	19	1	4/9/73	15	GG*G	637

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	19	1	6/2/73	20	GGGF	638



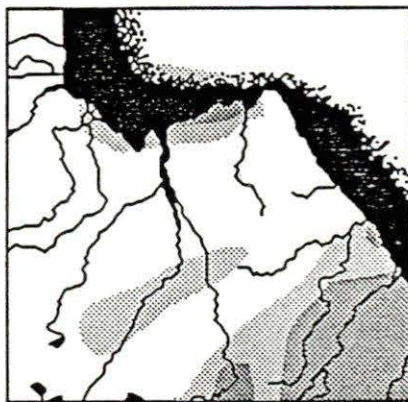




 opaque  
 transparent

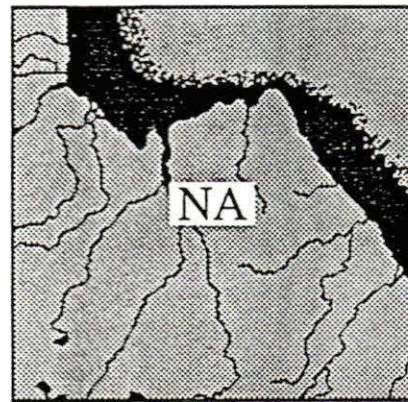


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	19	1	6/20/73	10	GGGG	639

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	19	1	2/27/74	3	GFGF	640

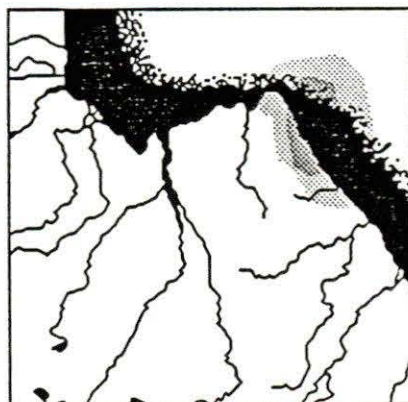




 opaque  
 transparent

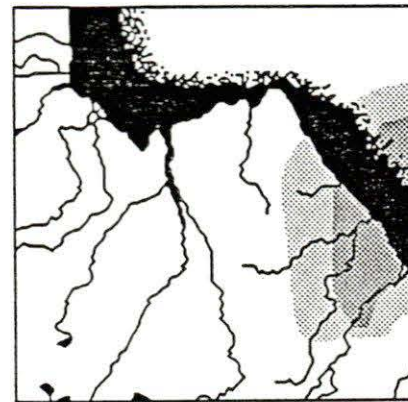


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	19	1	3/17/74	20	GG*G	641

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	19	1	4/4/74	30	GG*G	642

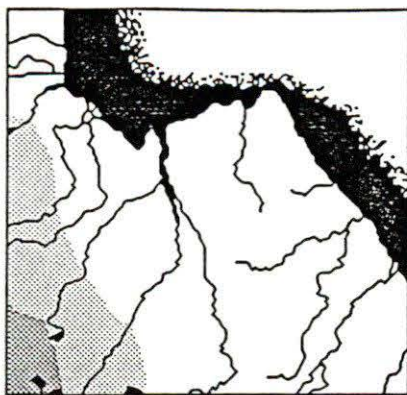




 opaque  
 transparent



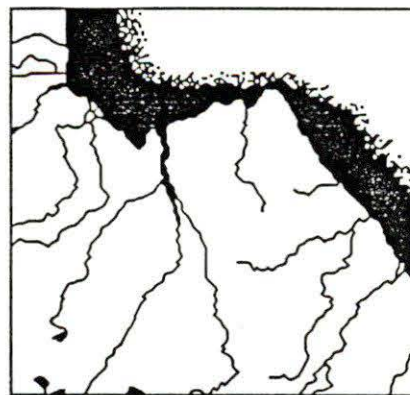
Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	19	1	5/28/74	5	GGEE	643

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	19	1	6/15/74	10	FGGE	644

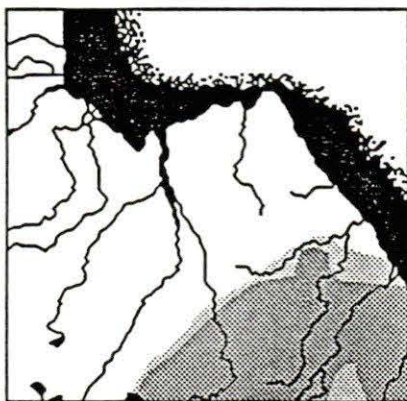




 opaque  
 transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	19	1	7/21/74	10	FGEE	645

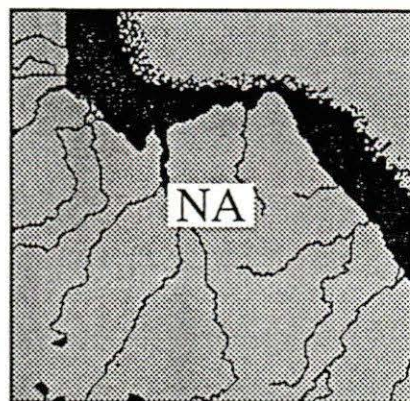


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	19	1	11/24/74	0	GGGG	646

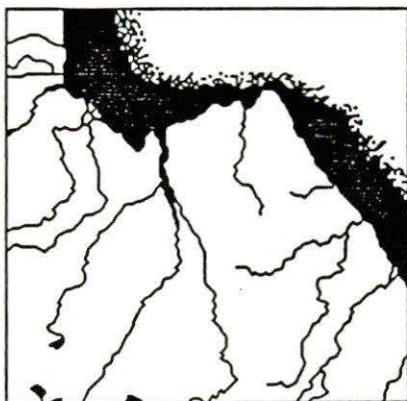




 opaque  
 transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	19	1	2/4/75	20	GGGG	647

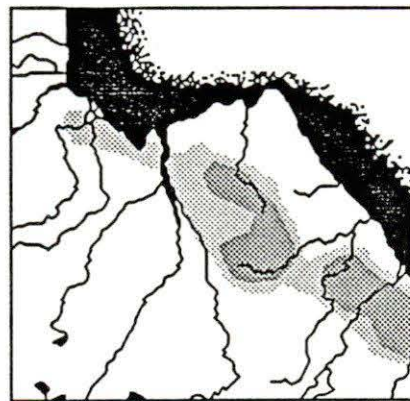


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	19	1	3/12/75	0	GGGG	648

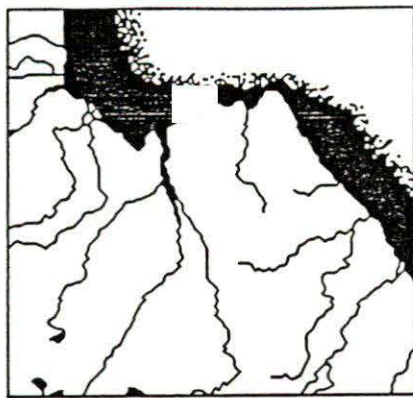


 opaque  
 transparent

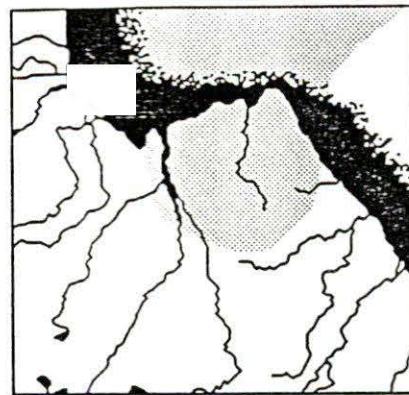
Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	19	1	7/16/75	1	GGGG	649



Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	19	1	8/21/75	25	GGGG	650

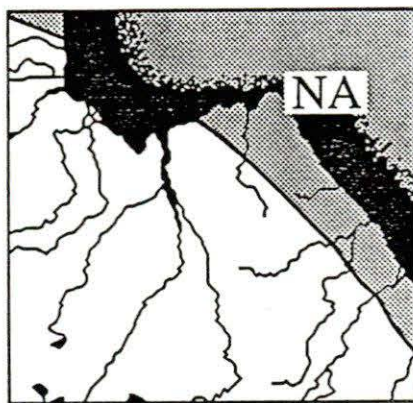


opaque  
transparent

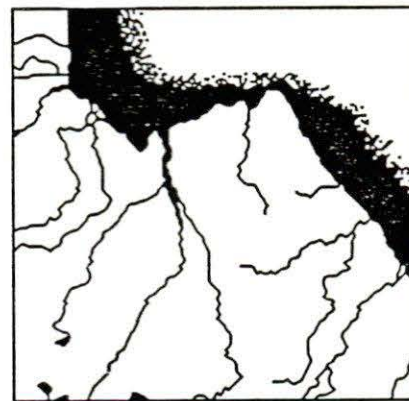


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	19	1	9/8/75	0	FGGG	651

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	19	1	11/19/75	20	GGFF	652

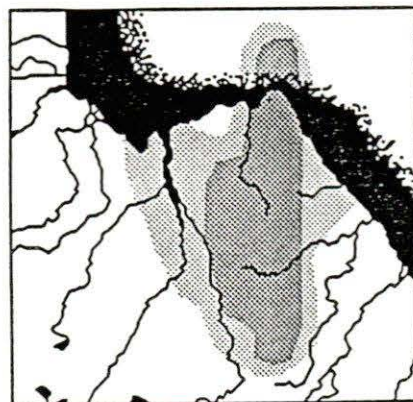


opaque  
transparent

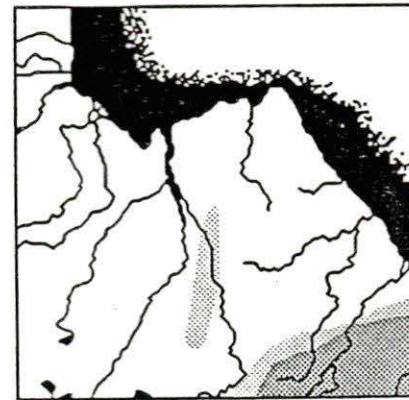


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	19	1	4/29/76	15	GGGG	653

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	19	1	5/17/76	0	GGGG	654

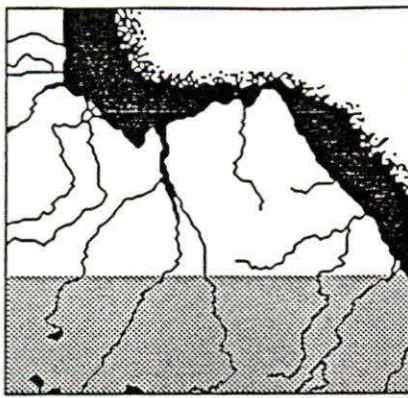




opaque  
transparent



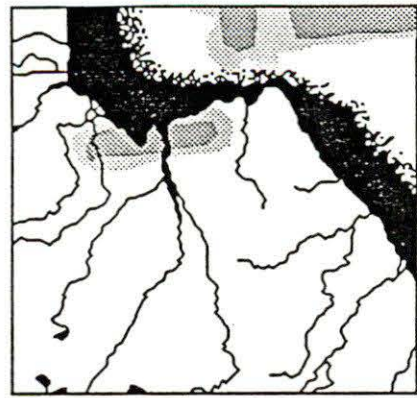
Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	19	1	6/22/76	25	GGGG	655

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	19	1	7/10/76	5	GGFF	656

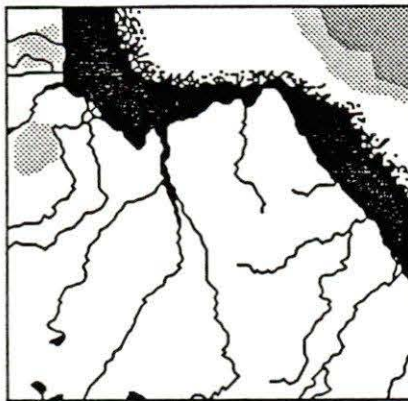




 opaque  
 transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	19	1	7/28/76	40	GGP*	657

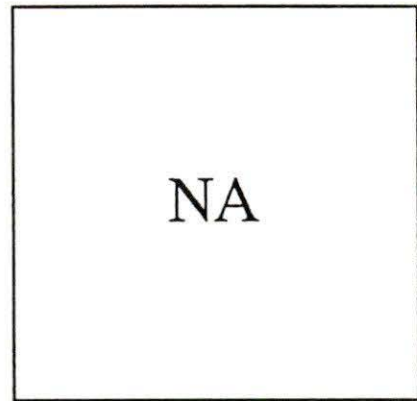


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	19	1	8/15/76	10	FGF*	658

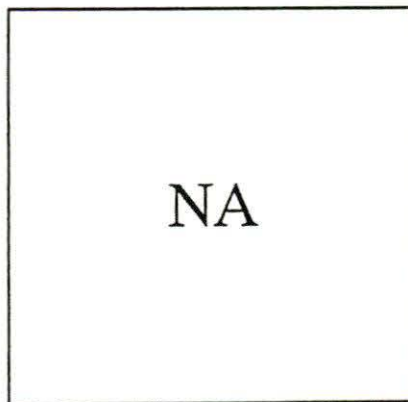




 opaque  
 transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	19	1	9/2/76	5	GGGG	659

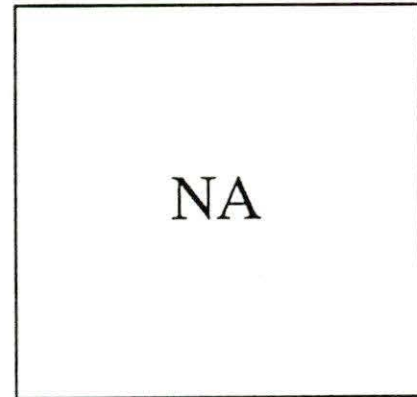


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	19	1	6/14/77	10	*GGG	660

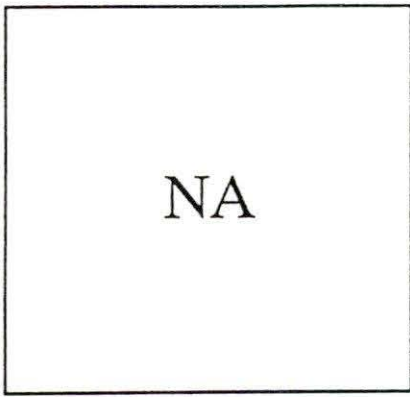




 opaque  
 transparent

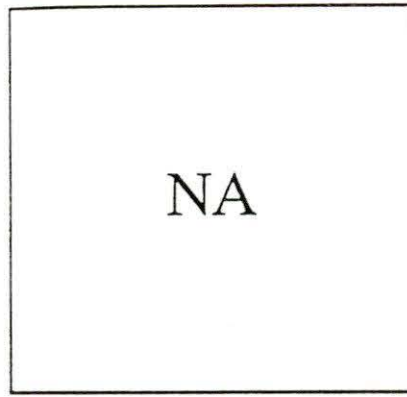
Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	19	1	8/7/77	10	*GFG	661



Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	19	2	6/19/75	0	FFFF	662

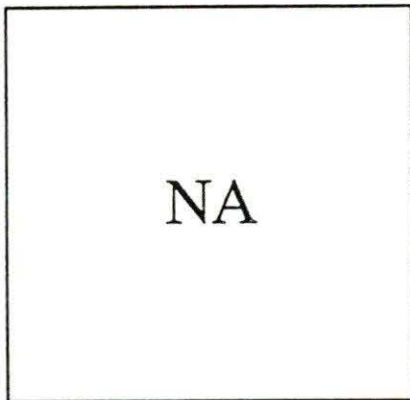




 opaque  
 transparent

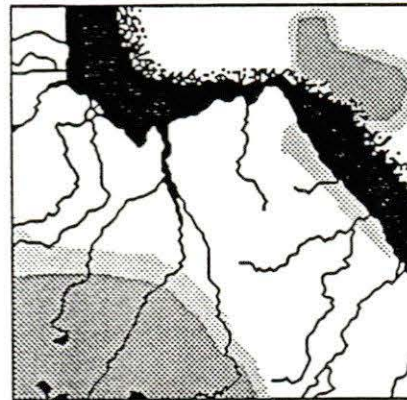


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	19	2	4/2/76	5	GGGG	663

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	19	2	7/1/76	35	GGGG	664

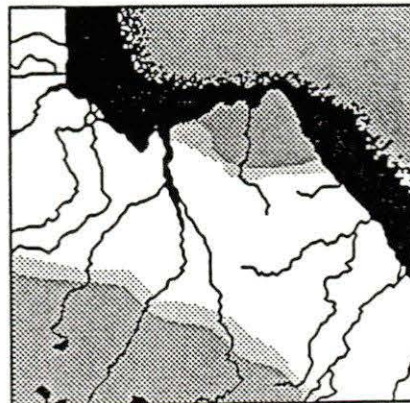




 opaque  
 transparent

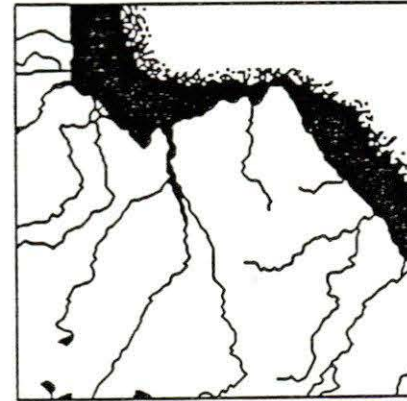


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	19	2	8/24/76	35	GGGG	665

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	19	2	7/14/77	20	FFFF	666

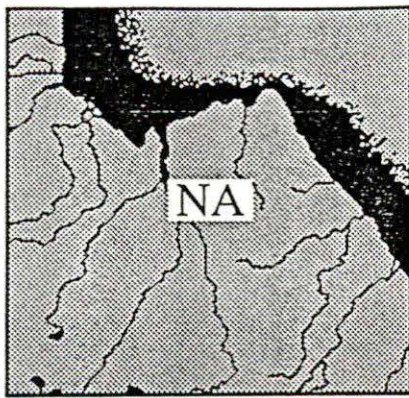


 opaque  
 transparent



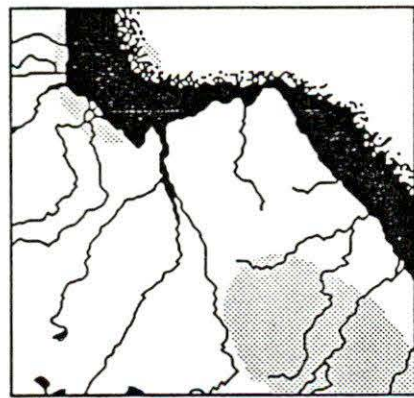
Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	19	2	10/12/77	35	GGGG	667

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	19	2	1/28/78	0	GGGG	668

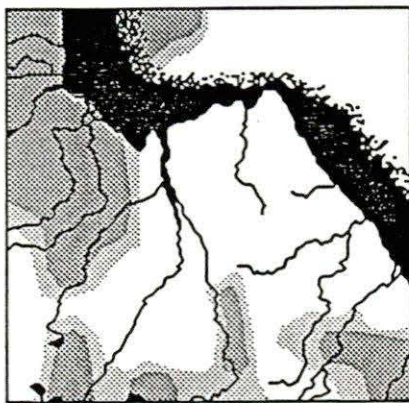


opaque  
transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	19	2	4/28/78	20	GGGG	669

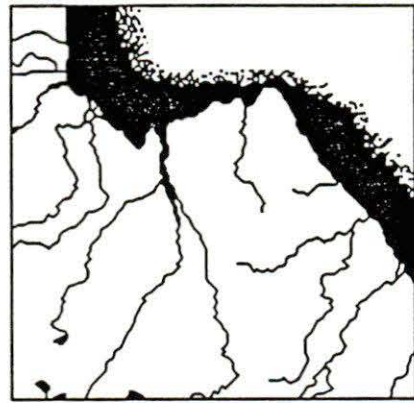


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	19	2	2/28/79	25	GGGG	670

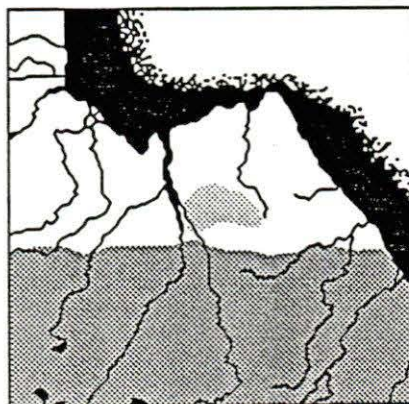


opaque  
transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	19	2	5/29/79	40	GGGF	671

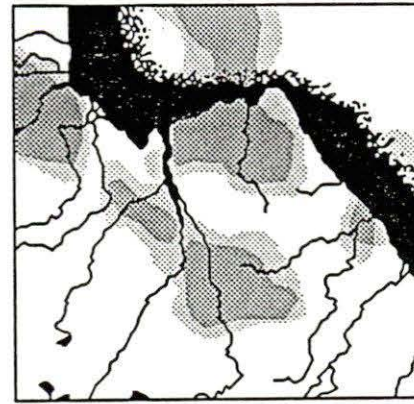


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	19	2	7/4/79	0	GGGG	672

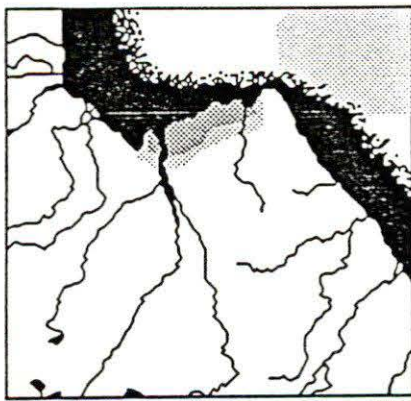




opaque  
transparent

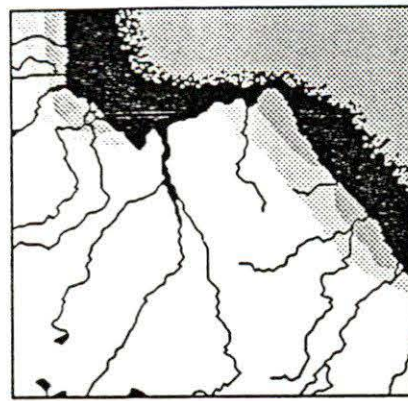
Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	19	2	7/22/79	40	GGGG	673



Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	19	2	7/16/80	35	GGGG	674

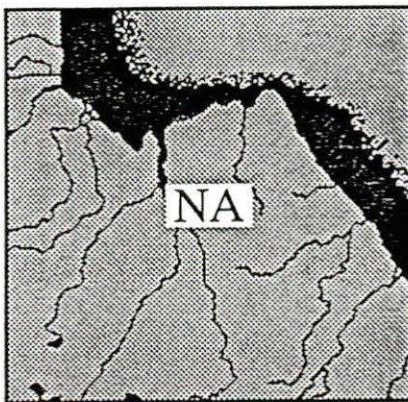




 opaque  
 transparent

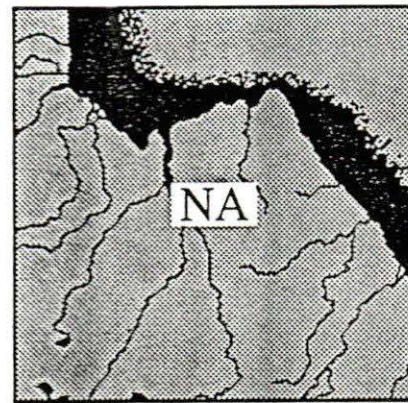


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	19	2	11/1/80	10	GGGG	675

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	19	2	11/19/80	40	GGGG	676

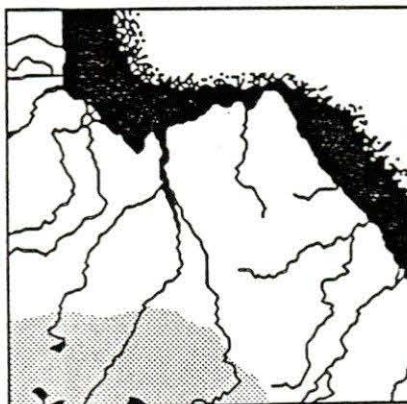




 opaque  
 transparent

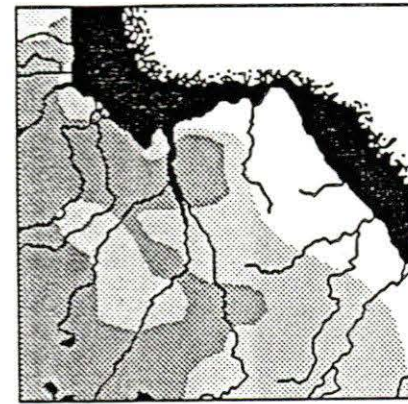


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	19	2	3/25/81	0	GGGG	677

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	19	2	4/30/81	0	GGGG	678

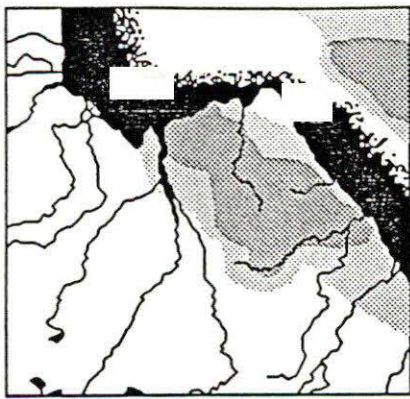


 opaque  
 transparent



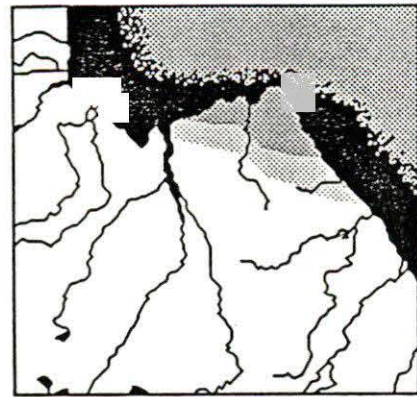
Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	19	2	6/23/81	3	GGGG	679

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	19	2	7/11/81	50	GGGG	680

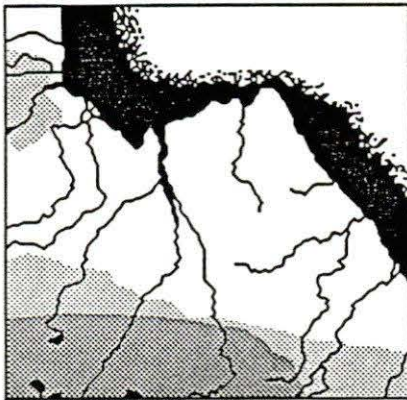


opaque  
transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	19	2	9/21/81	20	GGGG	681

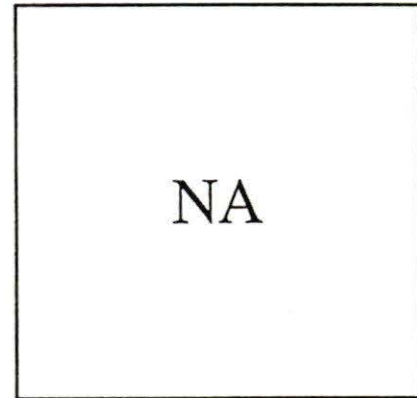


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	19	2	10/27/81	40	GGGG	682

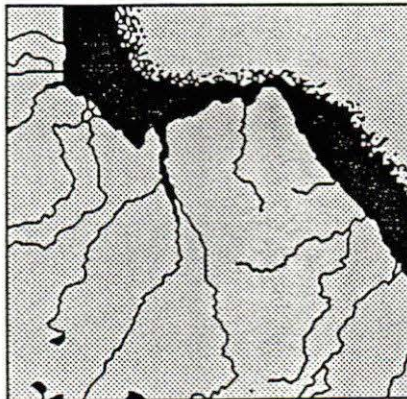


opaque  
transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	19	2	11/14/81	20	GGGG	683

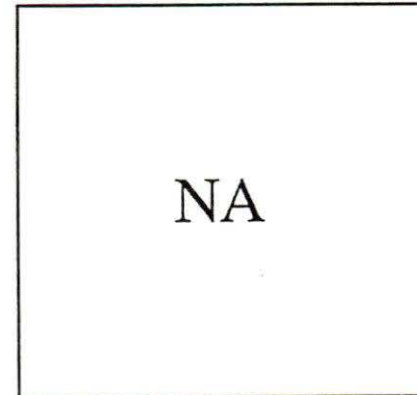


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	19	2	12/2/81	40	GGGG	684



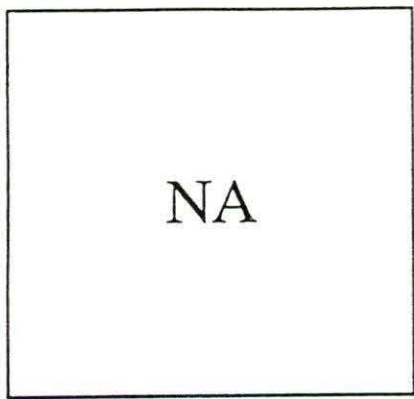
opaque  
transparent



Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	19	2	1/25/82	50	GGGG	685

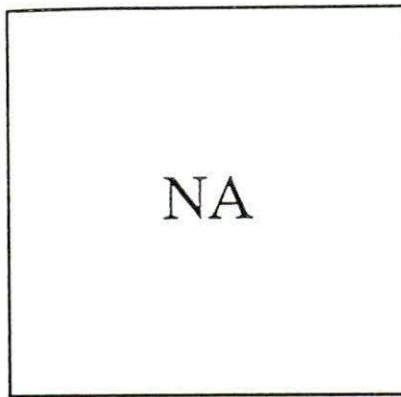


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	19	3	8/23/78	20	FFFF	686



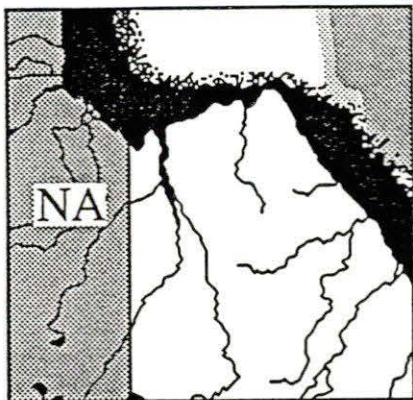




 opaque  
 transparent

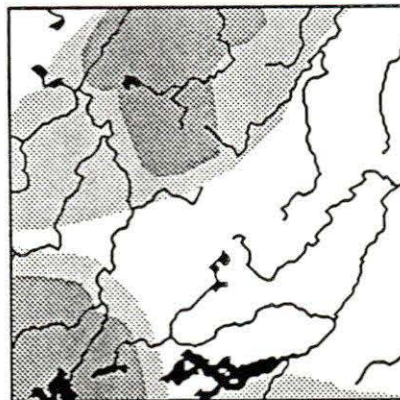


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	19	3	11/3/78	40	FFFF	687

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	19	3	3/27/79	25	FFFF	688

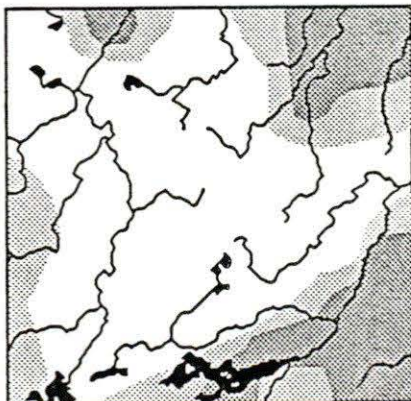




 opaque  
 transparent

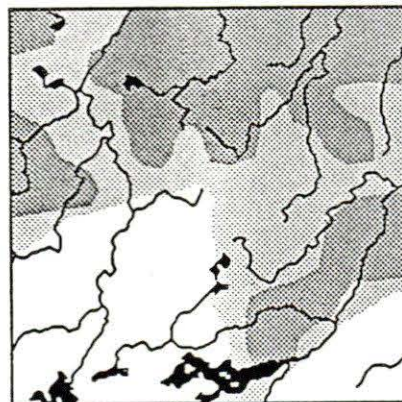


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	19	3	8/2/82	8	GGGG	689

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	20	1	8/18/72	40	**G*	690

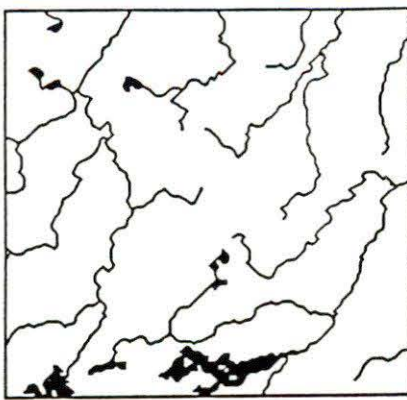




 opaque  
 transparent



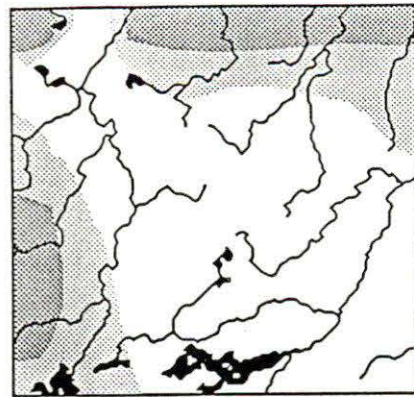
Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	20	1	10/29/72	35	GGGG	691

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	20	1	12/4/72	45	FFFF	692

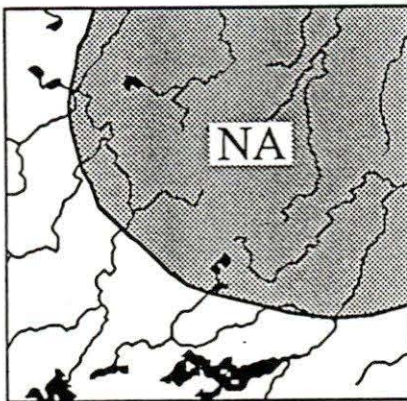




 opaque  
 transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	20	1	2/14/73	0	GGGG	693

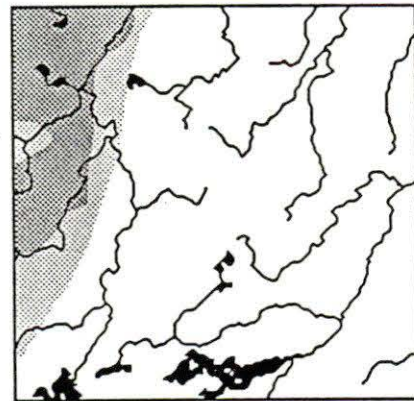


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	20	1	4/9/73	20	GGFG	694

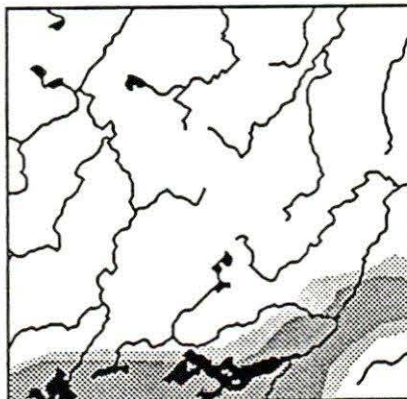




 opaque  
 transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	20	1	4/27/73	15	GGGP	695

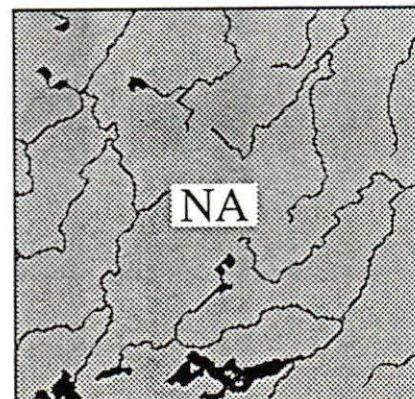


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	20	1	6/20/73	15	GGGG	696

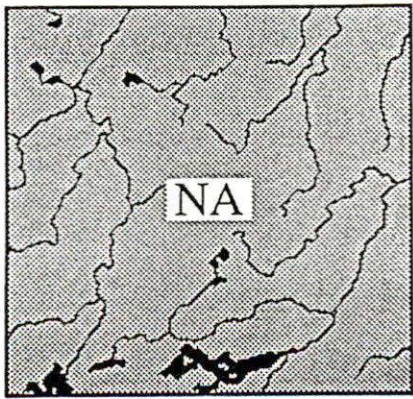


 opaque  
 transparent

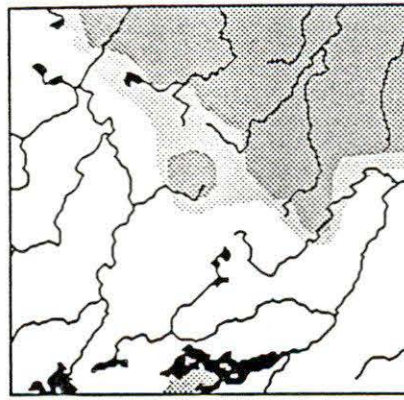
Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	20	1	2/27/74	20	GGGG	697



Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	20	1	4/4/74	30	*G*G	698

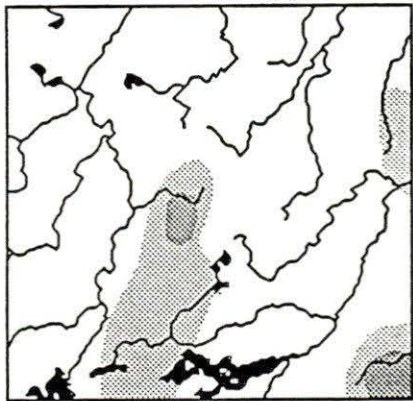


opaque  
transparent

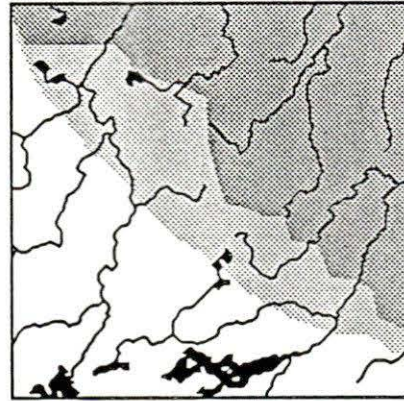


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	20	1	4/22/74	5	FGFF	699

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	20	1	5/10/74	40	GGGG	700

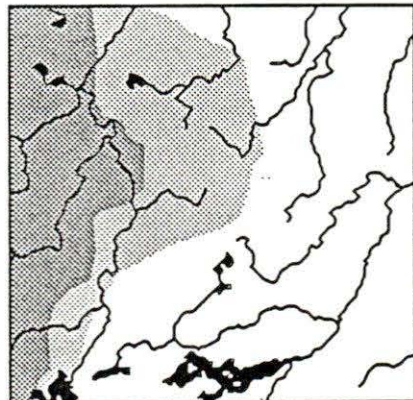


opaque  
transparent

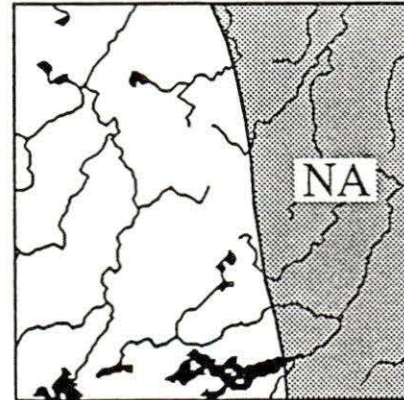


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	20	1	6/15/74	10	FGGE	701

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	20	1	7/3/74	50	GGEE	702

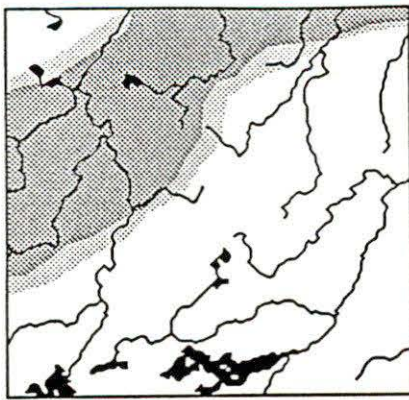




opaque  
transparent



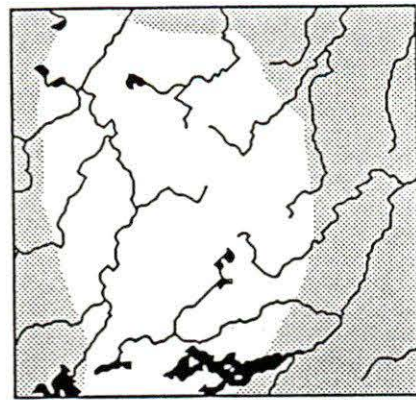
Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	20	1	7/21/74	20	GGGG	703

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	20	1	11/24/74	0	GGGG	704

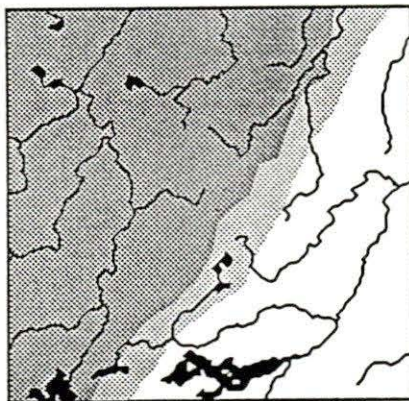




 opaque  
 transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	20	1	2/4/75	23	GGGG	705

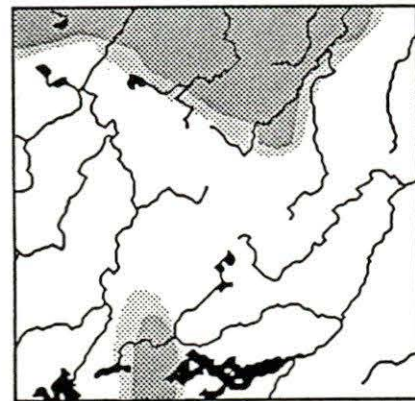


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	20	1	3/12/75	0	GGGG	706

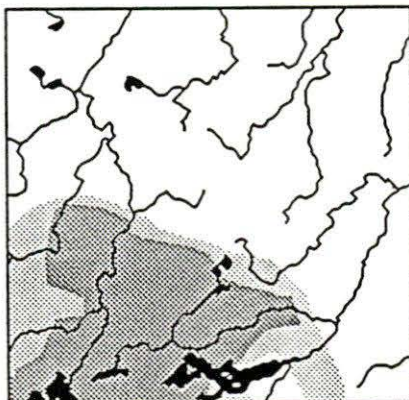




 opaque  
 transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	20	1	5/5/75	50	GGFG	707

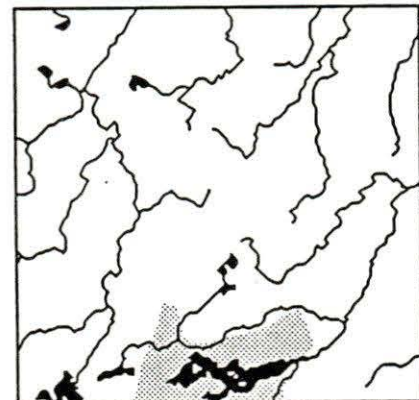


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	20	1	6/28/75	30	GGGF	708

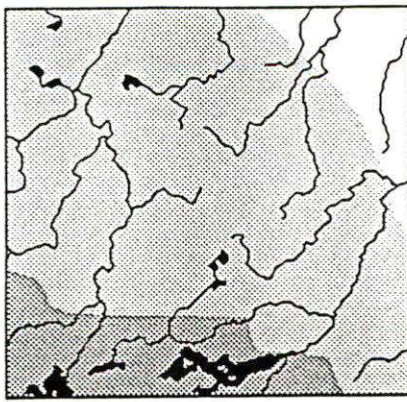


 opaque  
 transparent

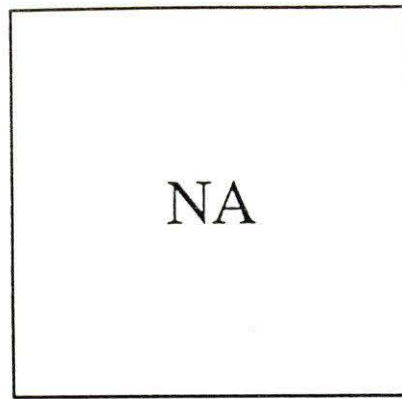
Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	20	1	8/21/75	35	FFFG	709



Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	20	1	9/8/75	5	GGGG	710

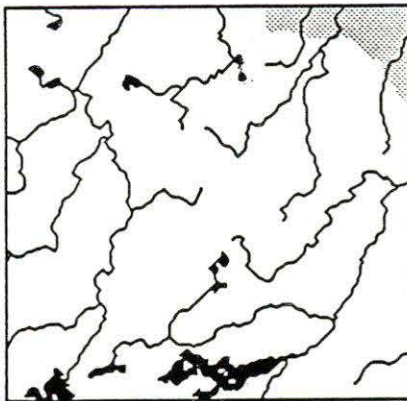


opaque  
transparent

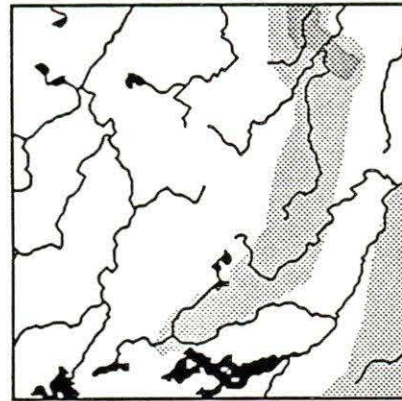


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	20	1	11/19/75	40	GGFG	711

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	20	1	3/24/76	20	PGGG	712

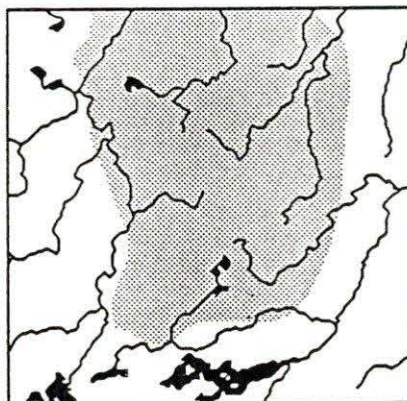


opaque  
transparent

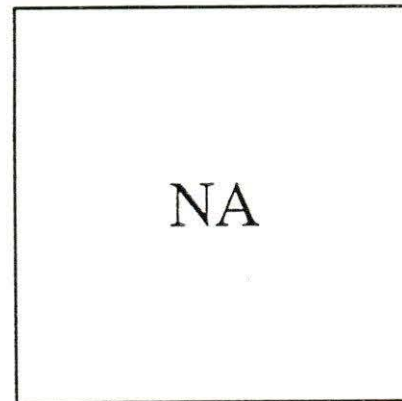


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	20	1	5/17/76	0	*GGG	713

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	20	1	6/22/76	5	GGGG	714

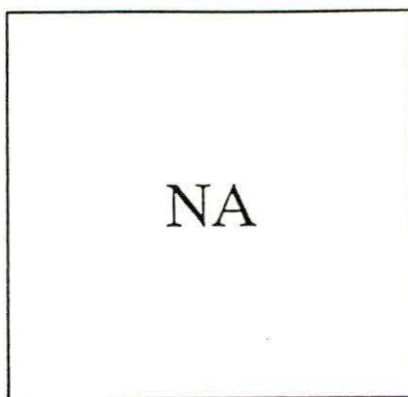


opaque  
transparent



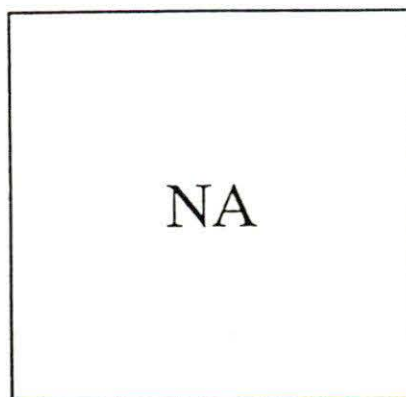
Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	20	1	8/15/76	3	FFG*	715

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	20	1	6/14/77	40	*GGG	716

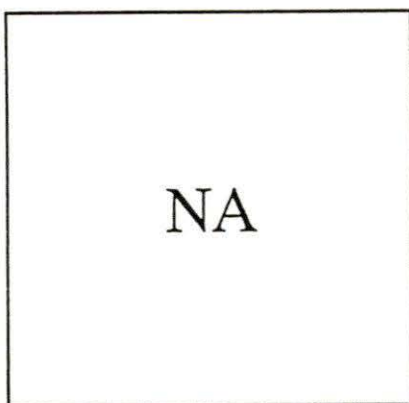


opaque  
transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	20	1	8/7/77	30	* GGG	717

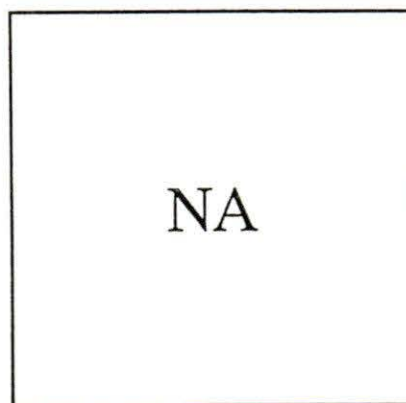


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	20	1	9/30/77	50	* GGG	718

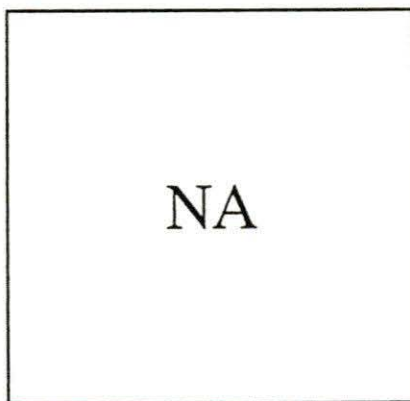


opaque  
transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	20	2	5/14/75	20	FGEE	719

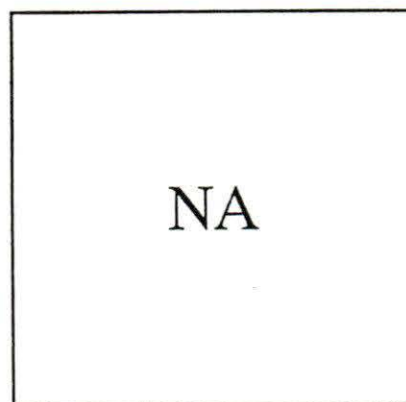


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	20	2	6/19/75	25	FGGG	720

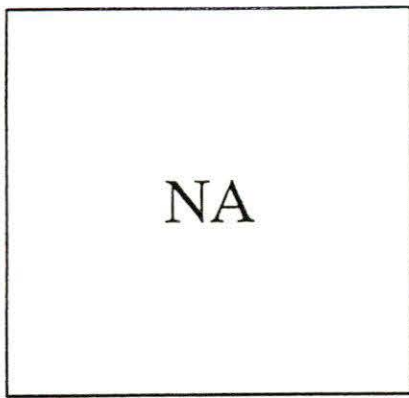


opaque  
transparent

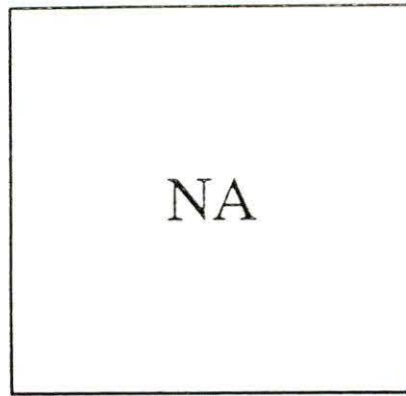
Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	20	2	8/12/75	45	FGGG	721



Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	20	2	8/30/75	20	GGGG	722

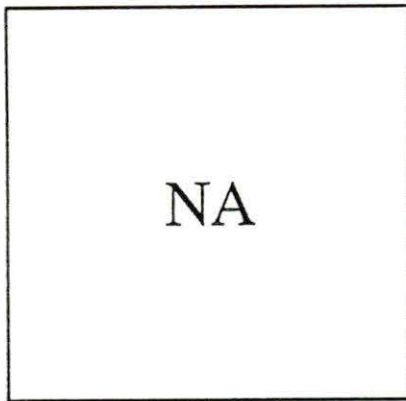


opaque  
transparent

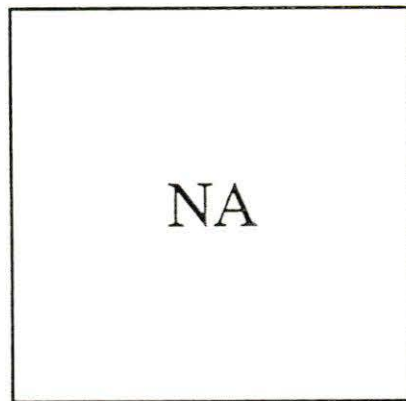


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	20	2	1/21/76	0	GGGF	723

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	20	2	3/15/76	0	GGGG	724

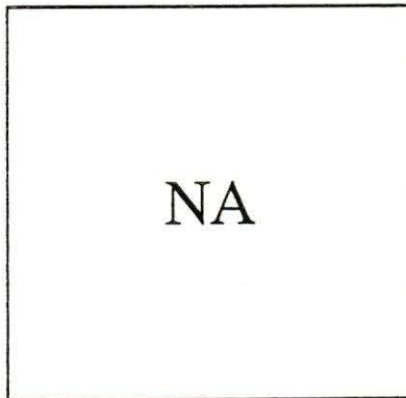


opaque  
transparent

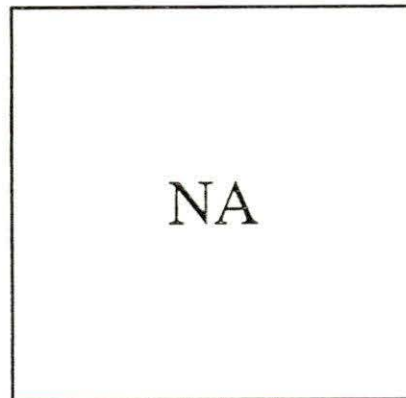


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	20	2	4/2/76	0	GGGP	725

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	20	2	5/8/76	15	GGGG	726

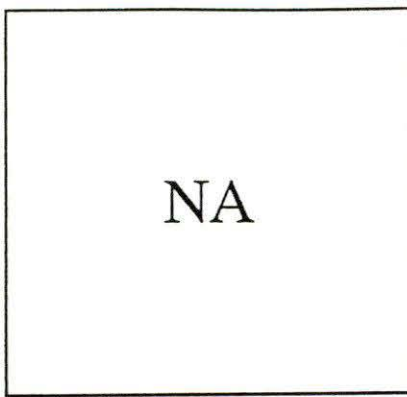




opaque  
transparent



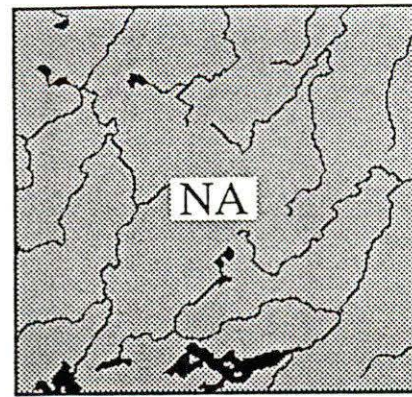
Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	20	2	7/1/76	25	GGGG	727

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	20	2	7/19/76	40	GGGG	728

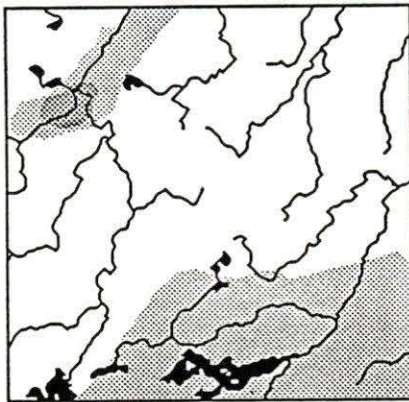




 opaque  
 transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	20	2	8/6/76	50	GGGG	729

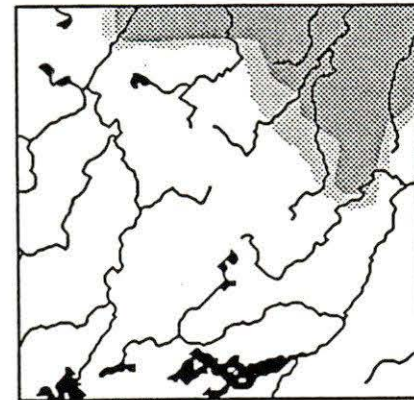


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	20	2	3/28/77	10	*G*G	730

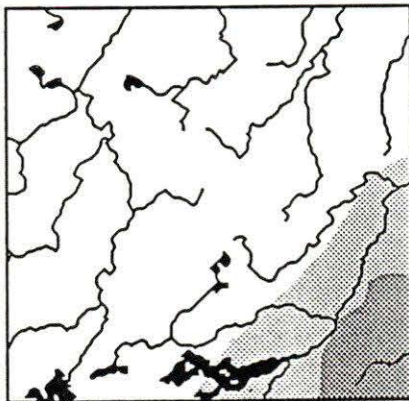


 opaque  
 transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	20	2	5/3/77	10	GGGG	731

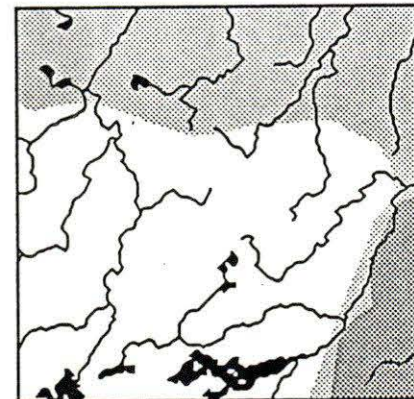


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	20	2	9/6/77	20	GGGG	732



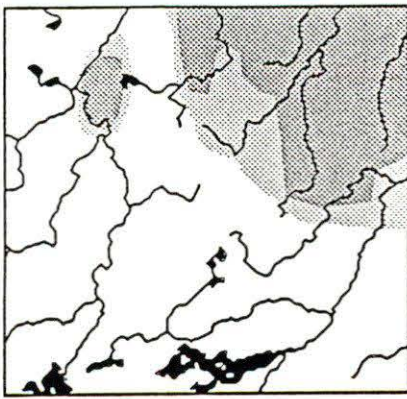
 opaque  
 transparent


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	20	2	1/28/78	5	GGGG	733



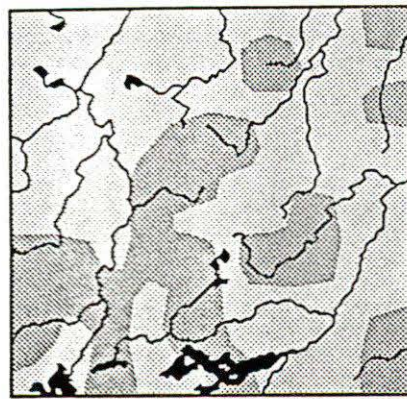
Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	20	2	4/28/78	25	GGGG	734



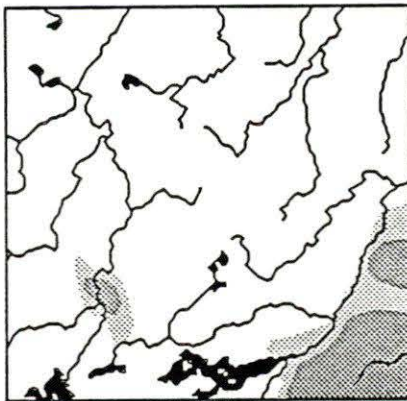



 opaque  
 transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	20	2	2/28/79	30	GGGG	735

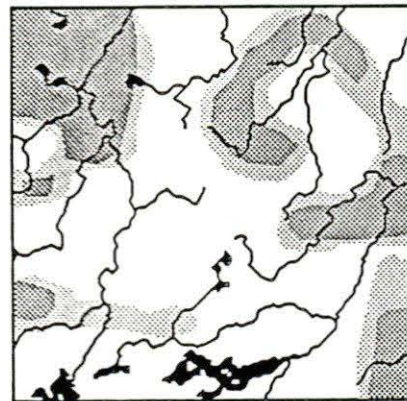


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	20	2	5/29/79	40	GGGG	736

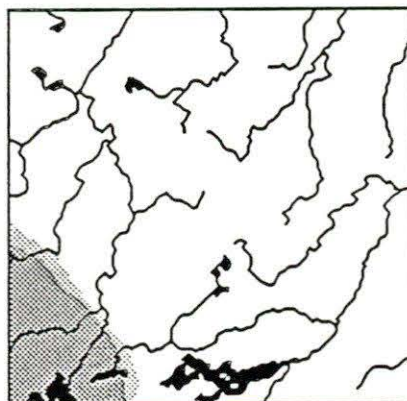


 opaque  
 transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	20	2	7/4/79	7	GGGG	737

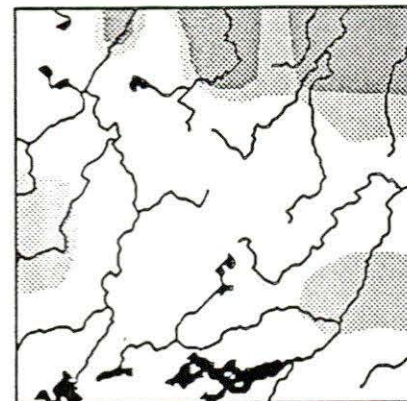


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	20	2	7/16/80	35	GGGG	738

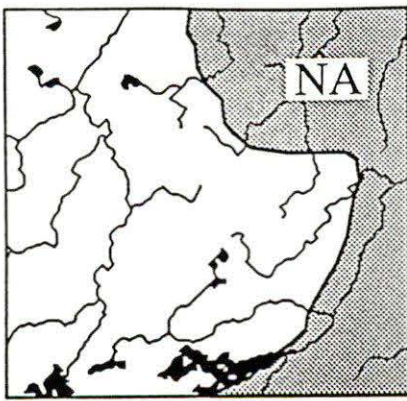




 opaque  
 transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	20	2	11/1/80	5	GGGG	739

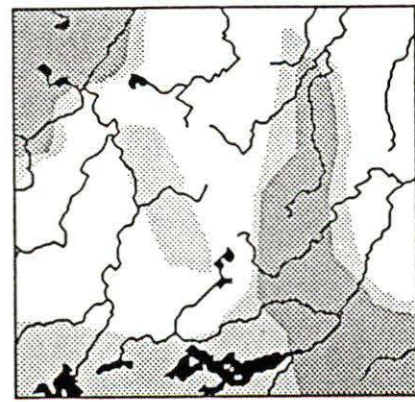


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	20	2	11/19/80	20	GGGG	740

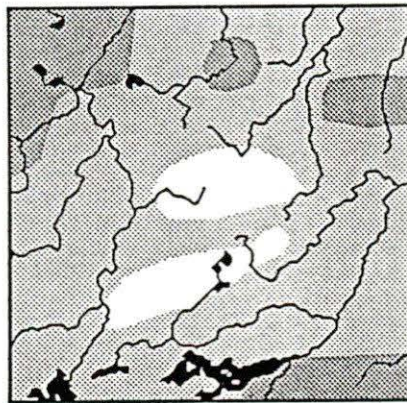


 opaque  
 transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	20	2	3/25/81	0	GGGG	741

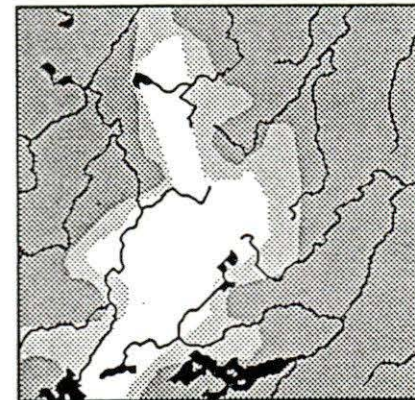


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	20	2	5/18/81	15	GGGG	742

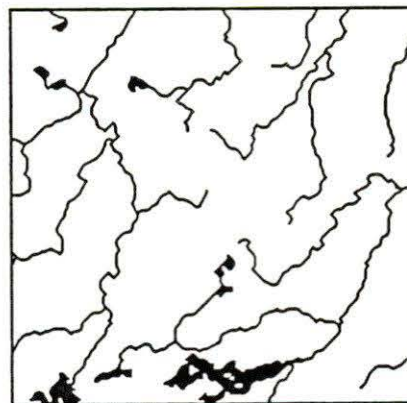




 opaque  
 transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	20	2	7/11/81	50	GGGG	743

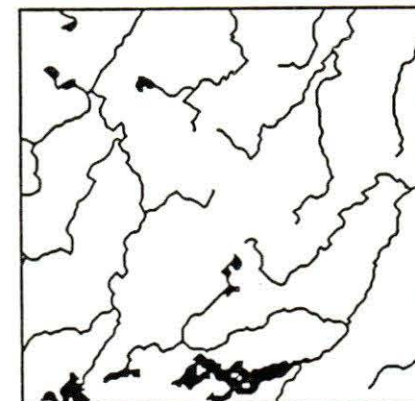


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	20	2	8/16/81	50	GGGG	744

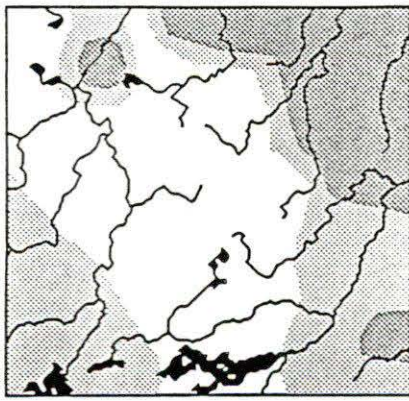


 opaque  
 transparent

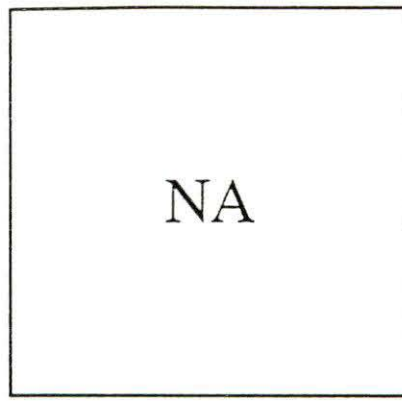
Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	20	2	9/21/81	0	GGGG	745



Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	20	2	10/27/81	0	GGGG	746

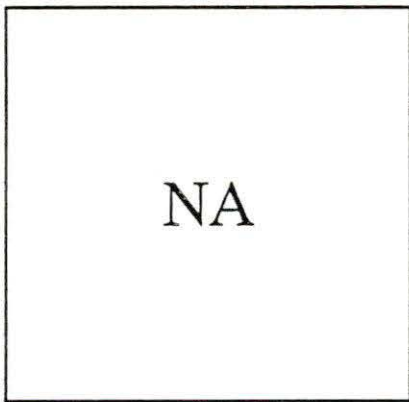


opaque  
transparent

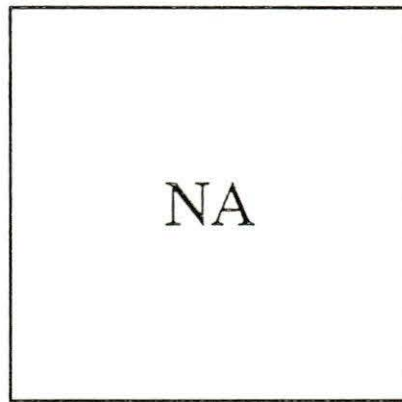


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	20	2	1/25/82	50	GGGG	747

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	20	3	8/23/78	25	FFFF	748

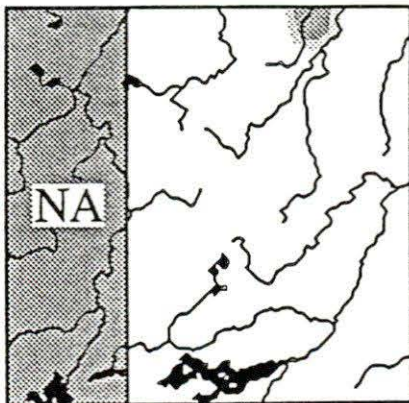


opaque  
transparent

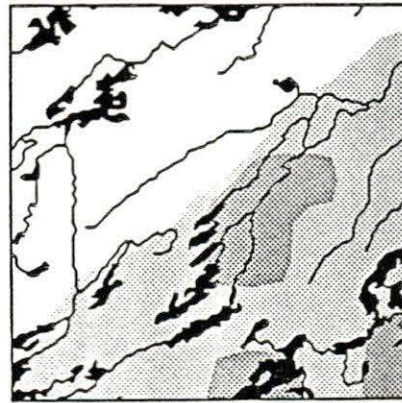


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	20	3	11/3/78	15	FFFF	749

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	20	3	3/27/79	40	FFFF	750

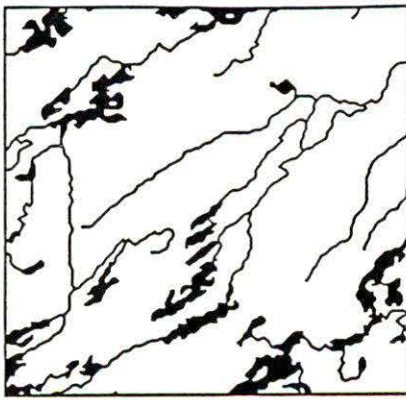




opaque  
transparent



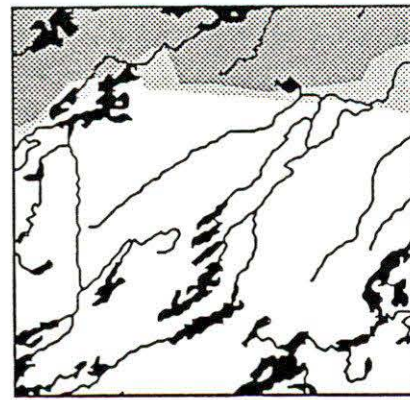
Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	20	3	8/2/82	1	GGGG	751

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	21	1	12/4/72	30	EEEE	752

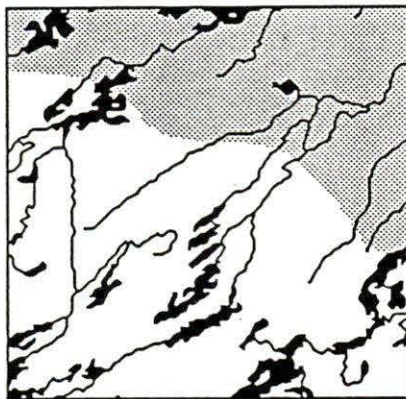




 opaque  
 transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	21	1	2/14/73	0	EEEE	753

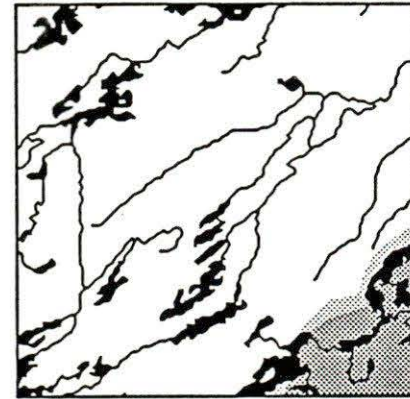


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	21	1	4/9/73	15	GGPG	754

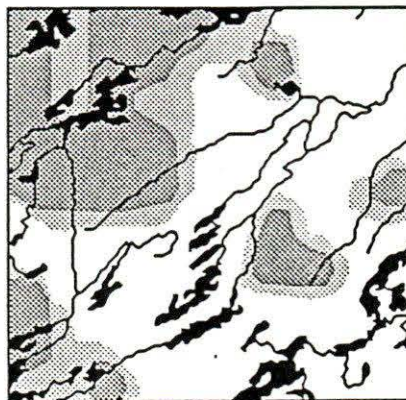




 opaque  
 transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	21	1	4/27/73	0	GGGG	755

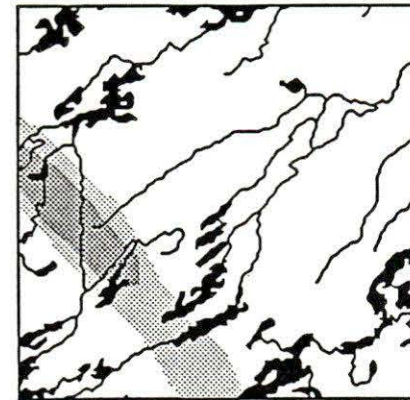


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	21	1	6/20/73	5	GGEE	756

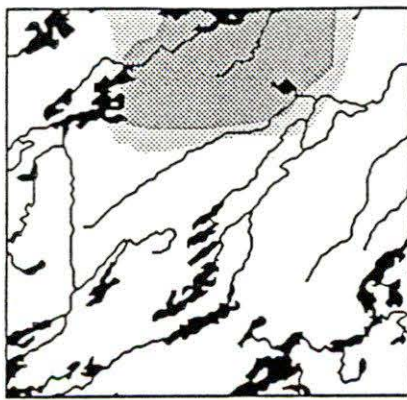


 opaque  
 transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	21	1	8/31/73	20	GEFE	757

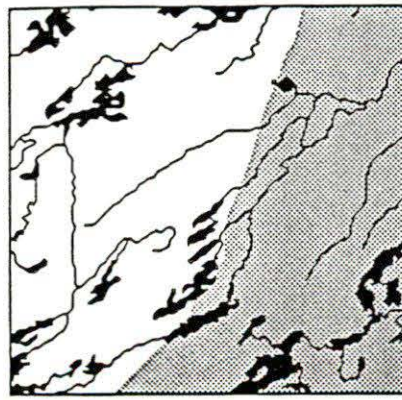


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	21	1	12/17/73	10	EEEE	758

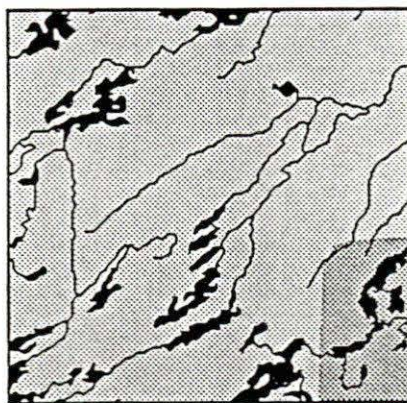


opaque  
transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	21	1	2/27/74	10	GGGG	759

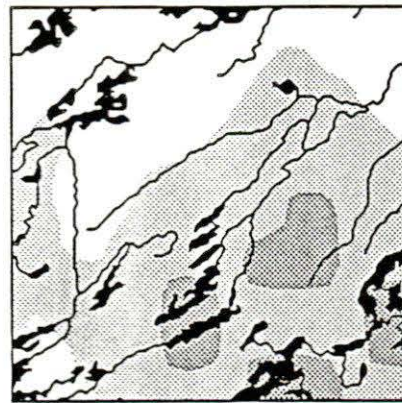


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	21	1	4/4/74	35	*FGG	760

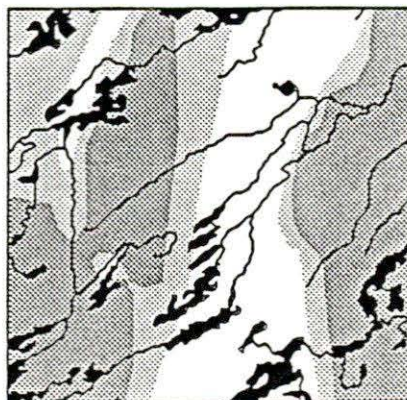


opaque  
transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	21	1	4/22/74	30	GGFF	761

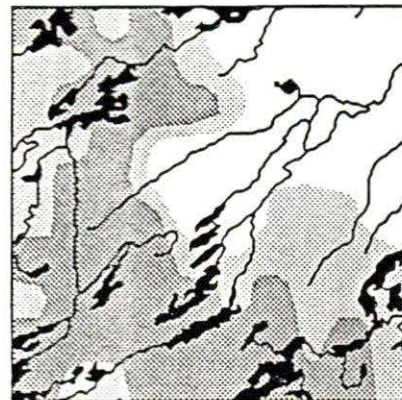


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	21	1	5/10/74	20	GGGG	762

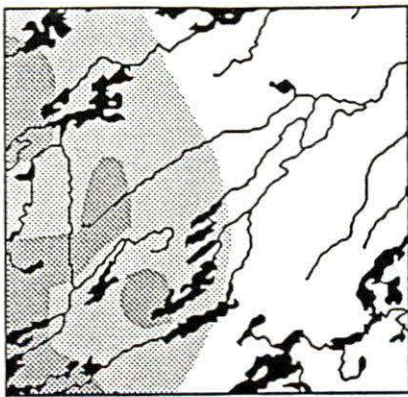




opaque  
transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	21	1	6/15/74	50	FGGE	763

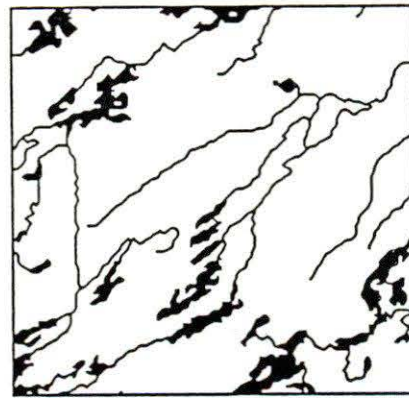


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	21	1	7/3/74	40	FGGG	764

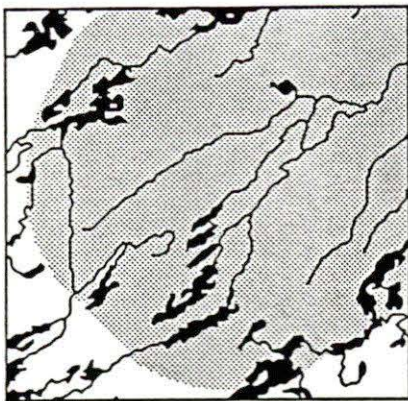




 opaque  
 transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	21	1	7/21/74	10	FGEG	765

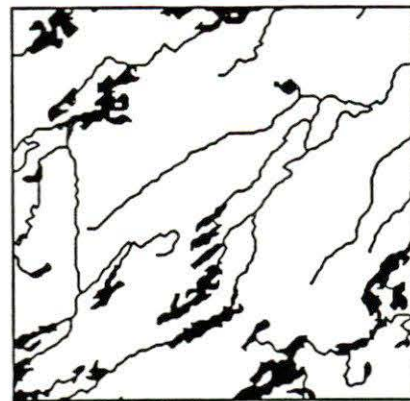


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	21	1	8/8/74	0	GGGG	766

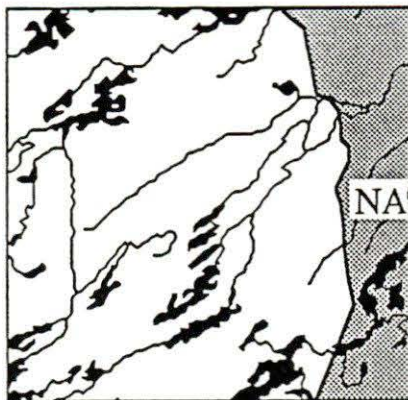




 opaque  
 transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	21	1	11/24/74	0	GGGG	767



Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	21	1	2/4/75	0	GGGG	768

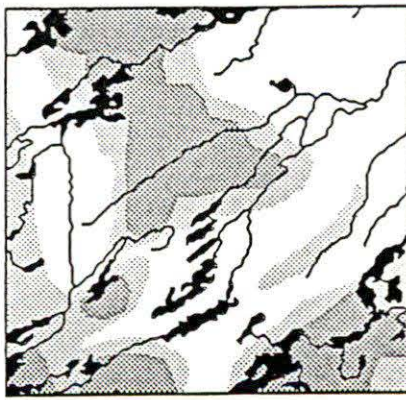




 opaque  
 transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	21	1	3/12/75	0	EEEE	769

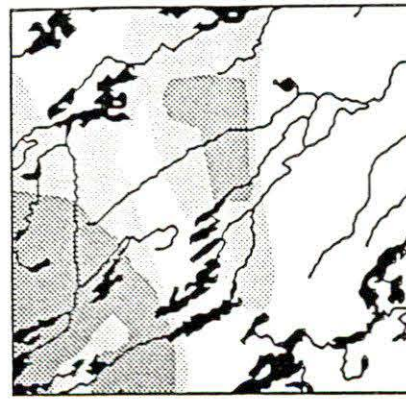


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	21	1	5/5/75	15	GGFG	770

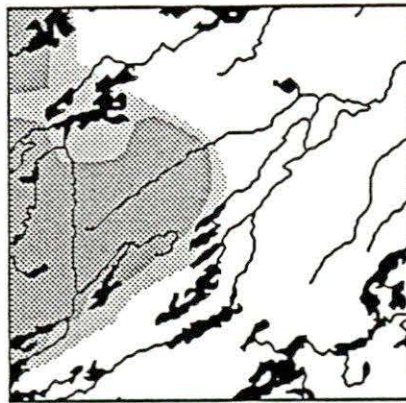




 opaque  
 transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	21	1	8/21/75	35	FGGG	771

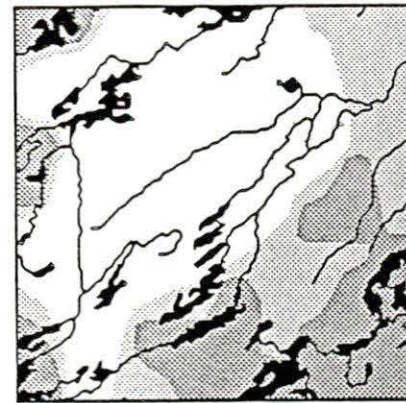


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	21	1	9/8/75	30	FGFG	772

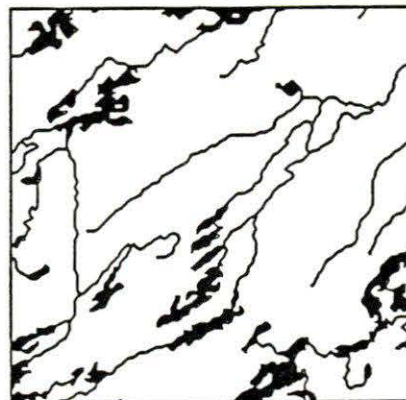




 opaque  
 transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	21	1	2/17/76	20	PGGG	773

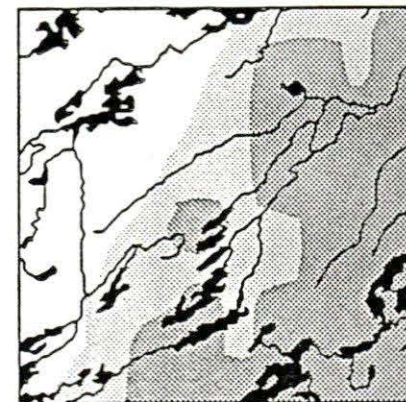


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	21	1	3/24/76	20	PGGG	774

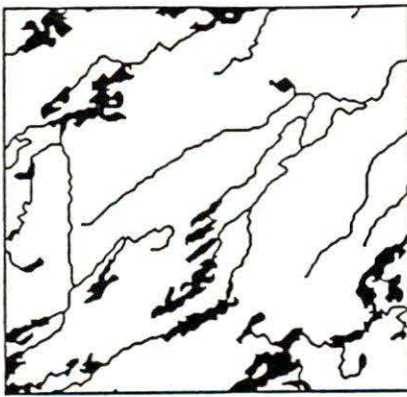




 opaque  
 transparent

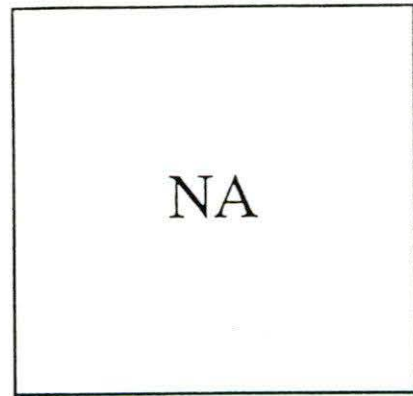
Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	21	1	5/17/76	0	GGGG	775



Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	21	1	6/22/76	50	GGGG	776

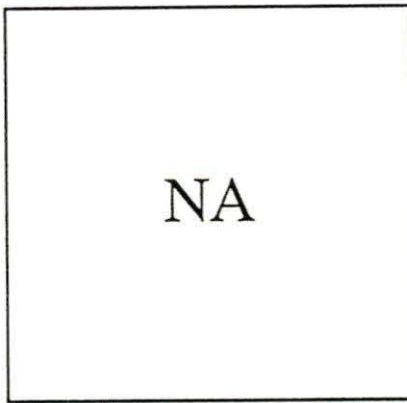




 opaque  
 transparent

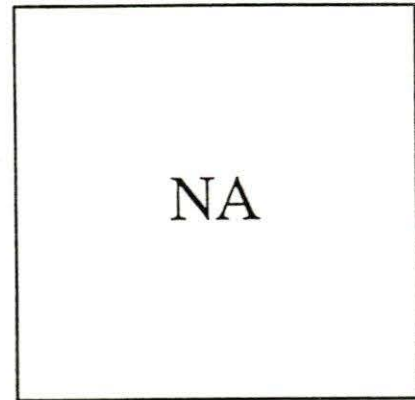


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	21	1	8/15/76	2	GGG*	777

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	21	1	6/14/77	40	*GGG	778

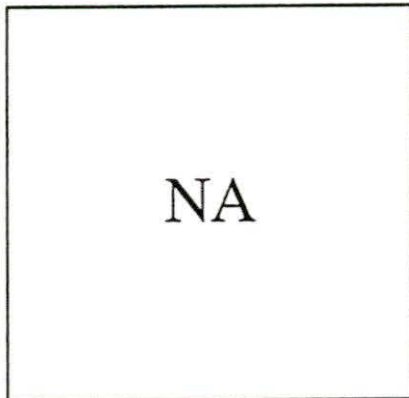




 opaque  
 transparent

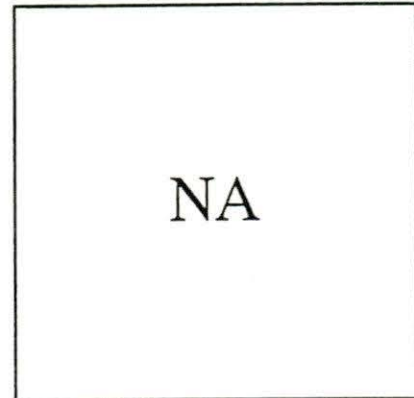


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	21	1	8/7/77	30	*GGG	779

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	21	1	9/12/77	10	*GGG	780



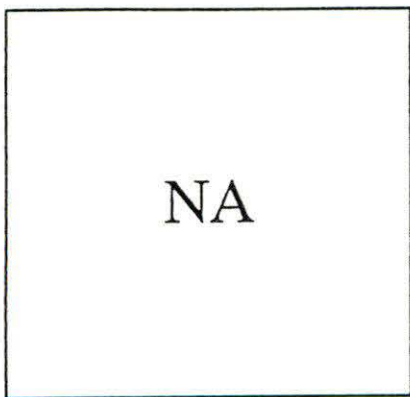
 opaque  
 transparent



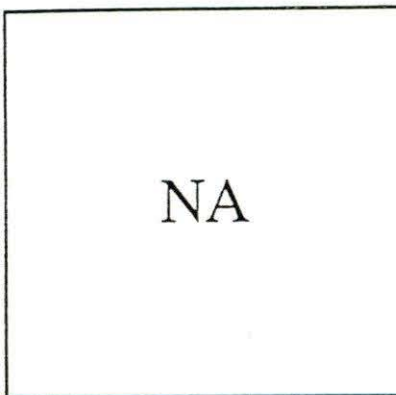
Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	21	1	9/30/77	15	*GGG	781

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	21	2	4/26/75	5	GGGG	782



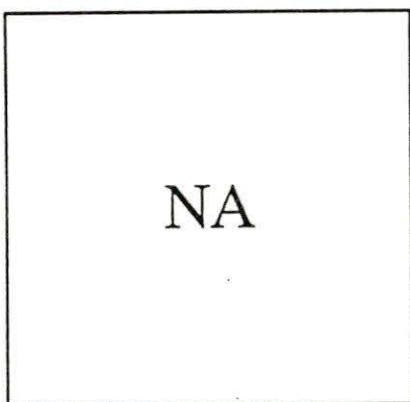


opaque  
transparent

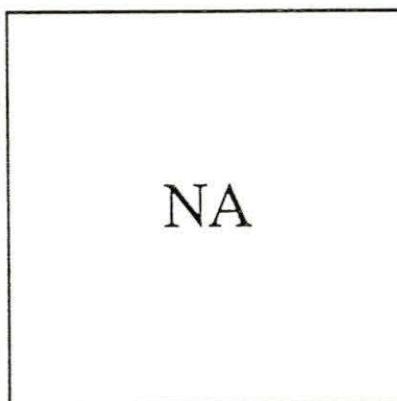


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	21	2	5/14/75	5	GGFG	783

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	21	2	12/16/75	0	GGGG	784

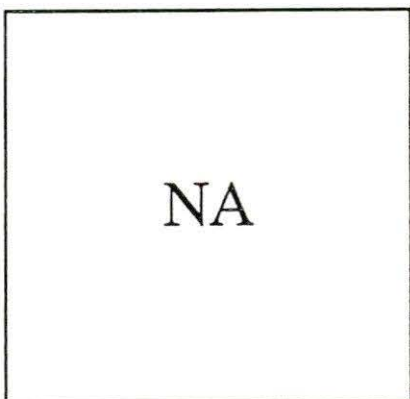


opaque  
transparent

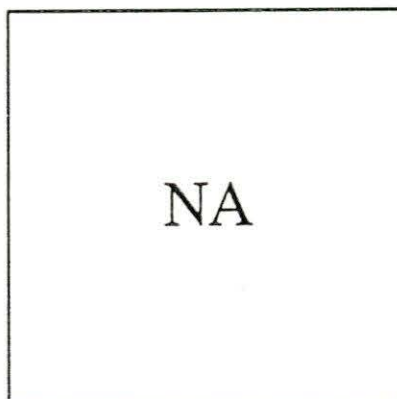


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	21	2	1/21/76	0	GFGF	785

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	21	2	2/26/76	0	GGGG	786

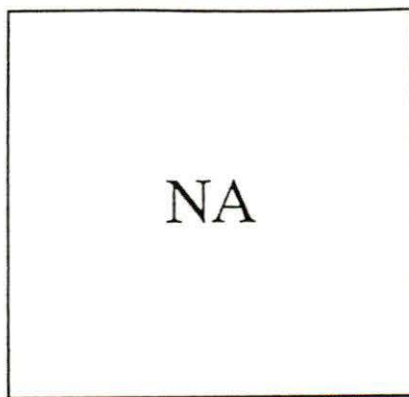




opaque  
transparent



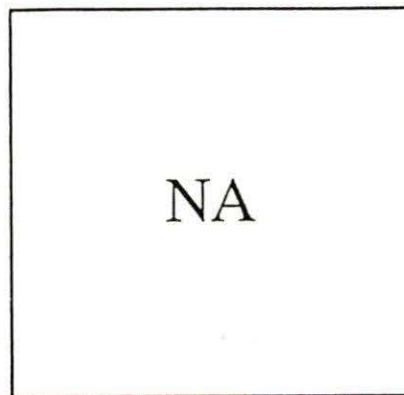
Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	21	2	3/15/76	35	GGGG	787

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	21	2	4/2/76	0	GGGG	788

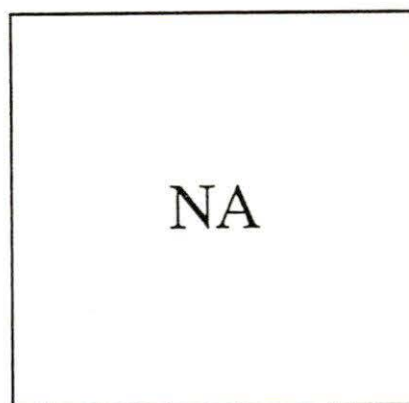




 opaque  
 transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	21	2	5/8/76	5	GGGG	789

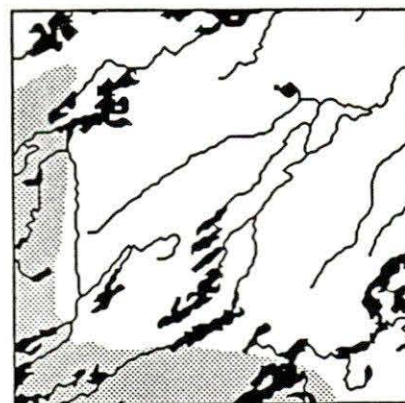


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	21	2	7/19/76	10	GG*G	790





 opaque  
 transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	21	2	8/6/76	30	GGGG	791

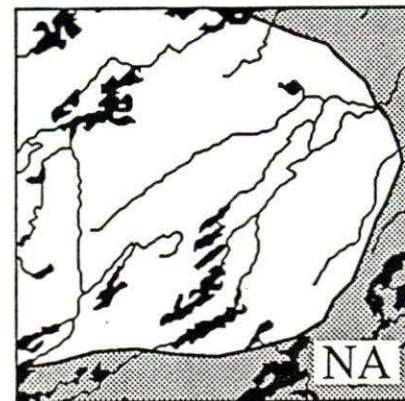


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	21	2	12/10/76	0	GGGG	792

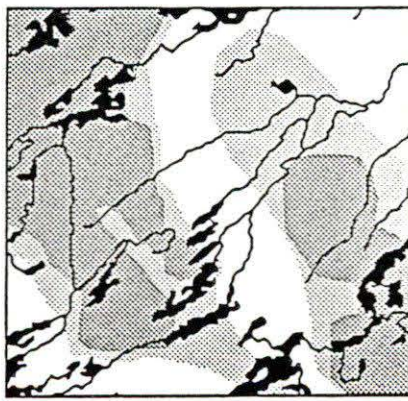


 opaque  
 transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	21	2	2/2/77	50	GGGG	793

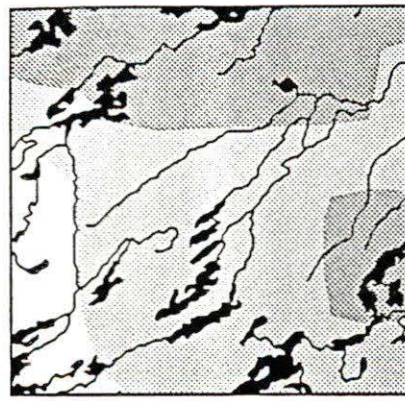


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	21	2	3/28/77	0	FG*G	794

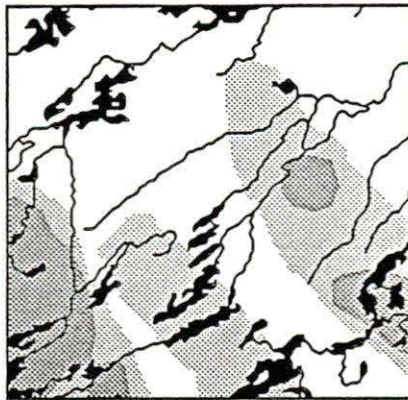


opaque  
transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	21	2	6/8/77	50	*GGG	795

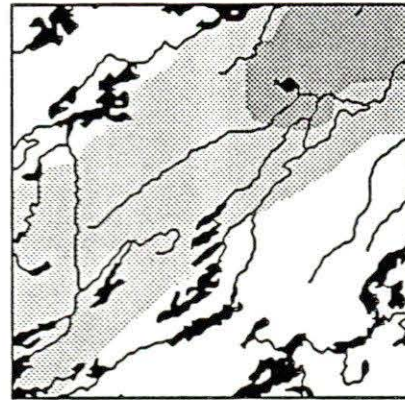


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	21	2	6/26/77	40	FGFG	796

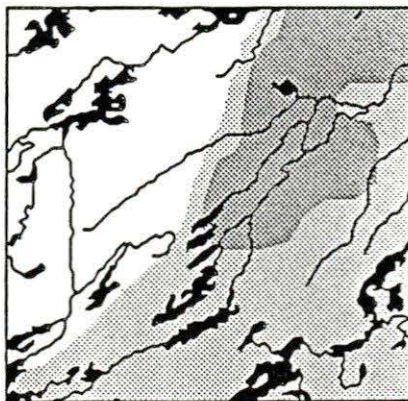


opaque  
transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	21	2	9/6/77	10	GGGG	797

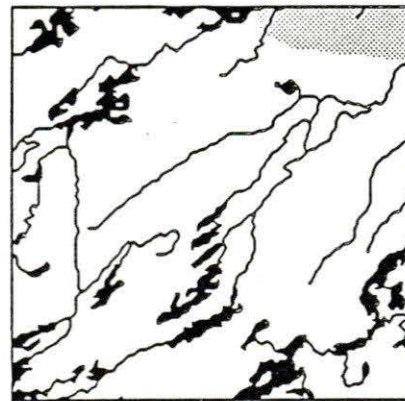


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	21	2	1/28/78	15	GGGF	798

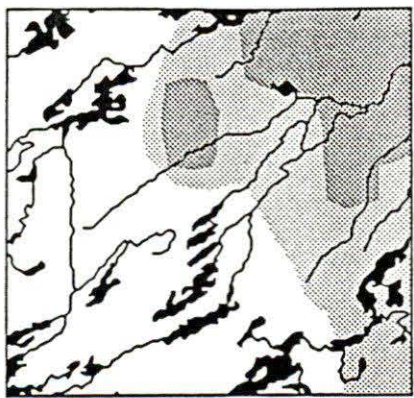




opaque  
transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	21	2	4/28/78	15	GGGG	799

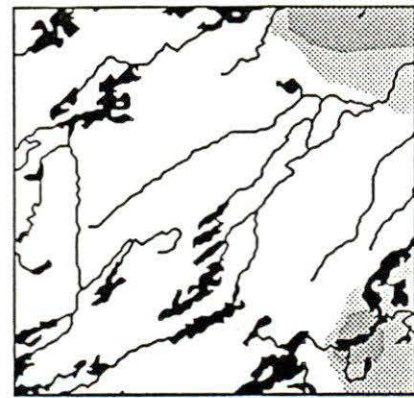


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	21	2	11/12/78	1	FFFF	800

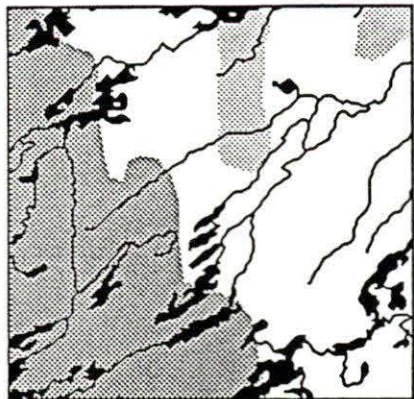




 opaque  
 transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	21	2	11/30/78	35	FFFF	801

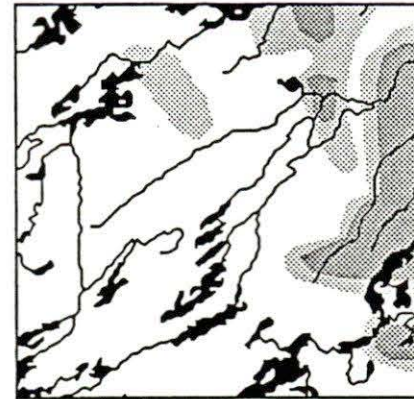


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	21	2	2/28/79	5	GGGG	802

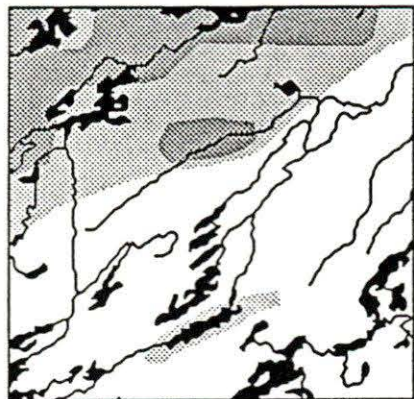


 opaque  
 transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	21	2	5/29/79	35	GGGG	803

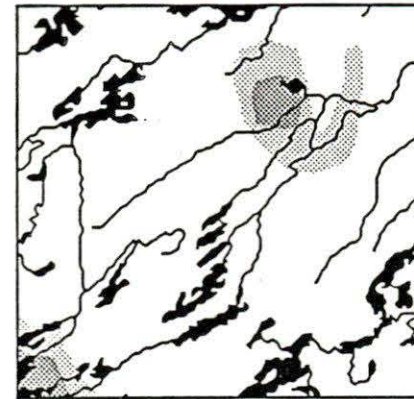


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	21	2	7/4/79	15	FFFF	804

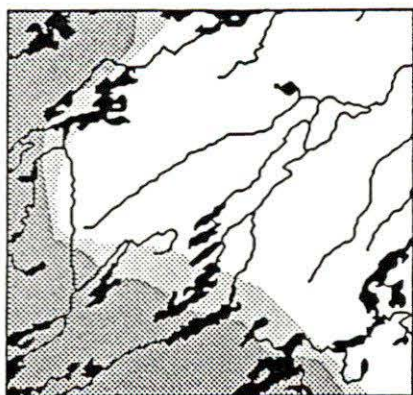


 opaque  
 transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	21	2	6/28/80	35	GGGG	805

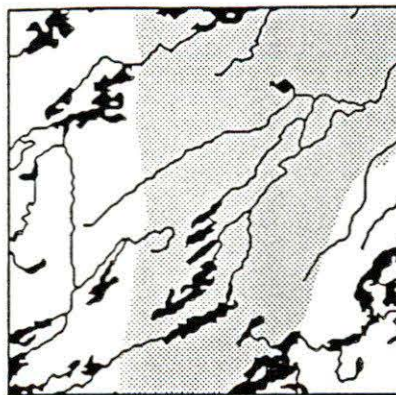


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	21	2	7/16/80	2	GFGG	806

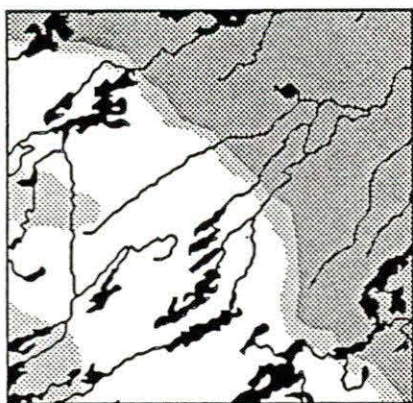


opaque  
transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	21	2	11/1/80	20	GGGG	807

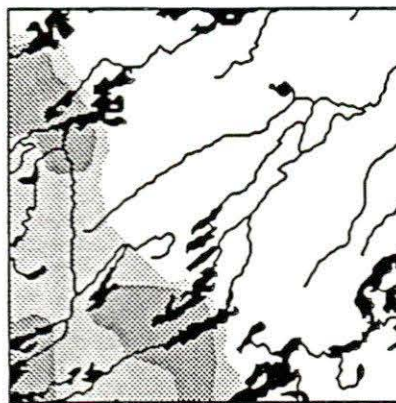


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	21	2	3/25/81	0	GGGG	808

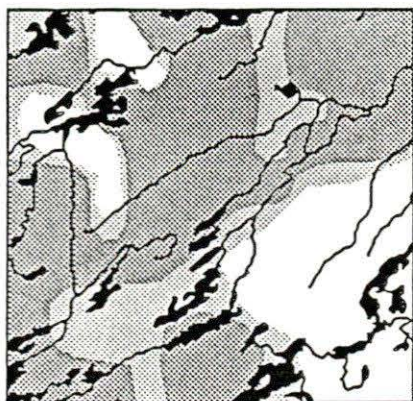


opaque  
transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	21	2	4/30/81	50	GGGG	809

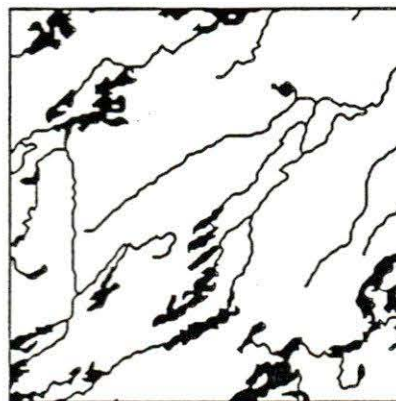


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	21	2	5/18/81	10	GGGG	810

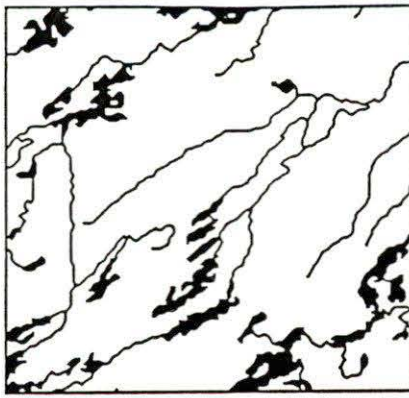




opaque  
transparent

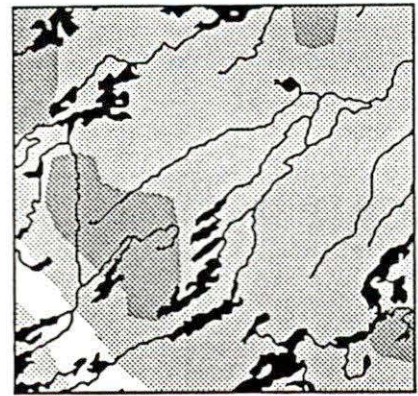
Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	21	2	8/16/81	50	GGGG	811



Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	21	2	9/21/81	0	GGGG	812

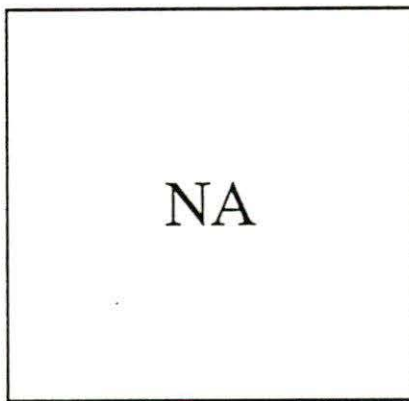




 opaque  
 transparent

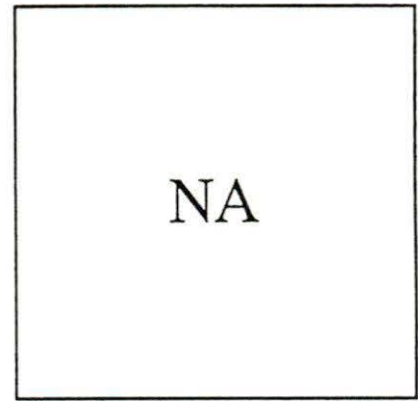


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	21	2	10/27/81	0	GGGG	813

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	21	2	1/25/82	30	GGGG	814

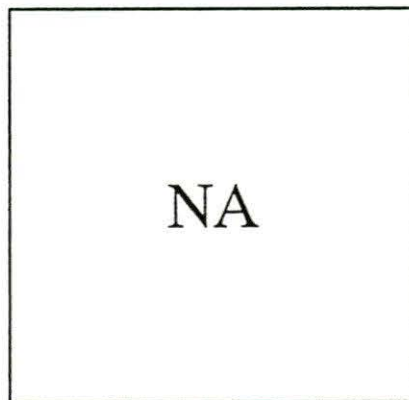




 opaque  
 transparent

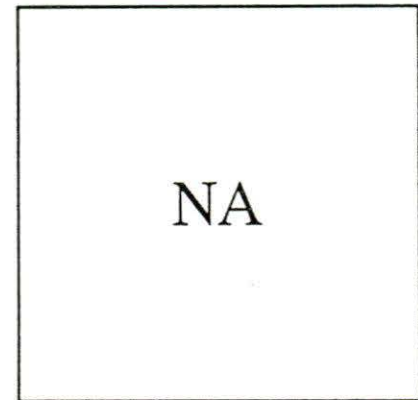


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	21	3	8/23/78	40	FFFF	815

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	21	3	11/3/78	0	FFFF	816

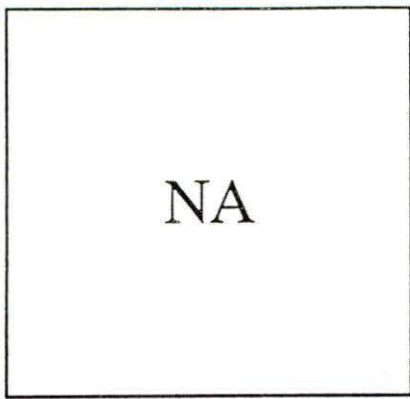




 opaque  
 transparent

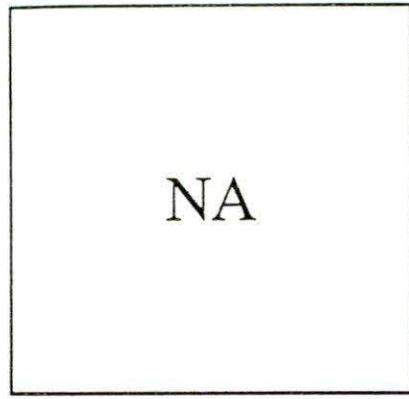


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	21	3	1/14/79	20	FFFF	817

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	21	3	3/27/79	25	GGGG	818

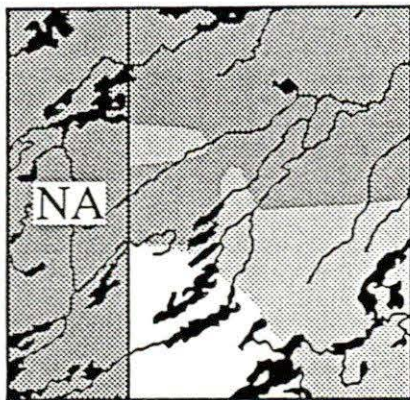




 opaque  
 transparent

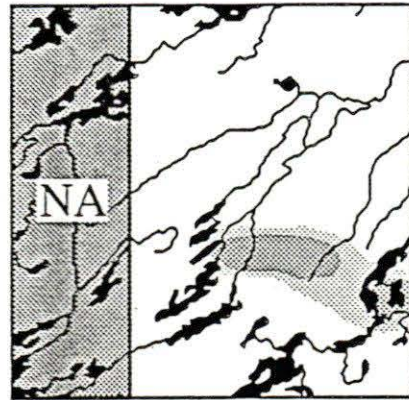


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	21	3	11/16/79	20	GGGG	819

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	21	3	12/4/79	20	GGGG	820

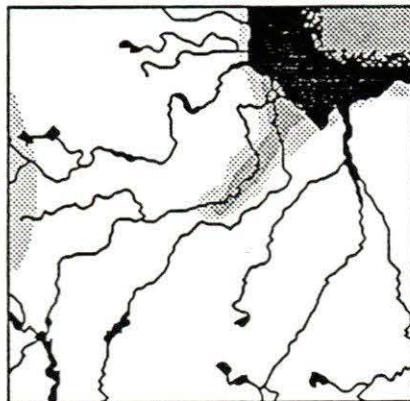




 opaque  
 transparent

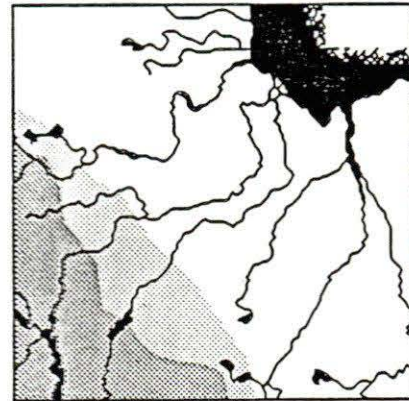


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	21	3	6/27/82	40	GGGG	821

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
34	21	3	8/2/82	5	GGGG	822

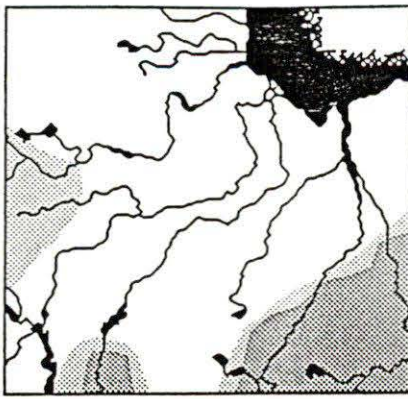




 opaque  
 transparent

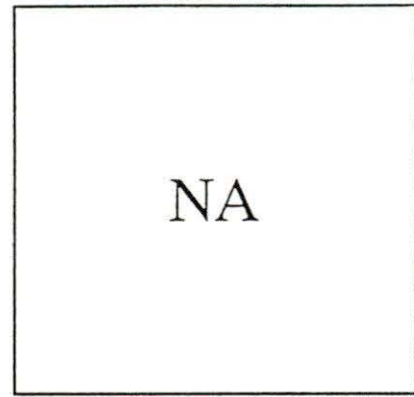


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	19	1	9/24/72	10	GPGP	823

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	19	1	10/12/72	15	G*PP	824

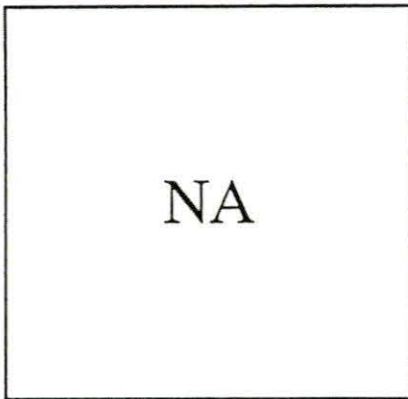




 opaque  
 transparent

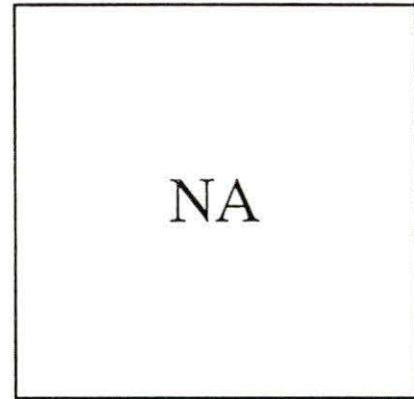


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	19	1	10/30/72	20	GPGP	825

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	19	1	4/28/73	25	FFGG	826

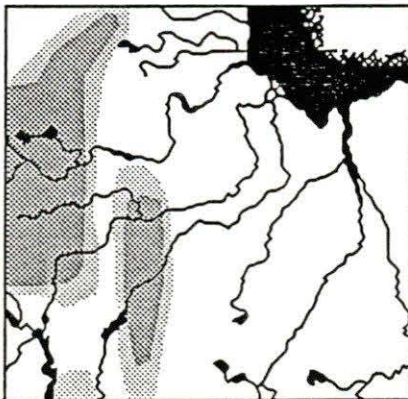




 opaque  
 transparent

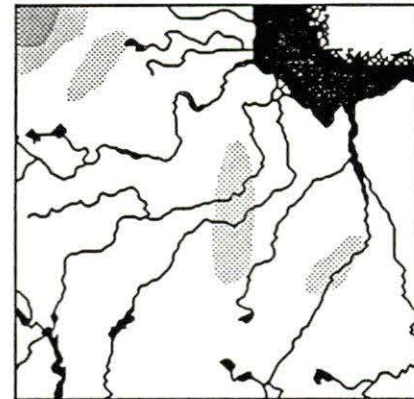


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	19	1	5/16/73	10	GGGG	827

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	19	1	7/9/73	50	EGEE	828



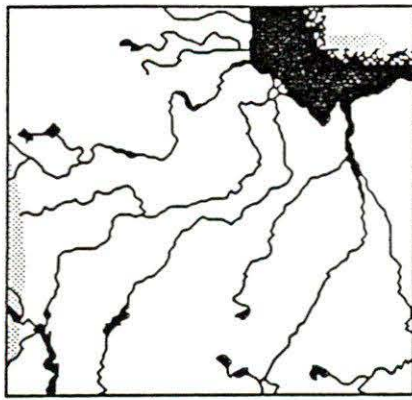
 opaque  
 transparent



Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	19	1	7/27/73	20	PPPF	829

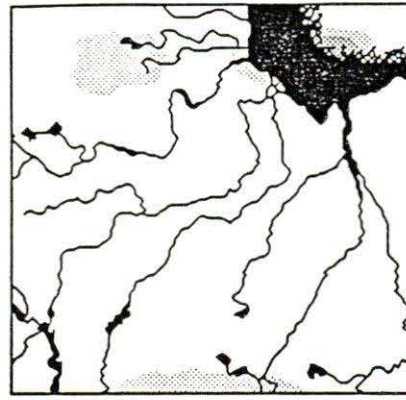
Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	19	1	8/14/73	5	GFFG	830



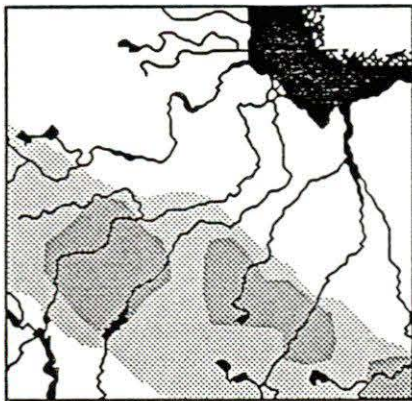


opaque  
transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	19	1	2/10/74	1	GGGG	831

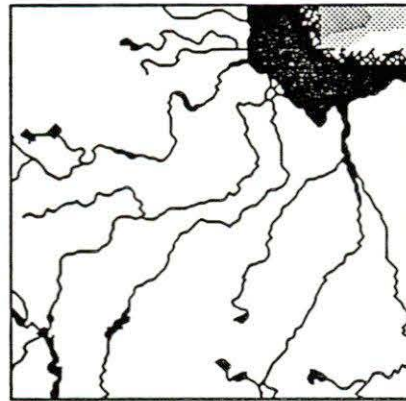


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	19	1	2/28/74	5	GGGG	832

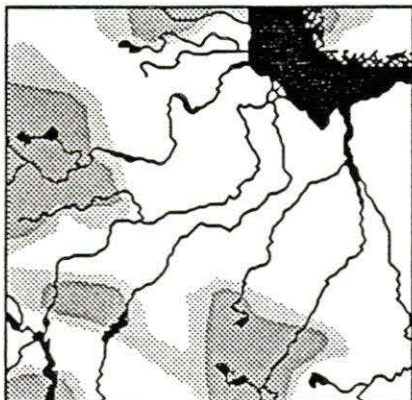


opaque  
transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	19	1	5/29/74	20	FGEE	833

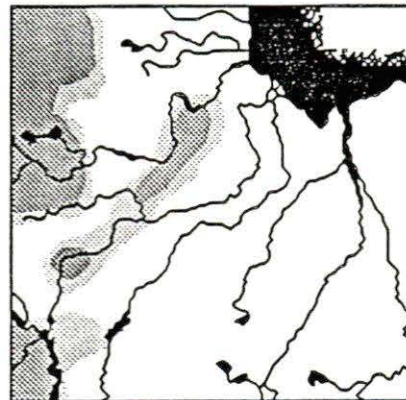


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	19	1	6/16/74	0	FGPE	834

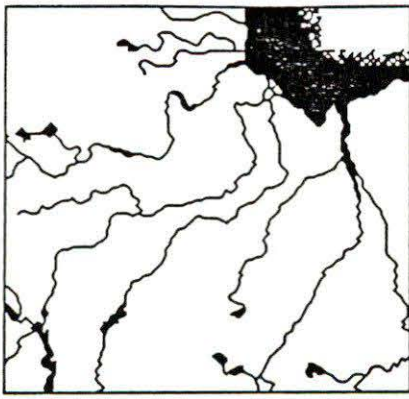


opaque  
transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	19	1	7/4/74	15	FGFG	835

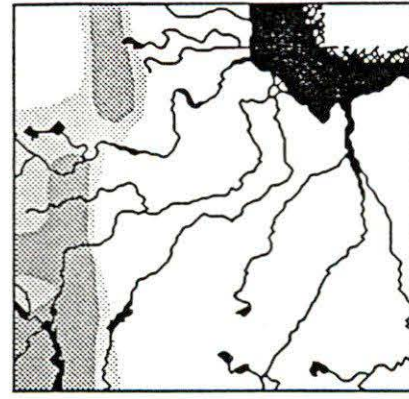


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	19	1	8/9/74	25	GEEE	836

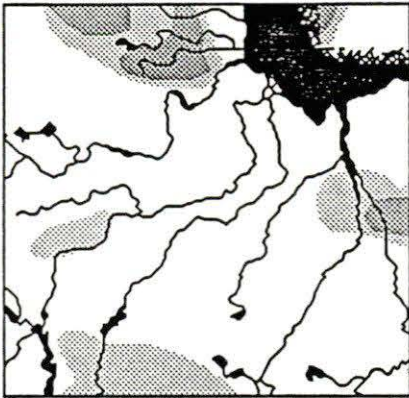


opaque  
transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	19	1	11/25/74	5	GGGG	837

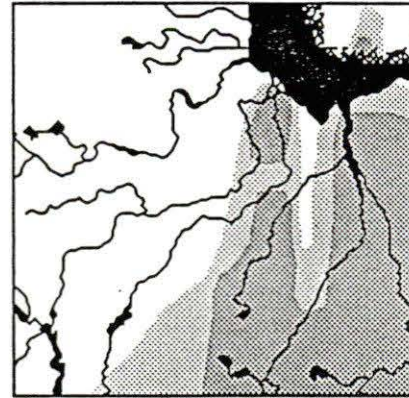


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	19	1	5/6/75	5	EEGE	838

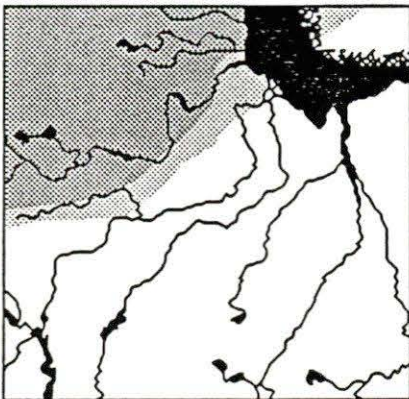


opaque  
transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	19	1	6/29/75	5	FFPF	839

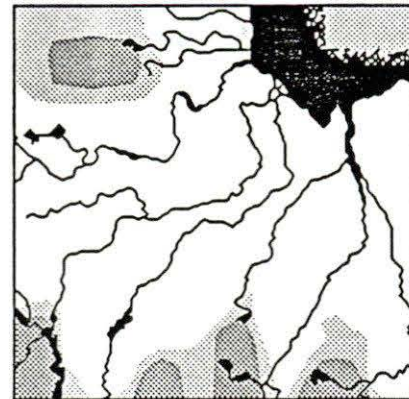


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	19	1	9/9/75	35	GGGG	840

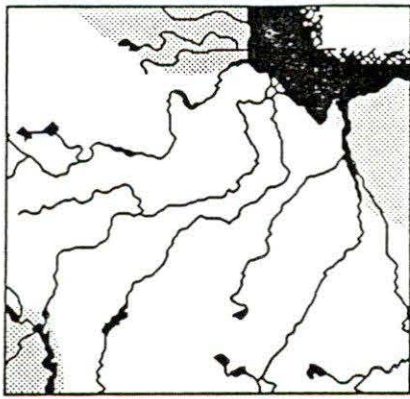


opaque  
transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	19	1	11/2/75	20	GGGG	841

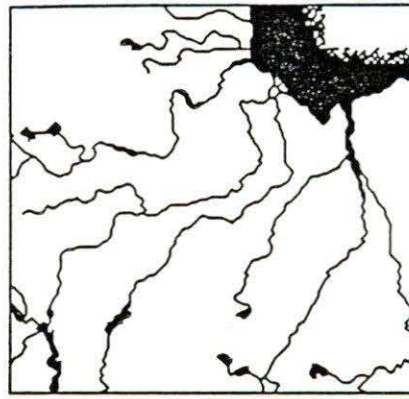


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	19	1	3/7/76	15	GGFG	842

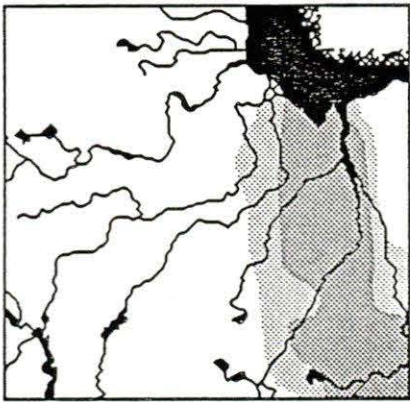


opaque  
transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	19	1	3/25/76	5	FGGG	843

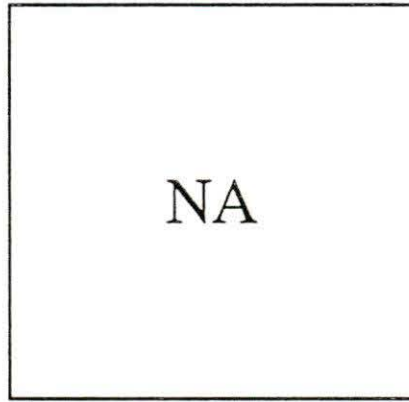


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	19	1	7/11/76	0	FGFG	844

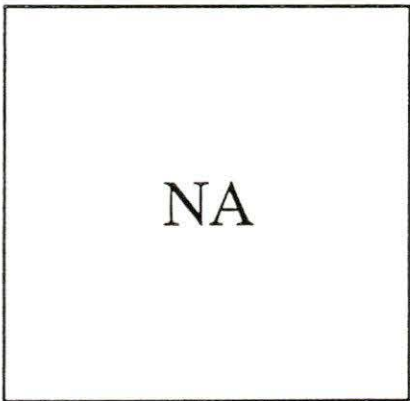


opaque  
transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	19	1	7/29/76	15	GGGG	845

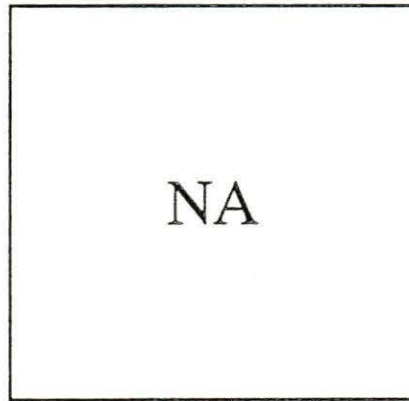


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	19	1	7/21/77	20	*GFG	846

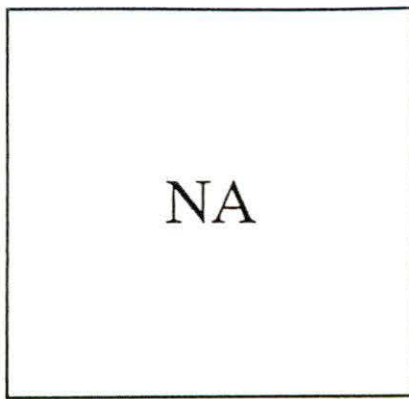


opaque  
transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	19	1	8/8/77	25	*FFF	847

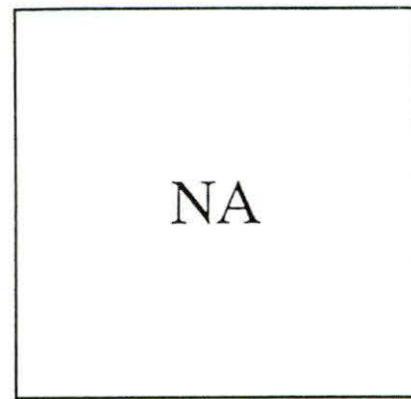


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	19	1	10/1/77	2	*GGG	848

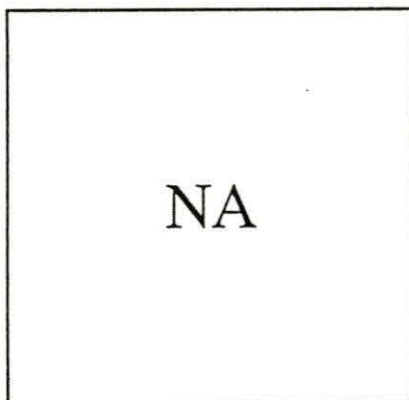


opaque  
transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	19	2	4/9/75	1	GGGG	849

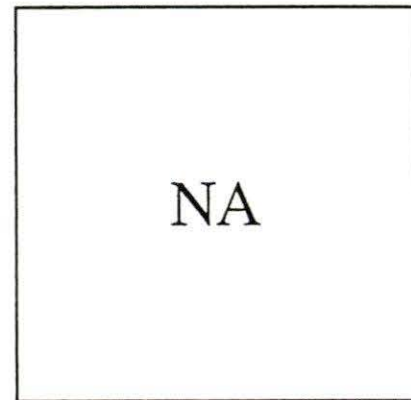


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	19	2	4/27/75	0	FPPF	850

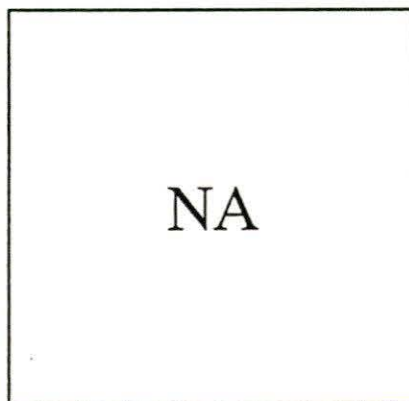


opaque  
transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	19	2	2/27/76	20	GGGG	851

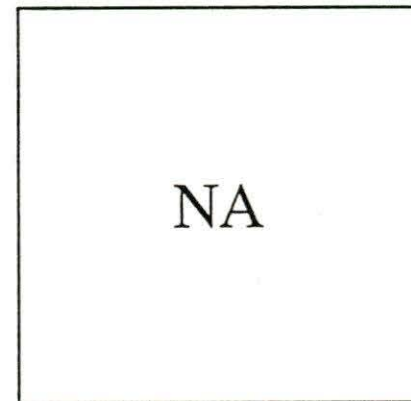


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	19	2	3/16/76	15	GGGG	852

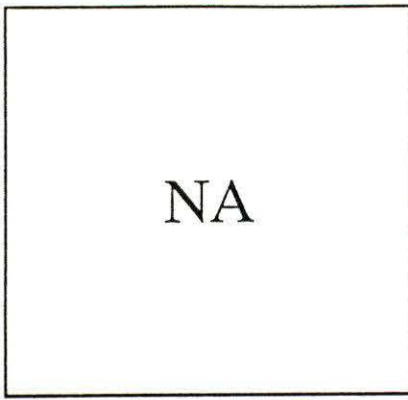




opaque  
transparent

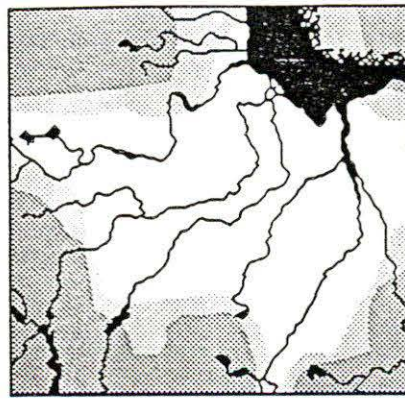
Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	19	2	7/2/76	0	GGFG	853



Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	19	2	7/20/76	15	GGGG	854

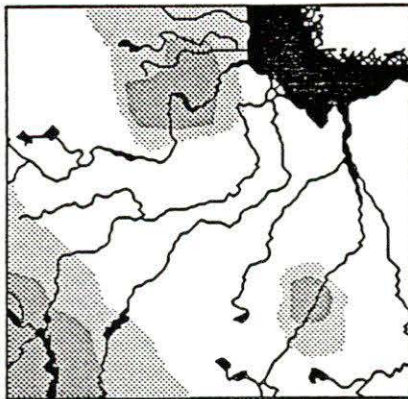




 opaque  
 transparent

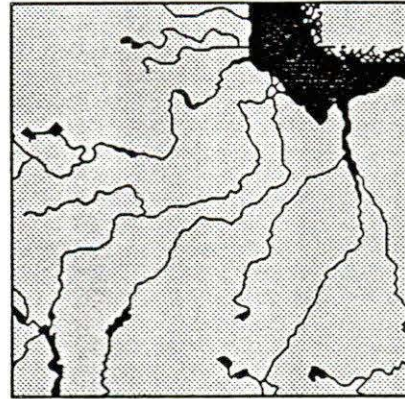


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	19	2	8/25/76	35	GGGG	855

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	19	2	11/23/76	30	GGGG	856

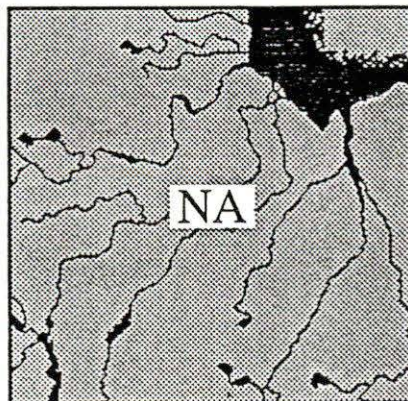




 opaque  
 transparent

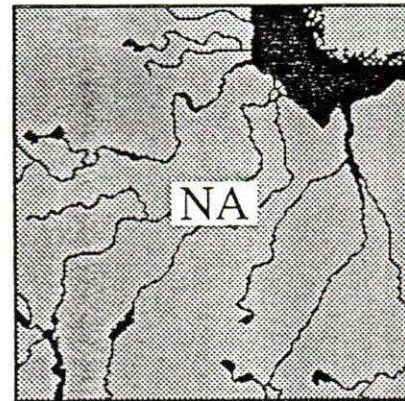


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	19	2	2/3/77	10	GGGG	857

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	19	2	2/21/77	2	GGGG	858

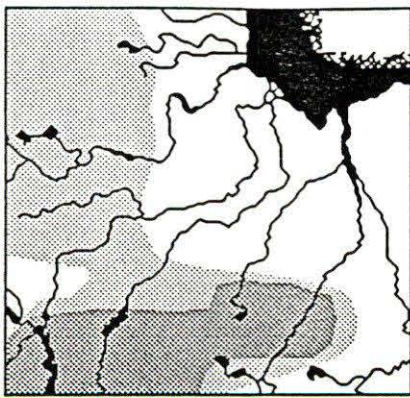


 opaque  
 transparent



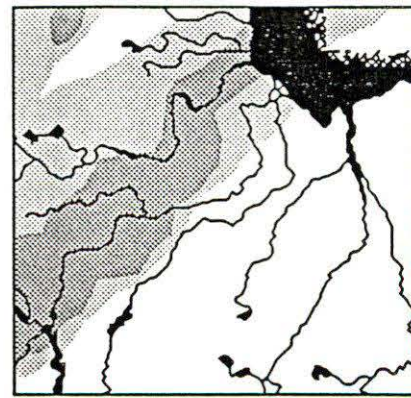
Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	19	2	3/29/77	0	GGFG	859

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	19	2	4/16/77	15	GGGG	860

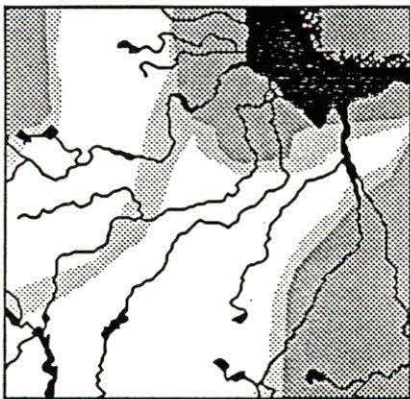


opaque  
transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	19	2	5/4/77	25	GGGG	861

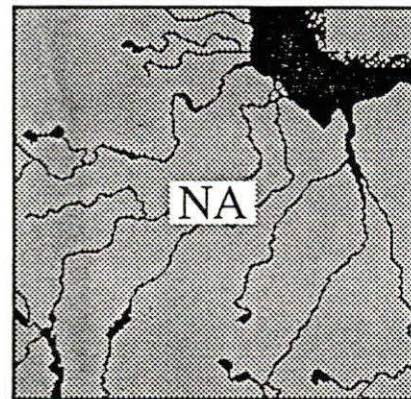


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	19	2	9/25/77	25	GGFG	862

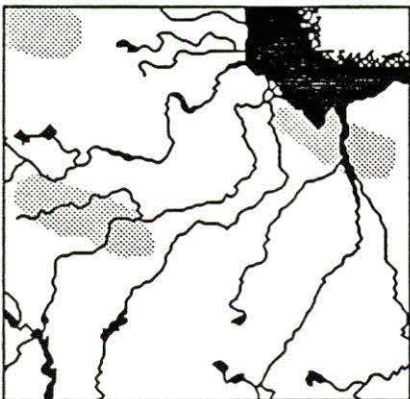


opaque  
transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	19	2	2/16/78	35	GGGG	863

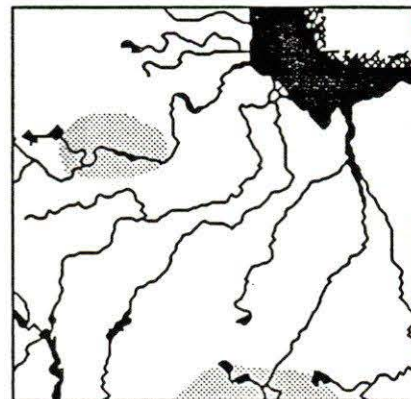


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	19	2	4/29/78	25	GGGG	864

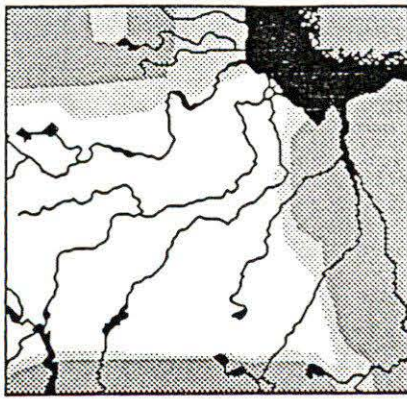


opaque  
transparent

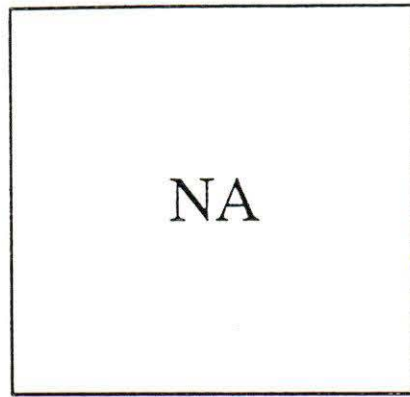
Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	19	2	6/22/78	5	FFFF	865



Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	19	2	7/10/78	5	FFFF	866

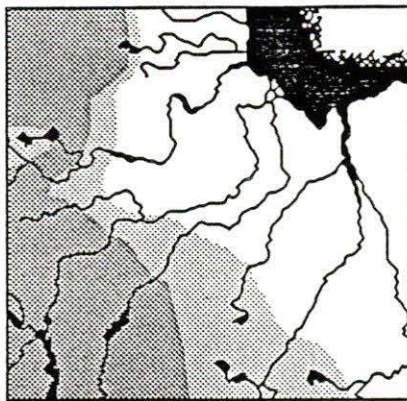


opaque  
 transparent

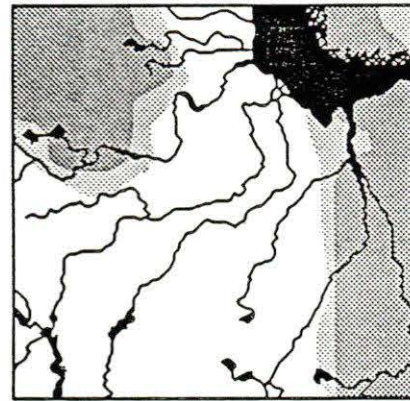


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	19	2	10/26/78	25	FFFF	867

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	19	2	2/11/79	20	GGGG	868

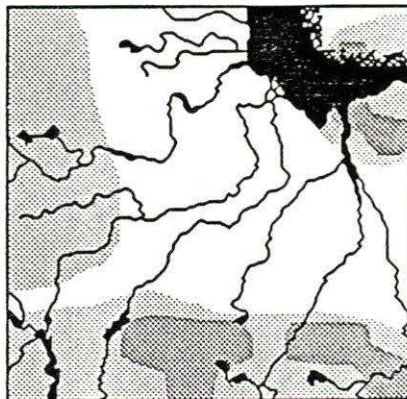


opaque  
 transparent

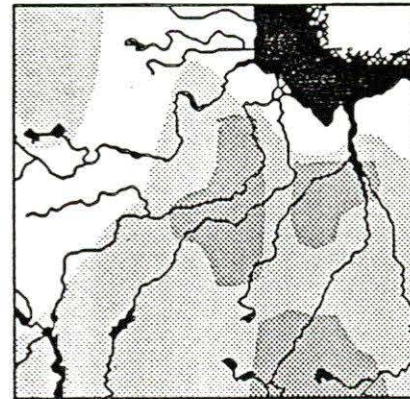


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	19	2	3/1/79	15	FGGG	869

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	19	2	4/6/79	40	FGGG	870

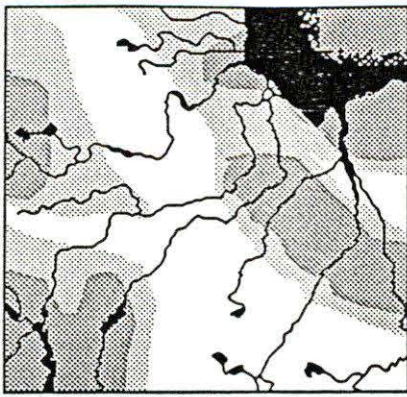


opaque  
 transparent



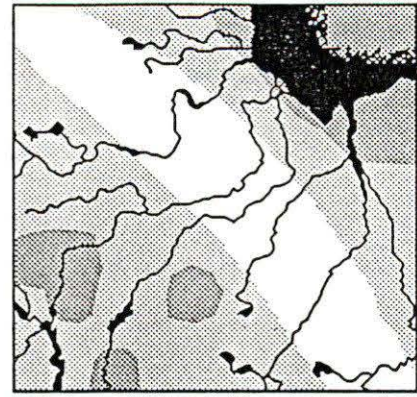
Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	19	2	6/17/79	25	GGGG	871

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	19	2	8/10/79	25	GGGG	872

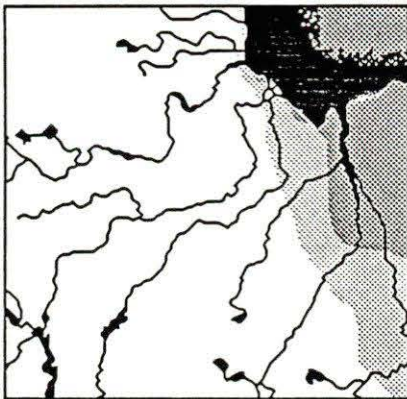


opaque  
transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	19	2	9/15/79	35	GGGG	873

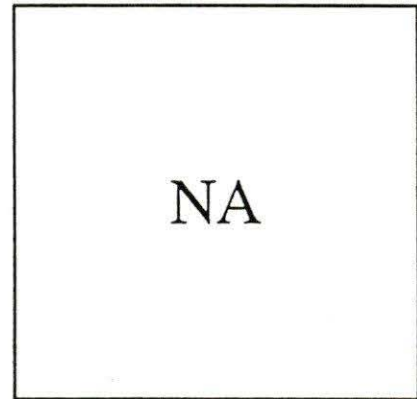


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	19	2	9/9/80	20	GGGF	874

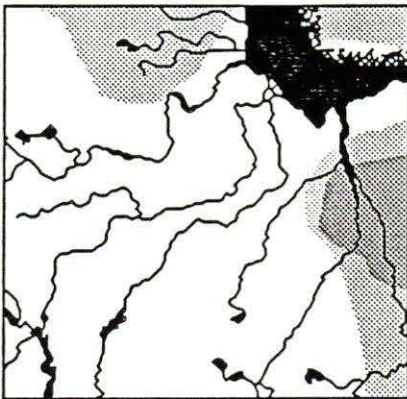


opaque  
transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	19	2	10/15/80	20	GGGG	875

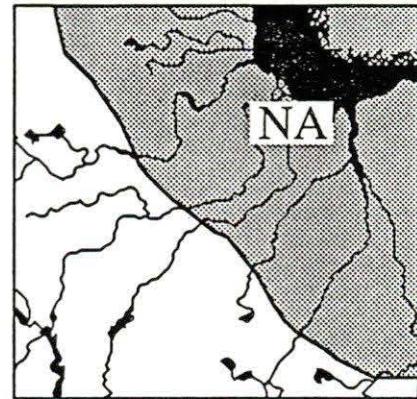


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	19	2	11/20/80	10	FFFF	876



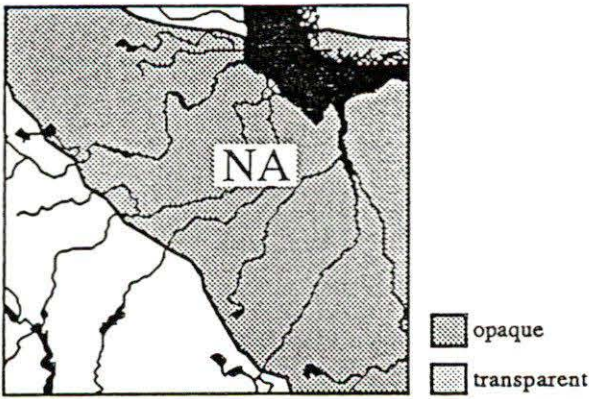
opaque  
transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	19	2	1/31/81	5	GGGG	877

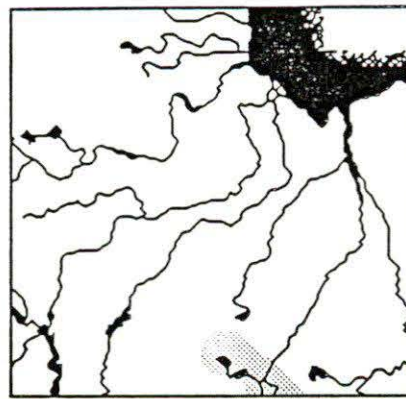


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	19	2	4/13/81	0	GGGG	878

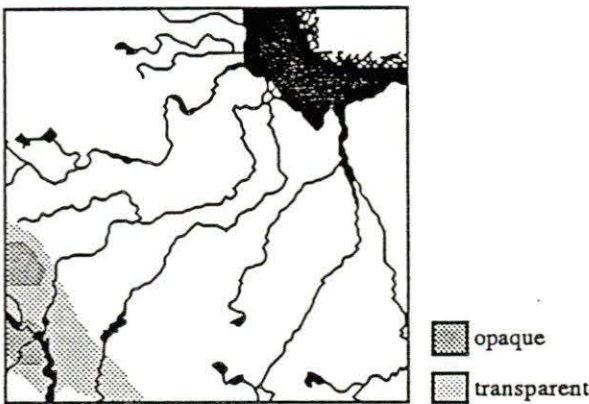




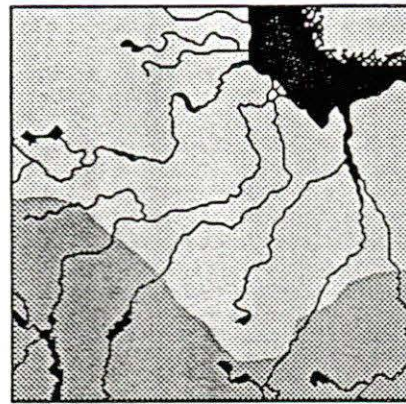
Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	19	2	5/1/81	40	GGGG	879



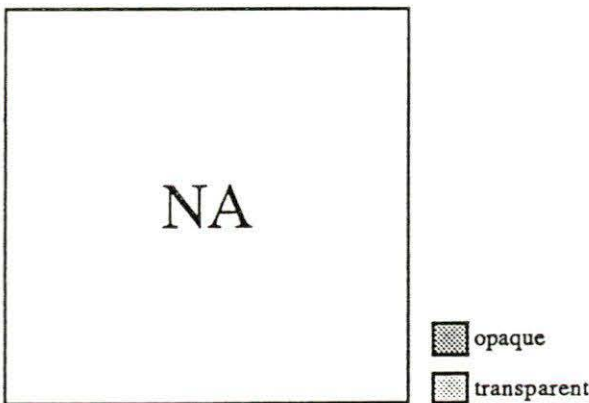
Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	19	2	8/17/81	5	GGGG	880



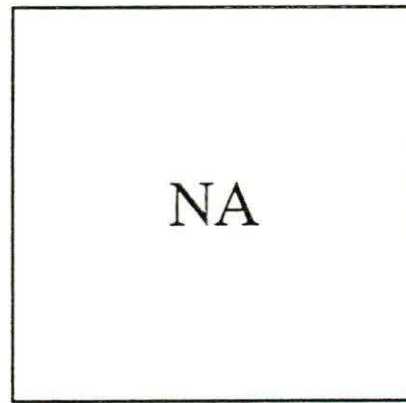
Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	19	2	9/22/81	2	GGGG	881



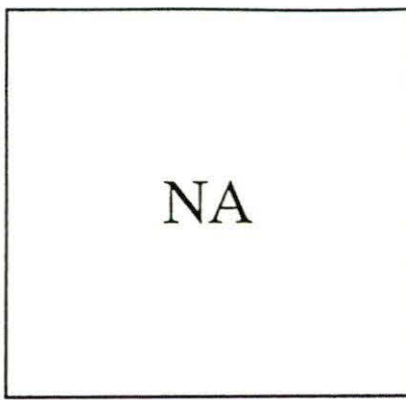
Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	19	2	1/26/82	40	GGGG	882



Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	19	3	6/13/78	10	FFFF	883

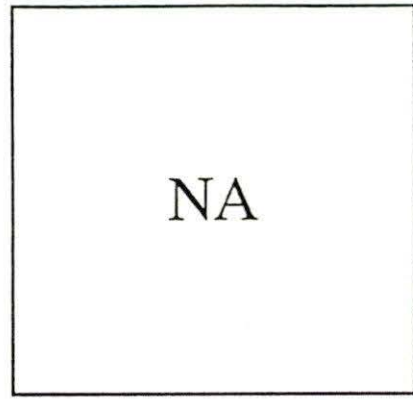


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	19	3	7/1/78	10	FFFF	884

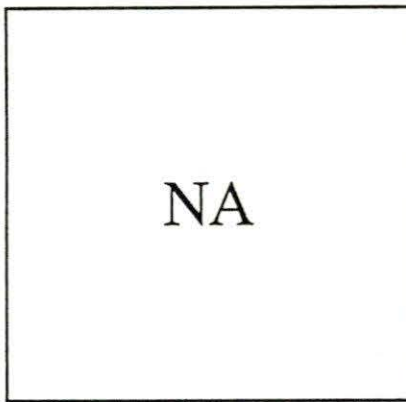


opaque  
transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	19	3	8/24/78	25	FFFF	885

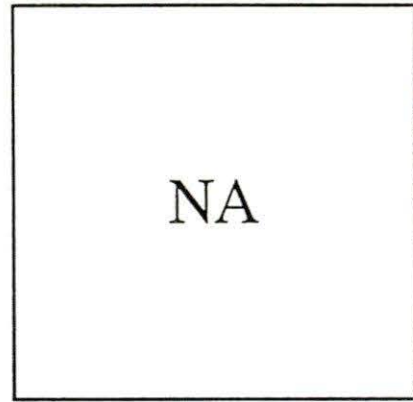


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	19	3	2/2/79	10	FFFF	886

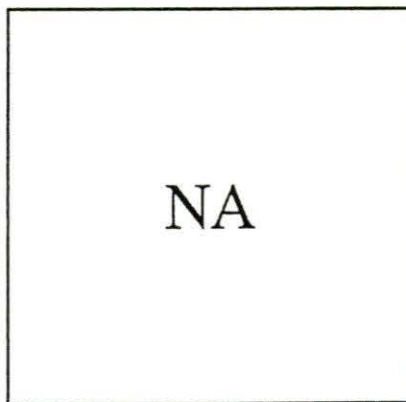


opaque  
transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	19	3	2/20/79	35	GGGG	887

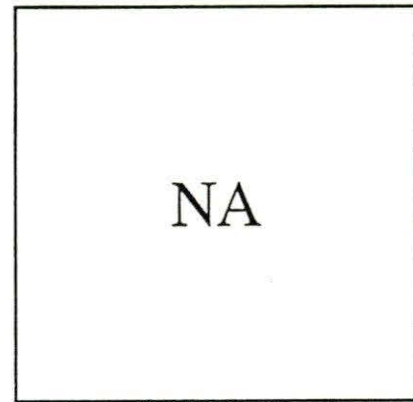


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	19	3	3/28/79	40	PPPP	888

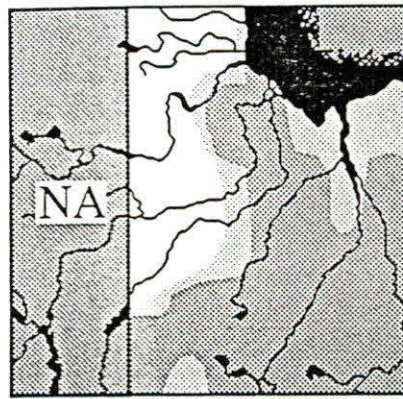
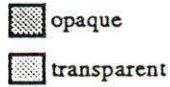
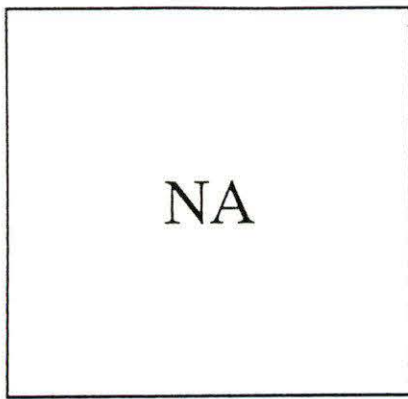


opaque  
transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	19	3	11/17/79	40	GGGG	889

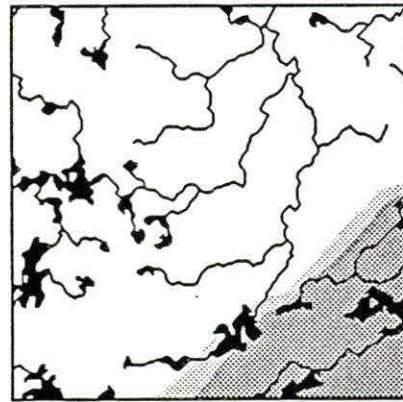
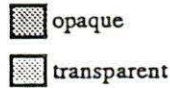
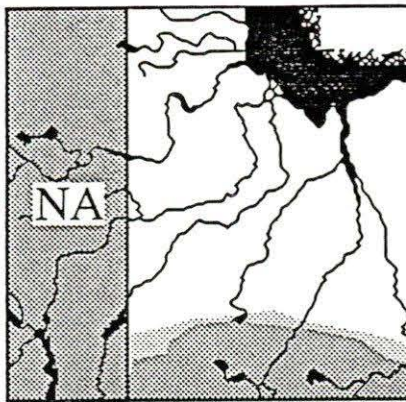


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	19	3	1/28/80	10	PPPP	890



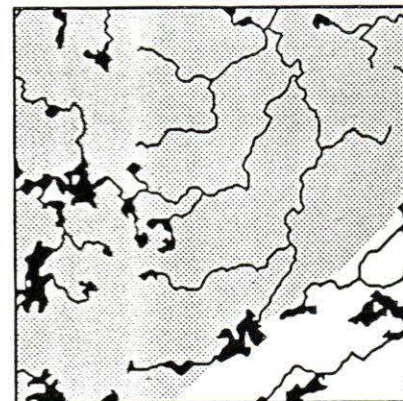
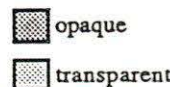
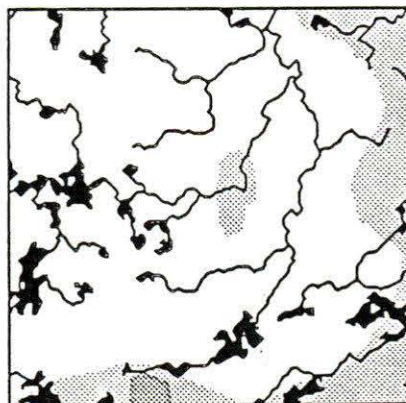
Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	19	3	2/15/80	50	GGGG	891

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	19	3	6/28/82	40	GGGG	892



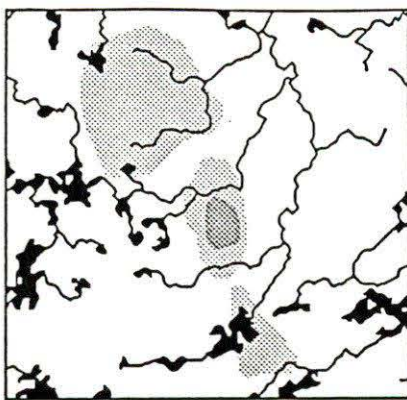
Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	19	3	8/3/82	15	GGGG	893

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	20	1	9/24/72	15	GPGF	894



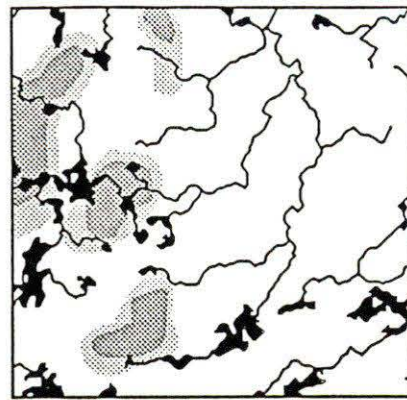
Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	20	1	12/5/72	1	FFFF	895

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	20	1	4/28/73	0	GGGG	896

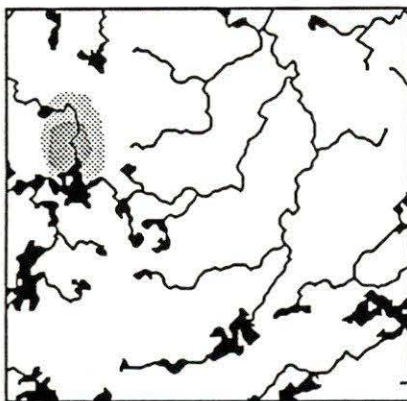


opaque  
transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	20	1	5/16/73	3	GGGG	897

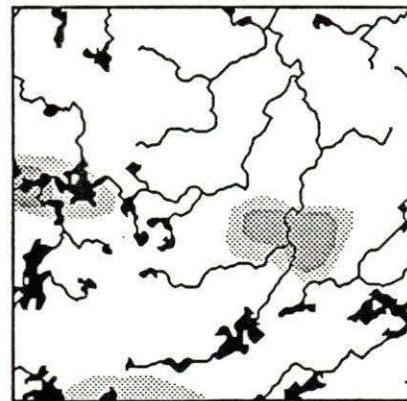


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	20	1	7/27/73	10	FFPF	898

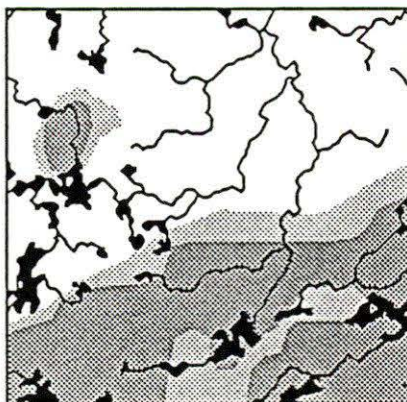


opaque  
transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	20	1	8/14/73	1	PFFF	899

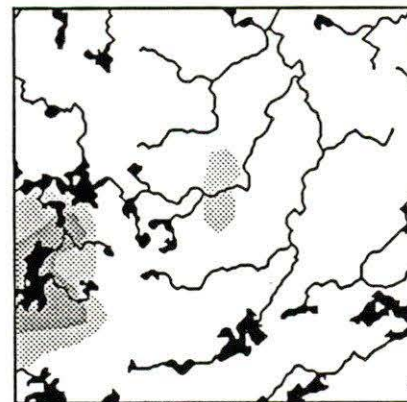


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	20	1	11/12/73	5	GGGG	900

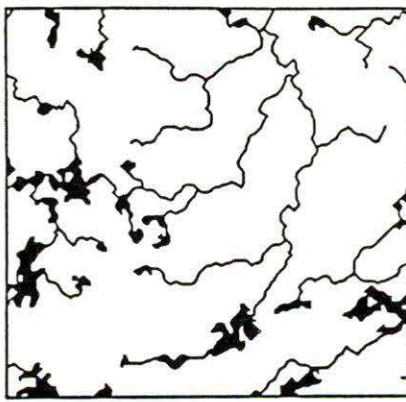




opaque  
transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	20	1	1/23/74	25	GGGG	901

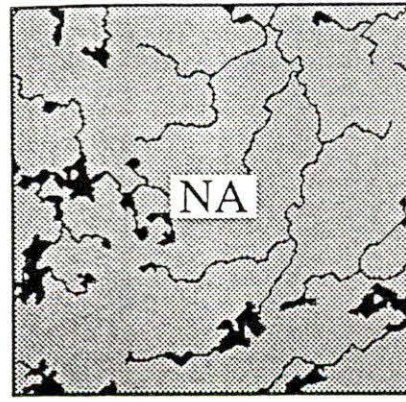


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	20	1	2/10/74	2	GGGG	902

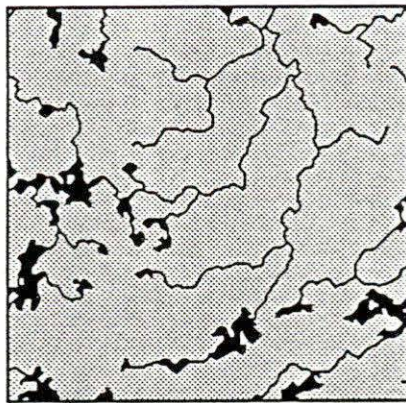


 opaque  
 transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	20	1	3/18/74	0	GGG*	903

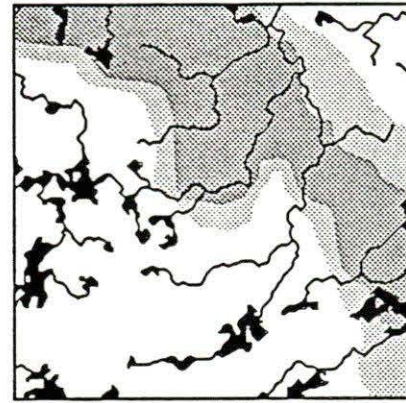


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	20	1	4/5/74	10	GFGG	904

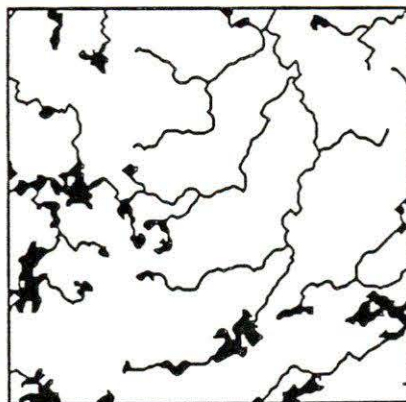




 opaque  
 transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	20	1	4/23/74	10	PGGG	905

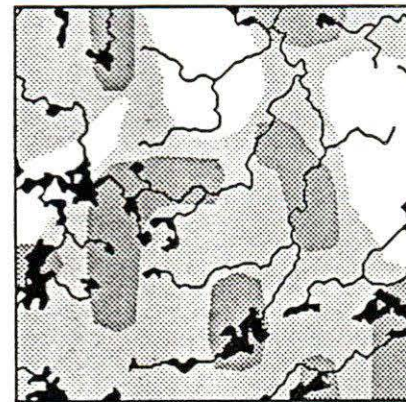


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	20	1	5/11/74	30	GGGG	906

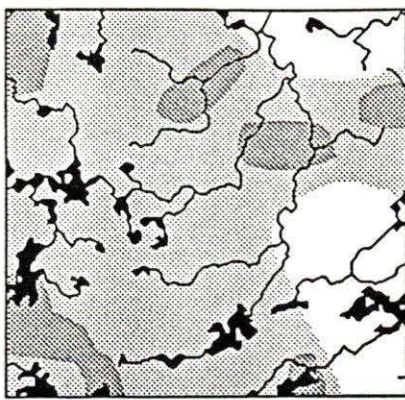




 opaque  
 transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	20	1	6/16/74	0	FGGE	907

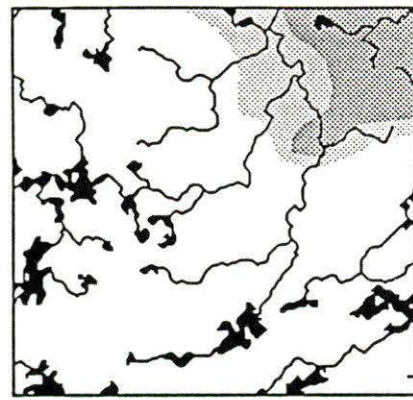


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	20	1	7/4/74	35	PGGE	908

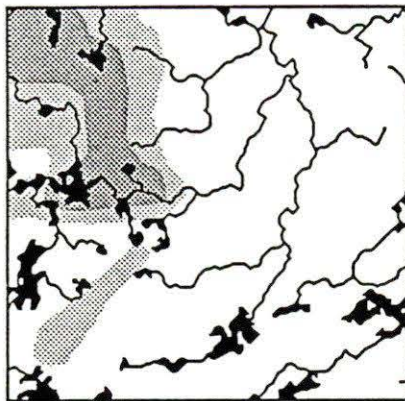




 opaque  
 transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	20	1	8/9/74	15	FGGE	909



Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	20	1	3/13/75	3	GGGG	910

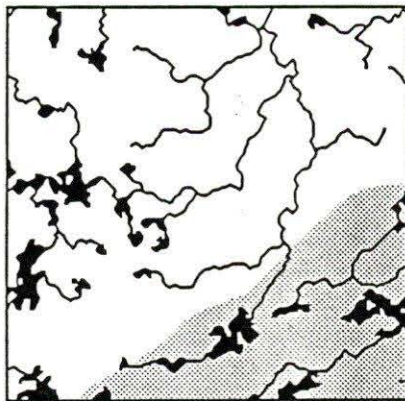




 opaque  
 transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	20	1	5/6/75	10	EEGG	911

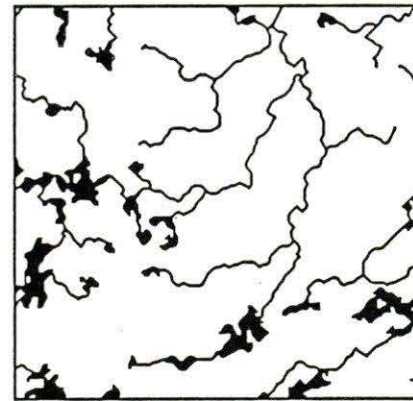


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	20	1	6/29/75	10	FGGG	912

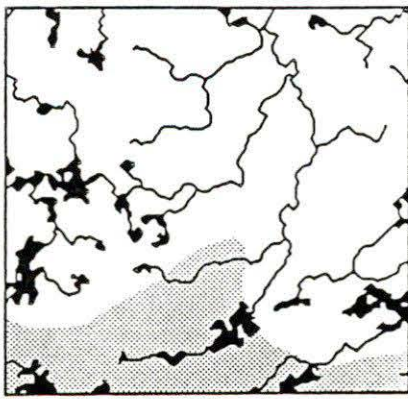


 opaque  
 transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	20	1	11/2/75	0	GGGG	913

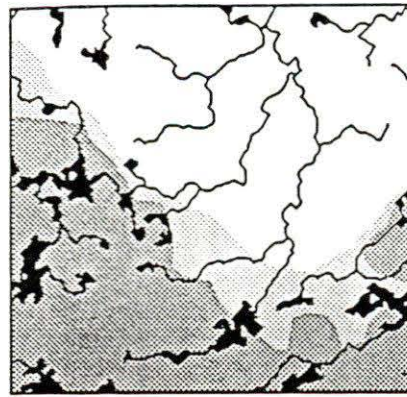


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	20	1	1/31/76	0	FGGG	914

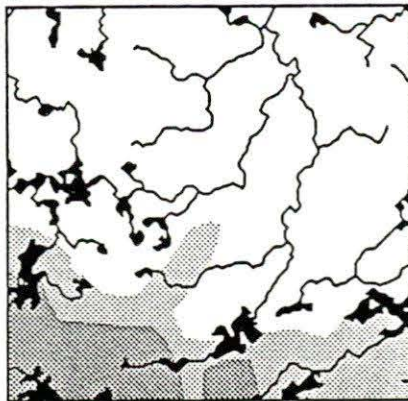


opaque  
transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	20	1	3/7/76	0	GGGG	915

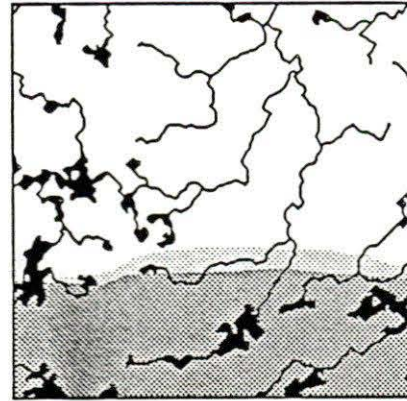


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	20	1	3/25/76	50	GGGG	916

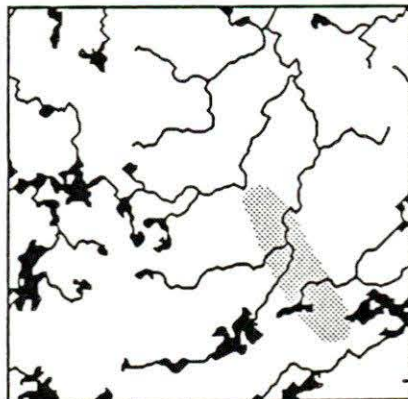


opaque  
transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	20	1	7/11/76	20	FFFF	917

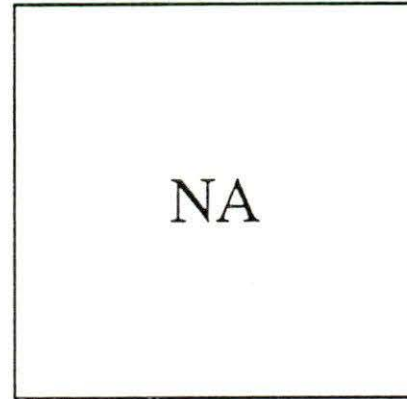


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	20	1	7/29/76	15	GGGG	918

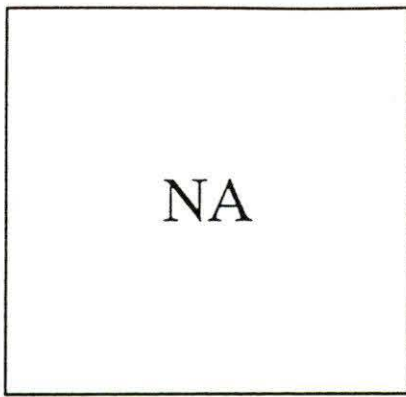


opaque  
transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	20	1	8/16/76	2	GGGG	919

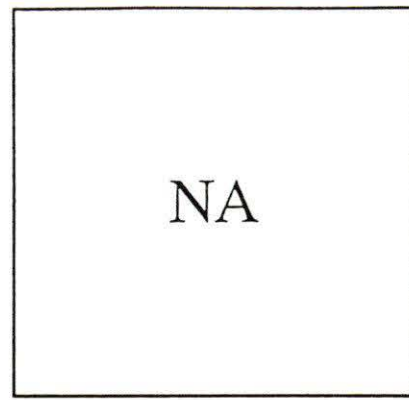


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	20	1	7/21/77	15	*GFG	920

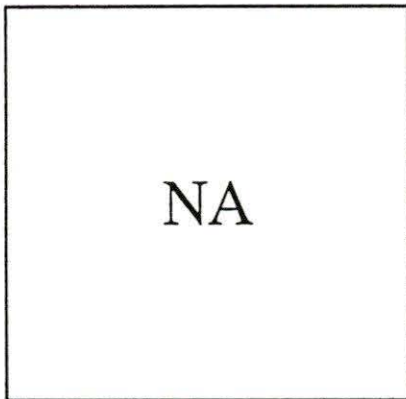


opaque  
transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	20	1	8/26/77	25	*GFG	921

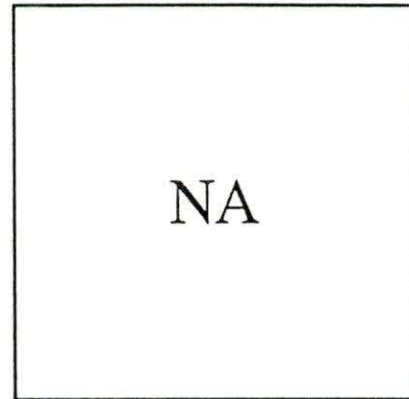


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	20	1	9/13/77	5	*GFG	922

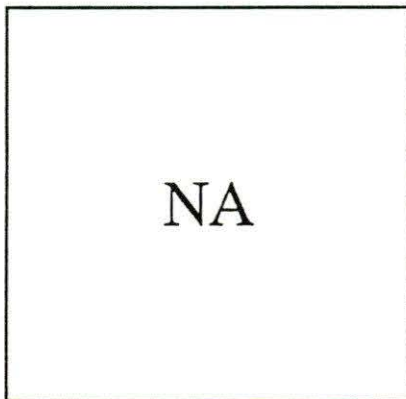


opaque  
transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	20	1	10/1/77	0	*GGG	923

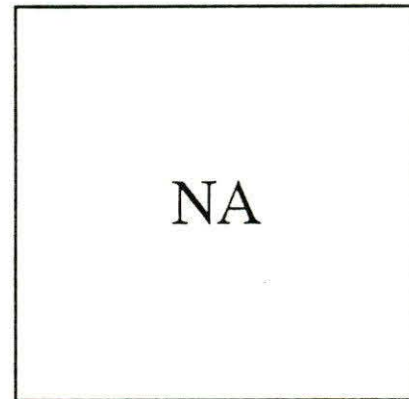


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	20	2	4/9/75	5	FFFF	924



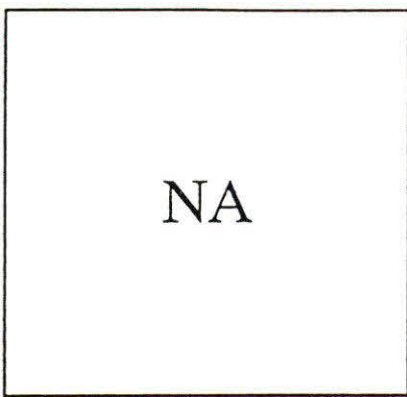
opaque  
transparent



Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	20	2	4/27/75	0	FPPF	925

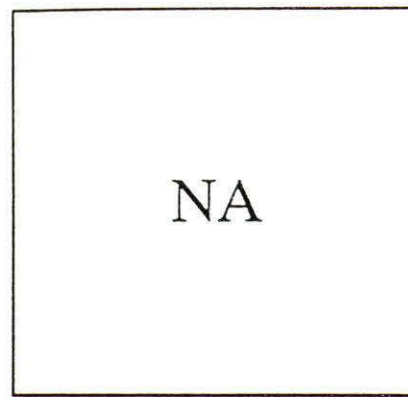


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	20	2	2/27/76	0	GGGG	926



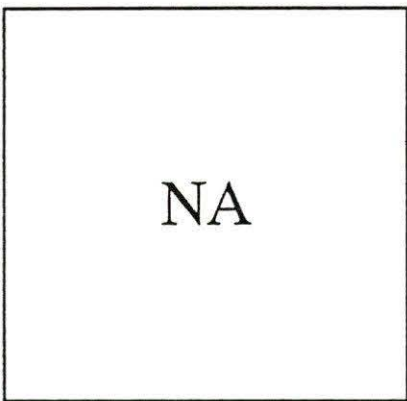




 opaque  
 transparent

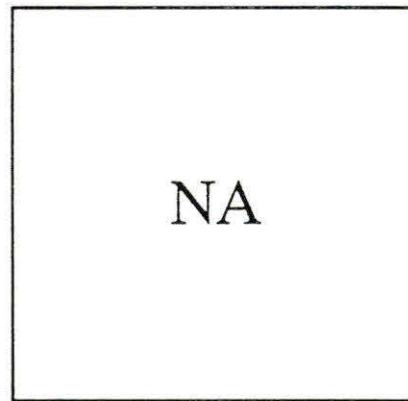


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	20	2	3/16/76	15	GGGP	927

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	20	2	4/3/76	30	GGGG	928

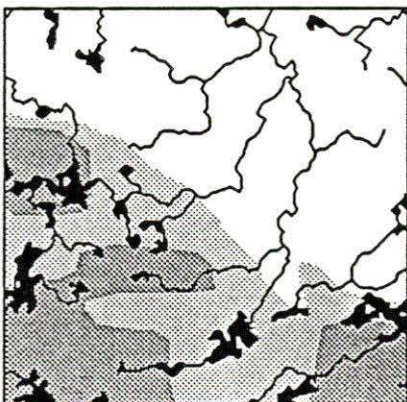




 opaque  
 transparent

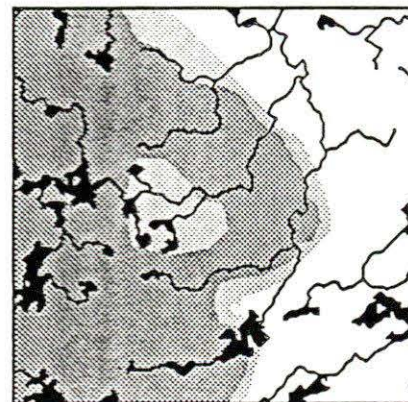


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	20	2	7/2/76	1	GGGG	929

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	20	2	9/12/76	40	GGGG	930

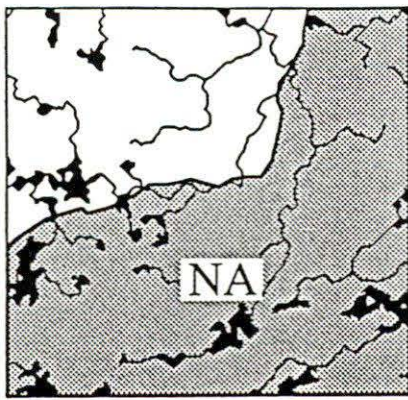




 opaque  
 transparent



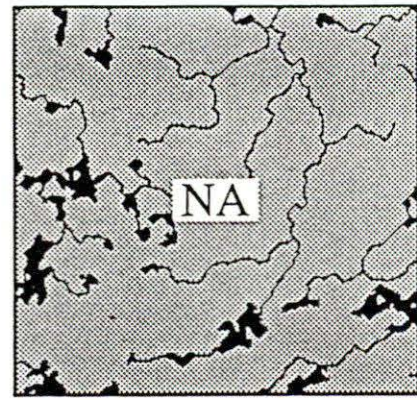
Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	20	2	1/16/77	25	GGGG	931

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	20	2	2/3/77	50	FGFG	932

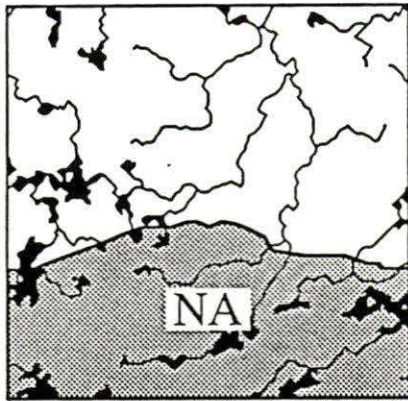




 opaque  
 transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	20	2	2/21/77	30	GGGG	933

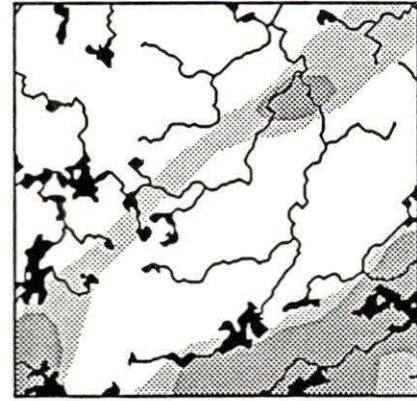


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	20	2	3/29/77	0	GGGG	934

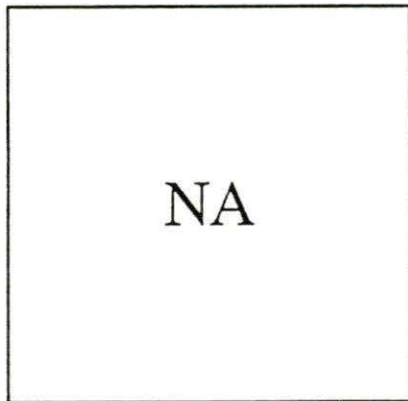




 opaque  
 transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	20	2	4/16/77	20	GGGG	935



Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	20	2	9/25/77	20	GGGG	936

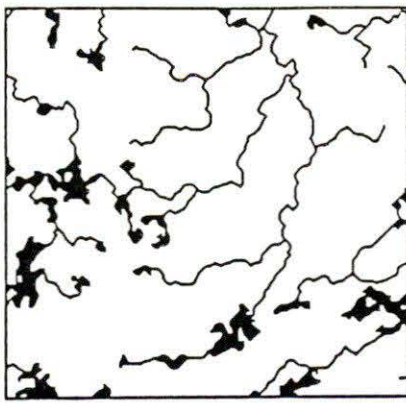


 opaque  
 transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	20	2	1/29/78	10	GGGF	937

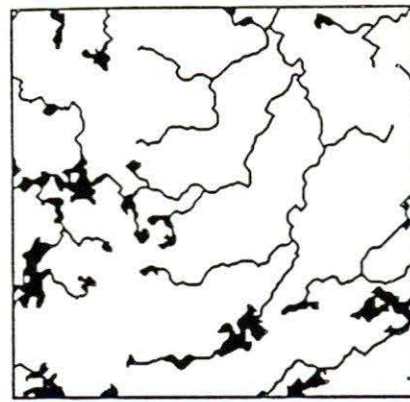


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	20	2	4/29/78	20	GGGG	938

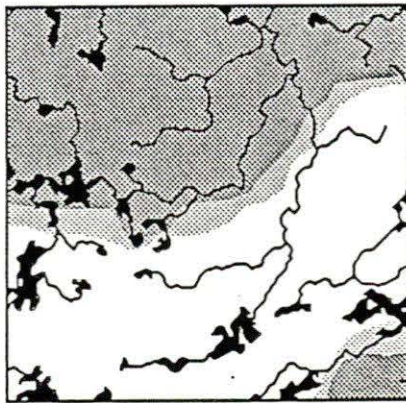


opaque  
transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	20	2	6/22/78	0	FFFF	939

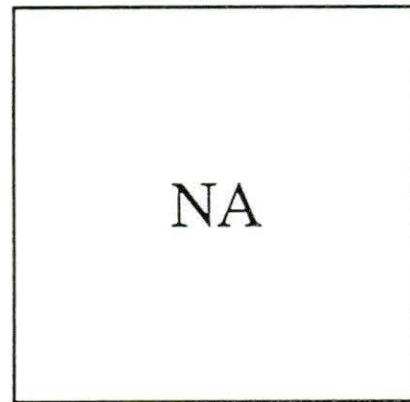


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	20	2	7/10/78	0	FFFF	940

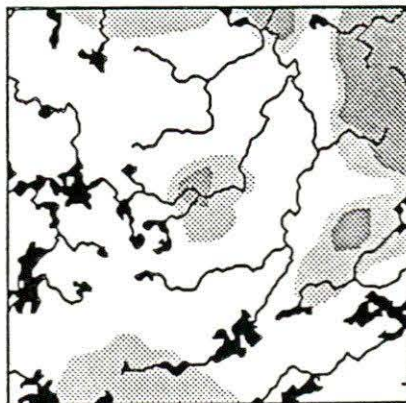


opaque  
transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	20	2	7/28/78	40	FFFF	941

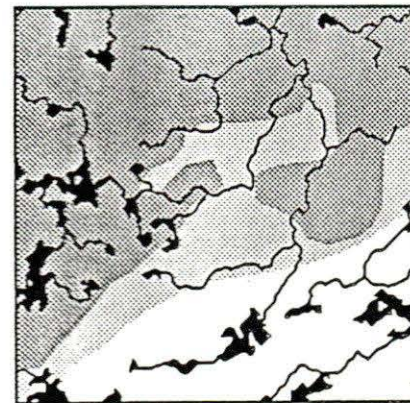


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	20	2	2/11/79	0	GGGG	942

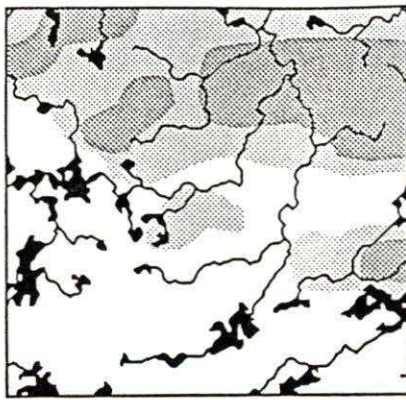


opaque  
transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	20	2	4/6/79	20	GGGG	943

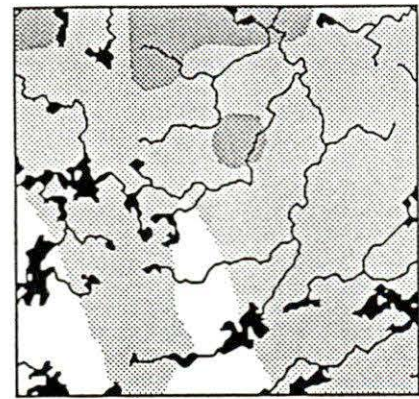


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	20	2	4/24/79	40	GGGG	944

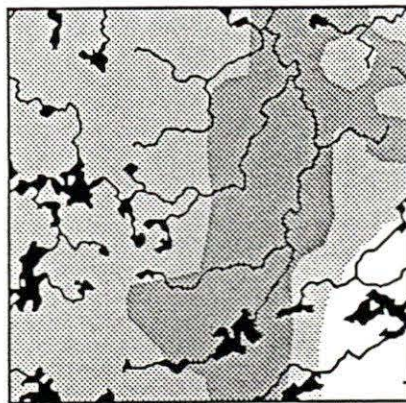


opaque  
transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	20	2	6/17/79	30	GGGG	945



Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	20	2	7/5/79	50	GGGG	946

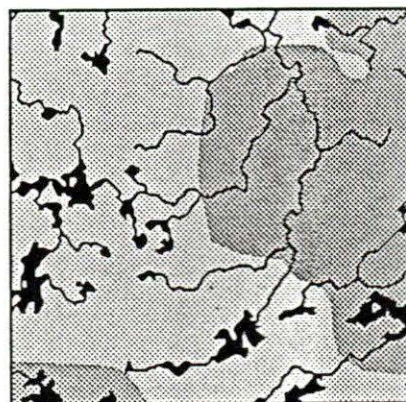


opaque  
transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	20	2	8/10/79	50	GGGG	947

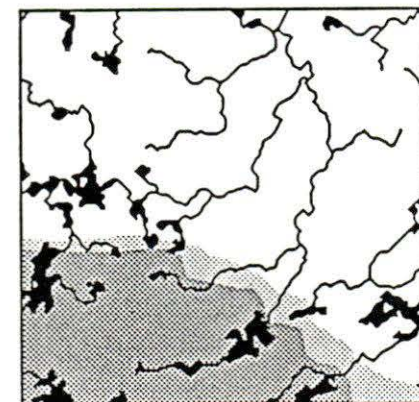


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	20	2	9/9/80	15	GGGF	948

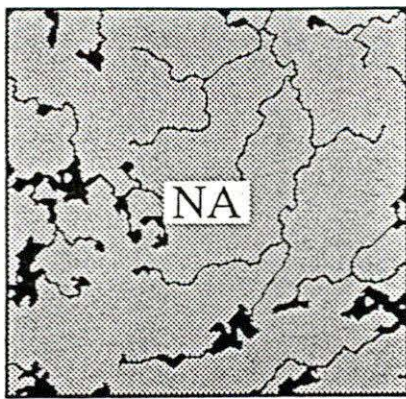


opaque  
transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	20	2	9/27/80	50	GGGG	949



Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	20	2	10/15/80	20	GGGG	950

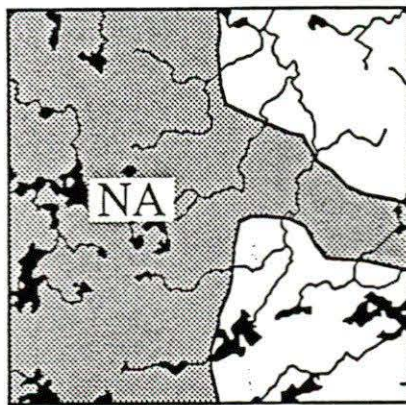


opaque  
transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	20	2	11/20/80	30	FFFF	951

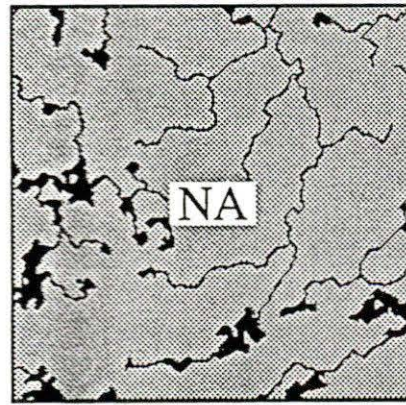


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	20	2	1/31/81	20	GGGG	952

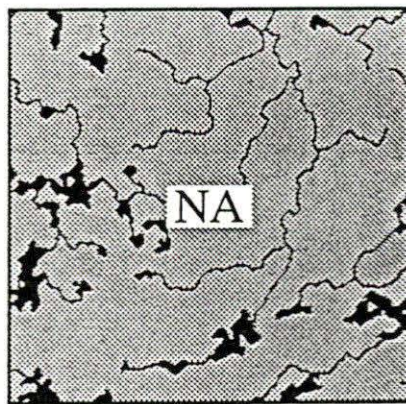


opaque  
transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	20	2	3/26/81	20	GGGG	953

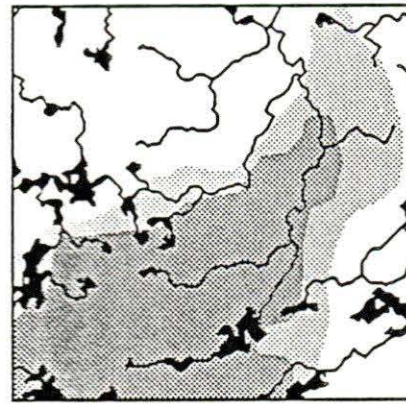


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	20	2	4/13/81	0	GGGG	954

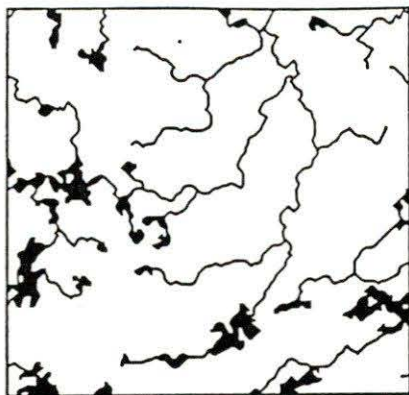




opaque  
transparent

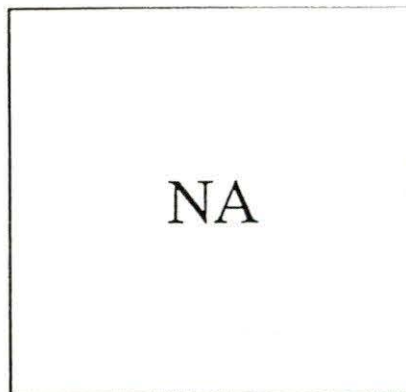
Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	20	2	5/1/81	0	GGGG	955



Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	20	2	8/17/81	35	GGGG	956

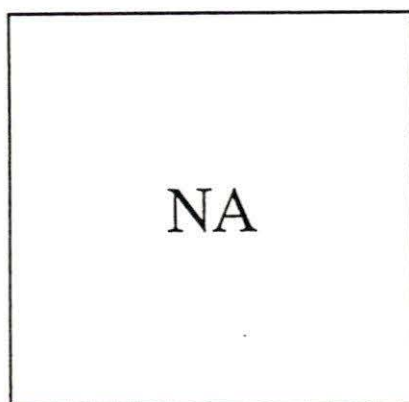




 opaque  
 transparent

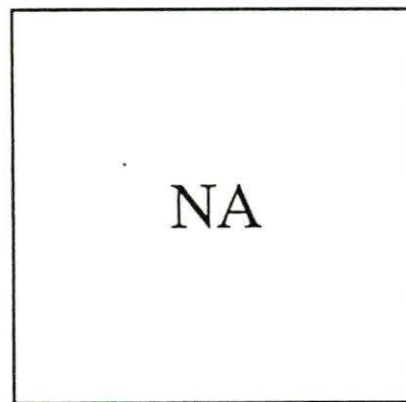


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	20	2	9/22/81	0	GGGG	957

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	20	3	6/13/78	25	FFFF	958

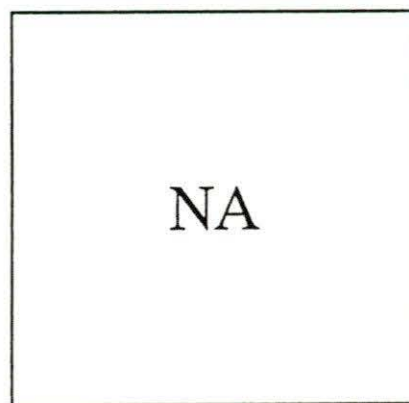




 opaque  
 transparent

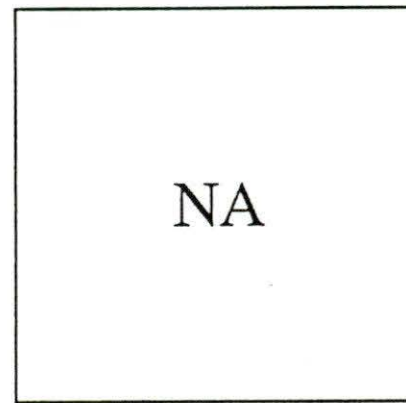


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	20	3	7/1/78	25	FFFF	959

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	20	3	2/2/79	40	FFFF	960

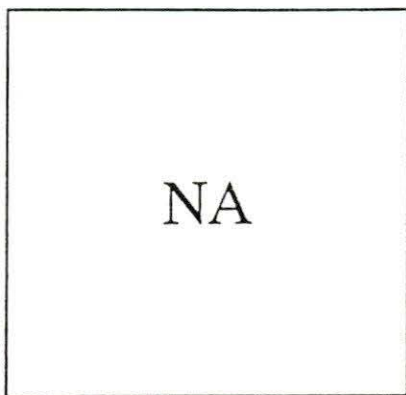




 opaque  
 transparent

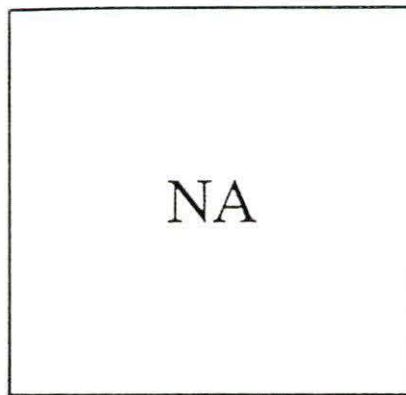


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	20	3	2/20/79	20	GGGG	961

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	20	3	3/28/79	40	PPPP	962

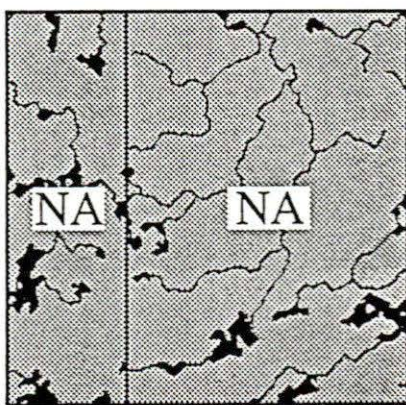




 opaque  
 transparent

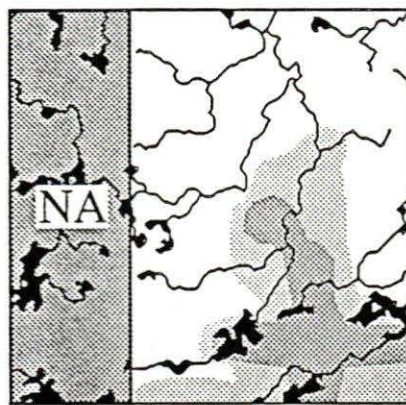


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	20	3	11/17/79	30	GGGG	963

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	20	3	1/28/80	10	PPPP	964

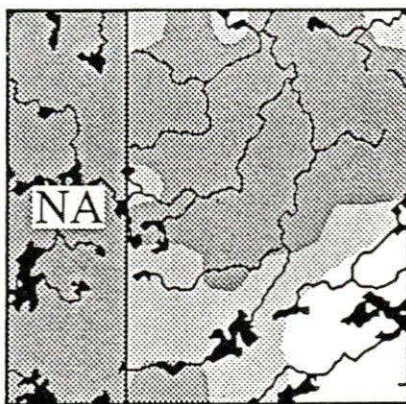




 opaque  
 transparent

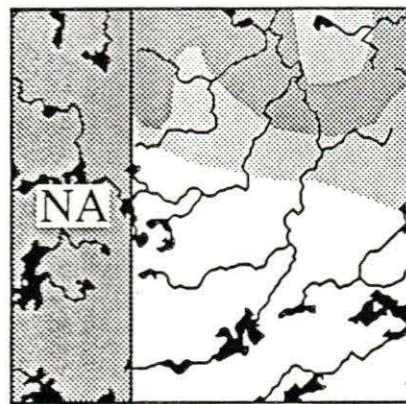


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	20	3	4/17/82	0	GGGG	965

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	20	3	5/23/82	15	GGGG	966

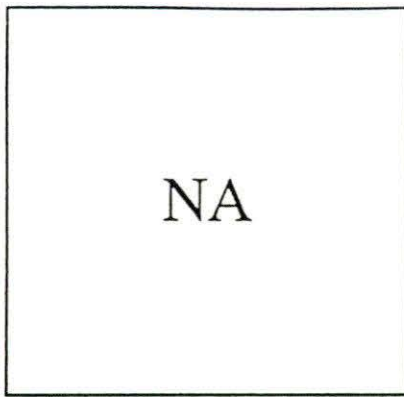




 opaque  
 transparent



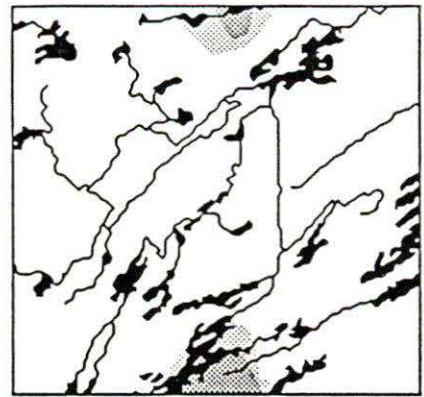
Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	20	3	8/21/82	40	GGGG	967

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	20	3	9/8/82	15	GGGG	968

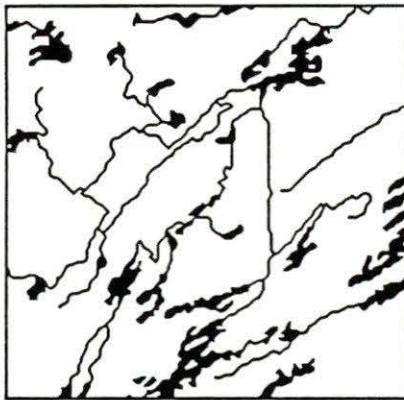




 opaque  
 transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	21	1	8/19/72	20	PPPP	969

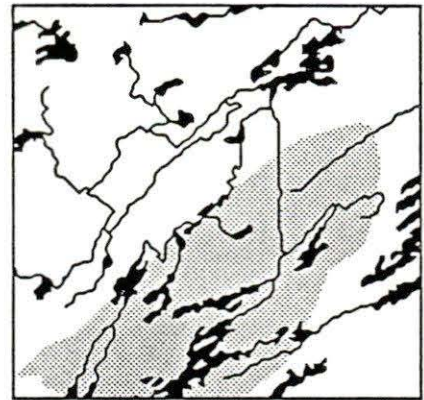


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	21	1	10/30/72	1	GEGG	970

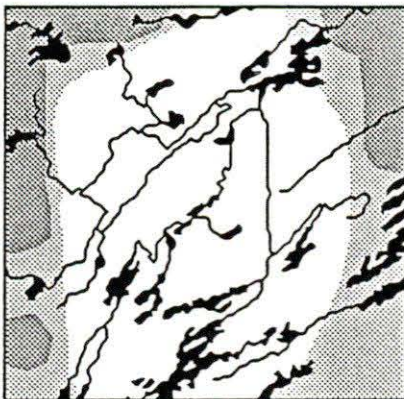




 opaque  
 transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	21	1	12/23/72	0	EEEG	971

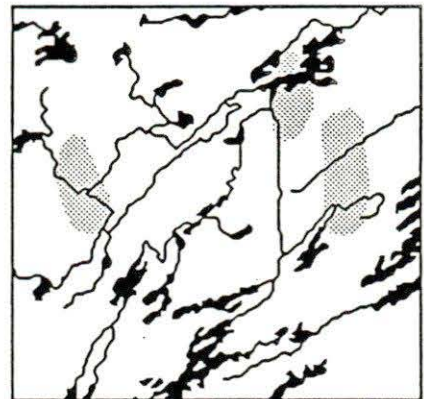


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	21	1	2/15/73	1	EEEE	972



 opaque  
 transparent



Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	21	1	4/28/73	5	GGEE	973

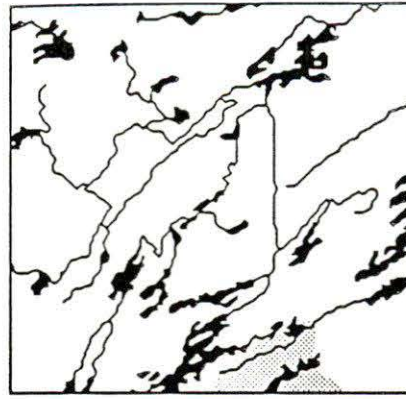


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	21	1	5/16/73	2	GGGG	974



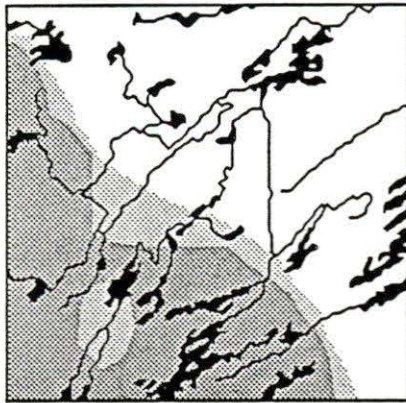




 opaque  
 transparent

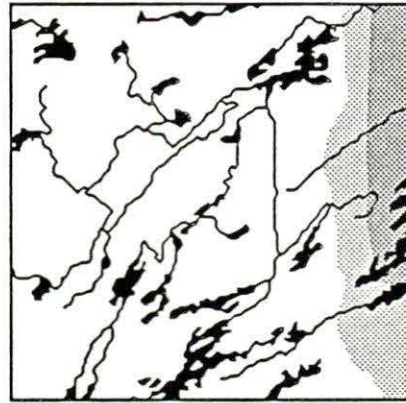


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	21	1	7/27/73	2	GGGG	975

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	21	1	11/12/73	0	GGGG	976

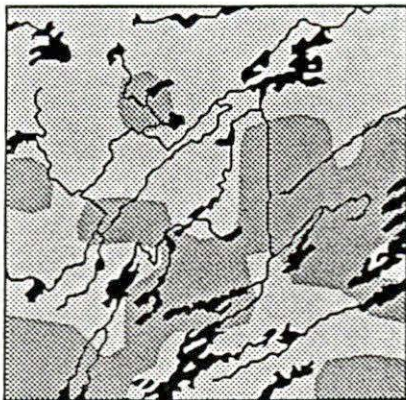




 opaque  
 transparent

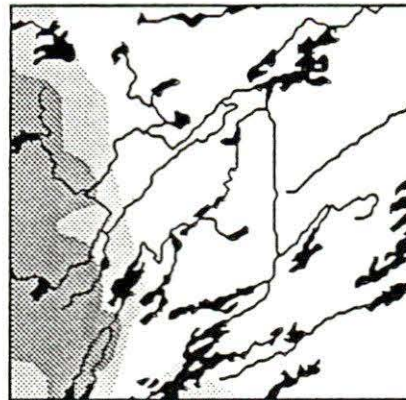


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	21	1	2/10/74	40	GGGG	977

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	21	1	4/23/74	10	PFFG	978

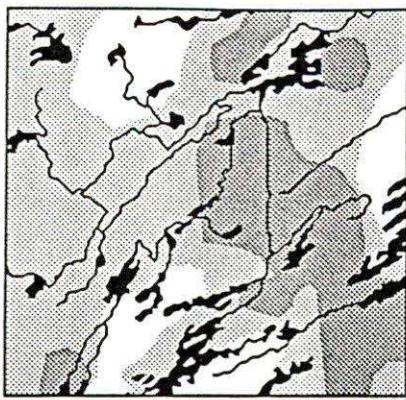




 opaque  
 transparent



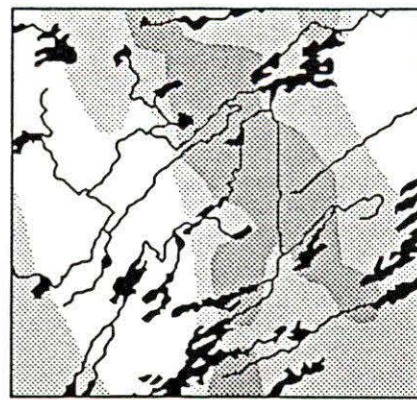
Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	21	1	5/11/74	45	GGGG	979

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	21	1	6/16/74	15	FGPE	980

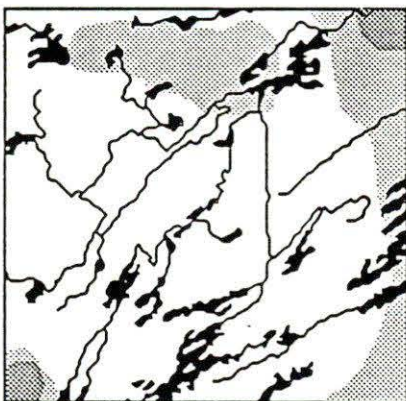




 opaque  
 transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	21	1	7/4/74	20	FGEE	981

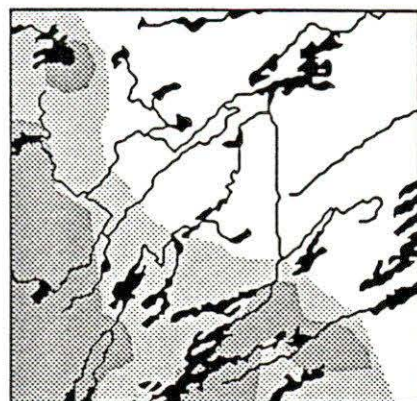


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	21	1	8/9/74	30	GGGG	982

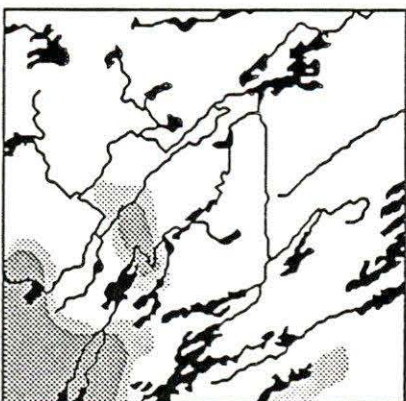




 opaque  
 transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	21	1	3/13/75	2	GEGE	983

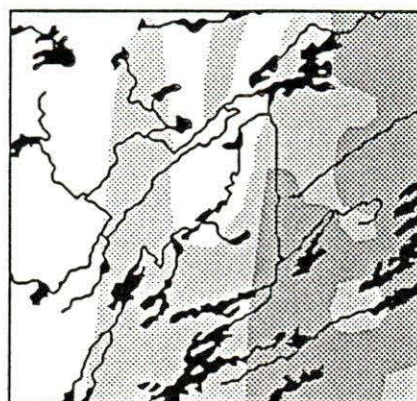


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	21	1	5/6/75	15	EEEE	984

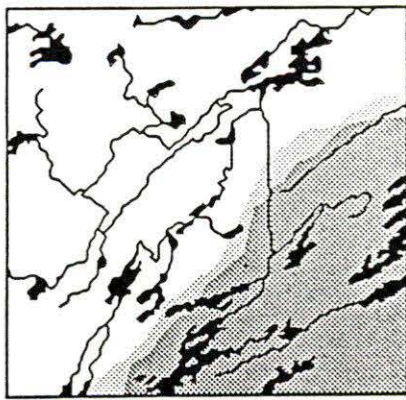


 opaque  
 transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	21	1	6/29/75	20	FFPF	985

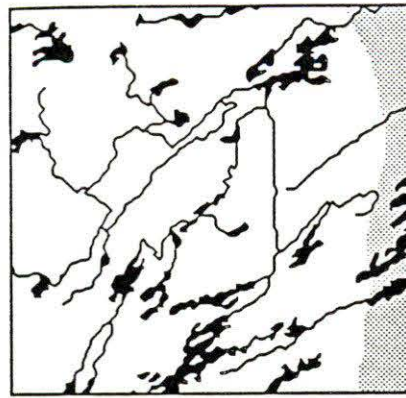


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	21	1	9/9/75	40	FGGG	986

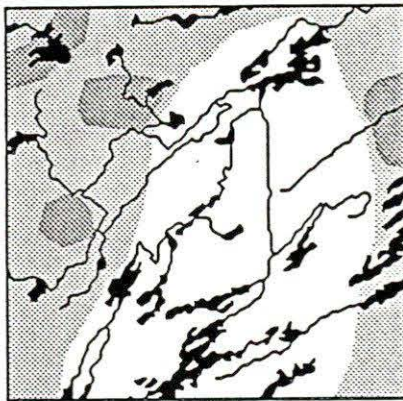


opaque  
transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	21	1	11/2/75	40	GGGG	987

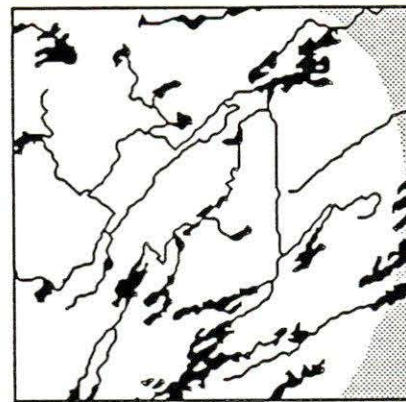


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	21	1	1/31/76	7	FGGG	988

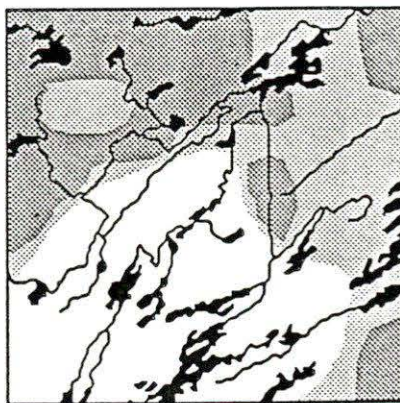


opaque  
transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	21	1	2/18/76	15	GGGG	989

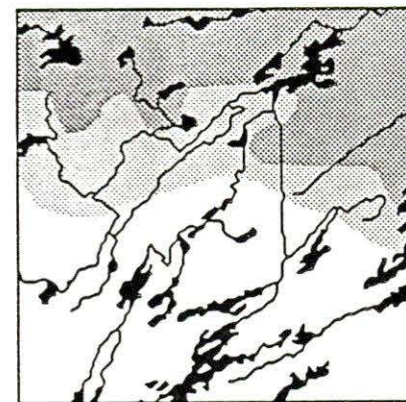


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	21	1	3/7/76	0	GGGG	990

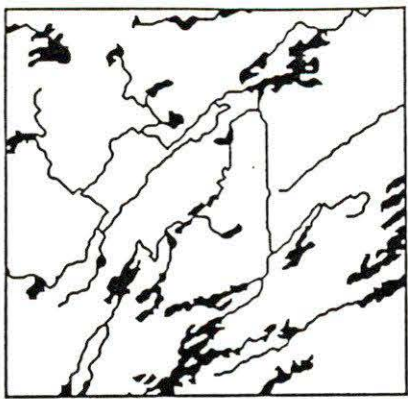




opaque  
transparent

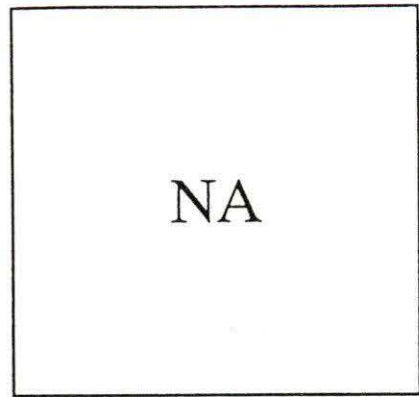
Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	21	1	3/25/76	40	GGGG	991



Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	21	1	4/12/76	30	FG*F	992

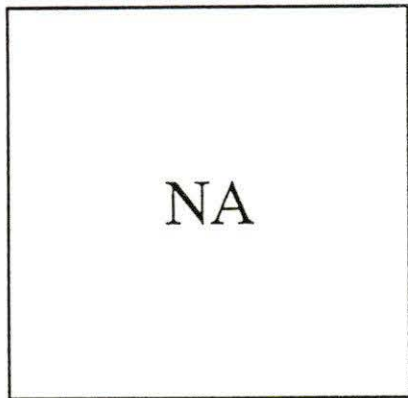




 opaque  
 transparent

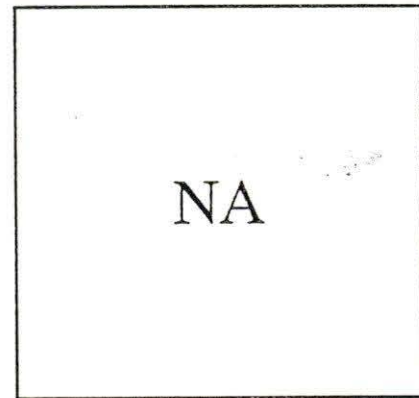


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	21	1	8/16/76	0	G*GG	993

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	21	1	7/21/77	0	*GFG	994

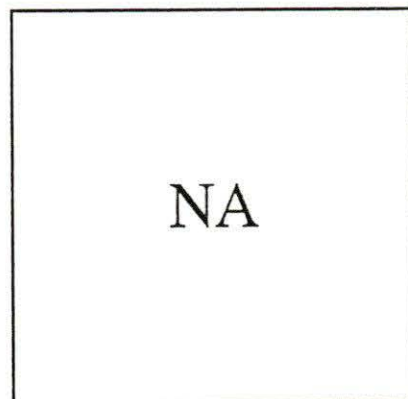



 opaque  
 transparent

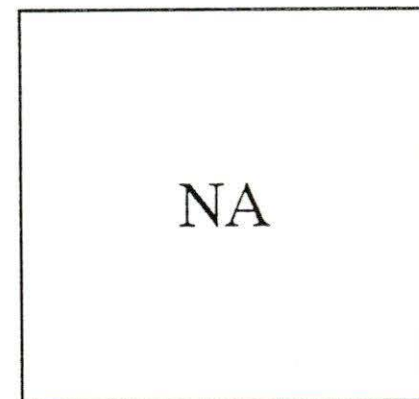


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	21	1	9/13/77	20	*GGG	995

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	21	1	10/1/77	0	*GGG	996

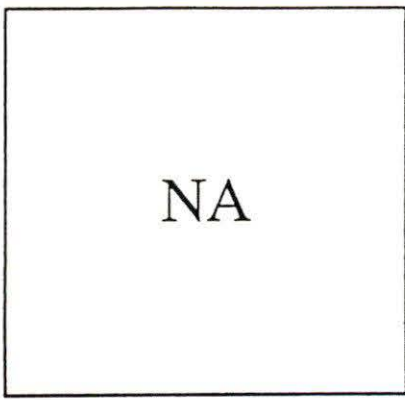


 opaque  
 transparent

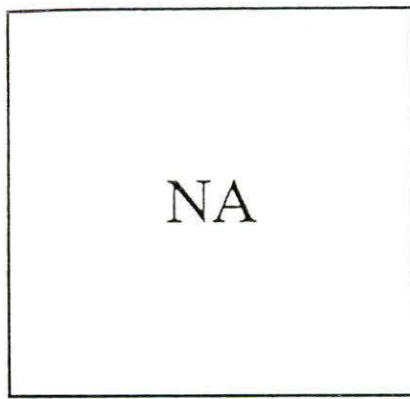


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	21	2	4/9/75	3	GGGG	997

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	21	2	4/27/75	25	FFFF	998

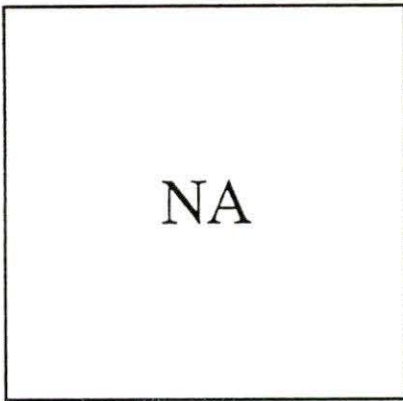


opaque  
transparent

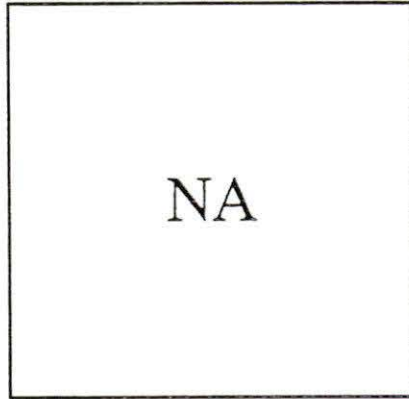


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	21	2	5/15/75	2	FFGG	999

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	21	2	12/17/75	0	GGGG	1000

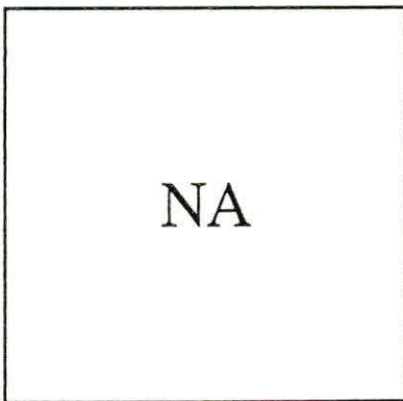


opaque  
transparent

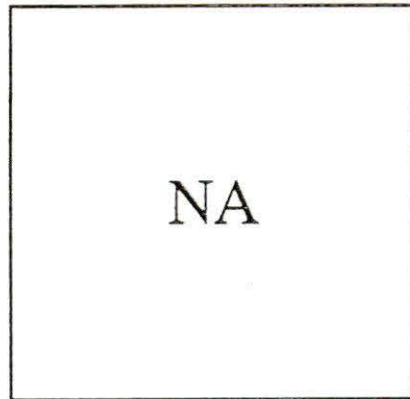


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	21	2	2/27/76	0	GGGG	1001

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	21	2	3/16/76	25	GGGG	1002

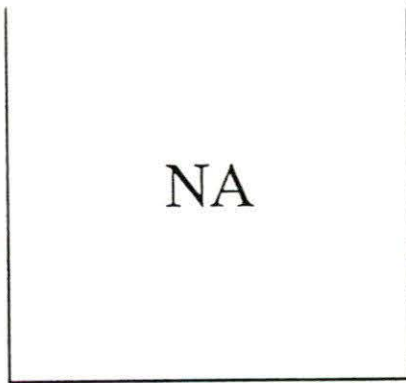




opaque  
transparent



Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	21	2	4/3/76	10	GGGG	1003

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	21	2	7/2/76	0	GGGG	1004

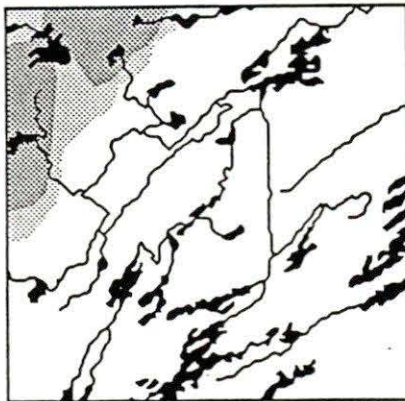




 opaque  
 transparent

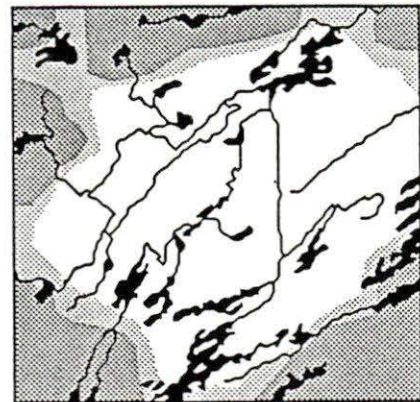


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	21	2	9/30/76	20	GGGG	1005

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	21	2	12/11/76	0	GGGG	1006

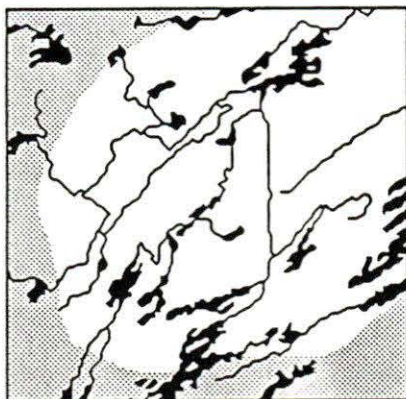




 opaque  
 transparent

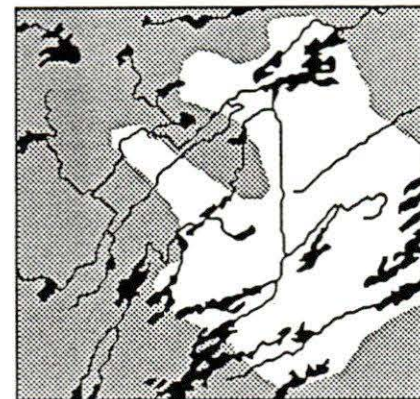


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	21	2	12/29/76	15	GGGG	1007

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	21	2	2/21/77	35	GGGG	1008

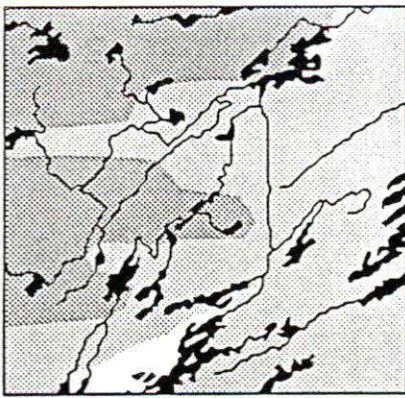




 opaque  
 transparent

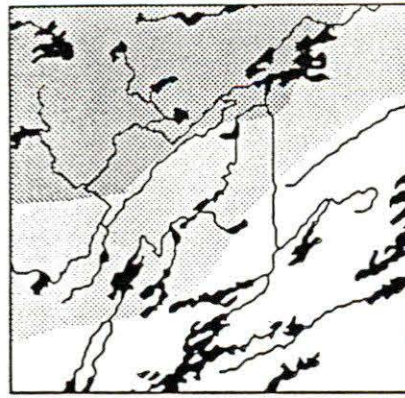


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	21	2	3/29/77	0	GGPG	1009

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	21	2	4/16/77	35	GGGG	1010

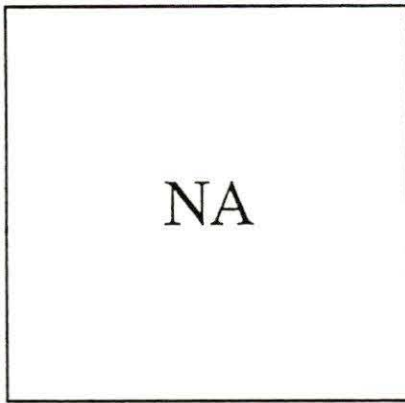




 opaque  
 transparent

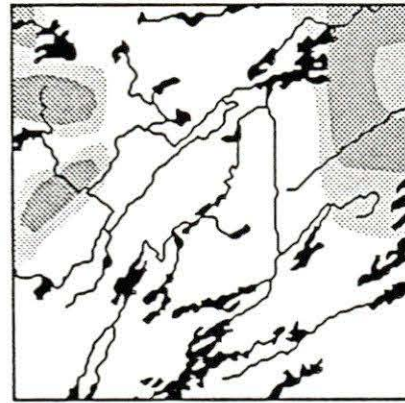


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	21	2	6/27/77	50	GGGG	1011

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	21	2	7/15/77	35	GGGG	1012

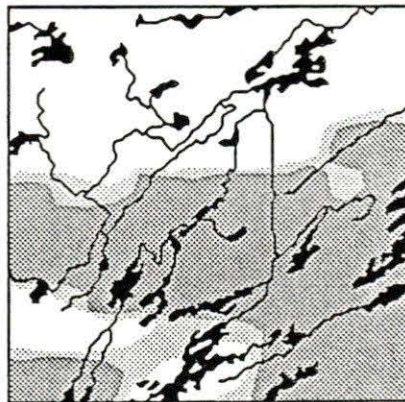




 opaque  
 transparent



Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	21	2	1/29/78	25	GGGG	1013

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	21	2	4/29/78	5	GGGG	1014





 opaque  
 transparent



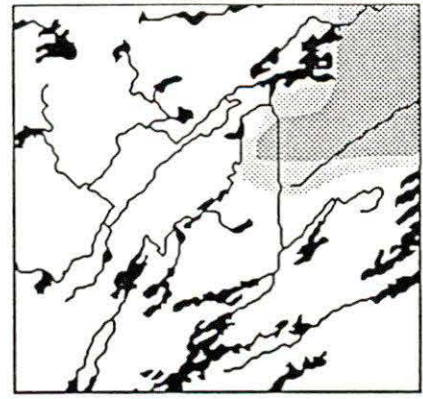
Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	21	2	6/22/78	50	FFFF	1015

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	21	2	7/10/78	0	FFFF	1016

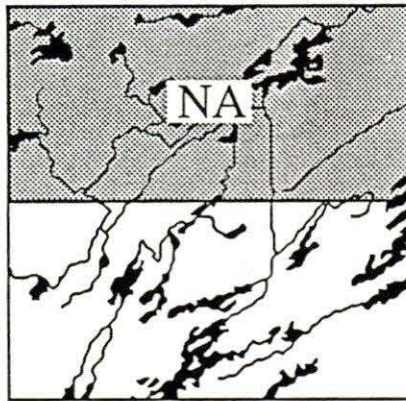




 opaque  
 transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	21	2	7/28/78	40	FFFF	1017

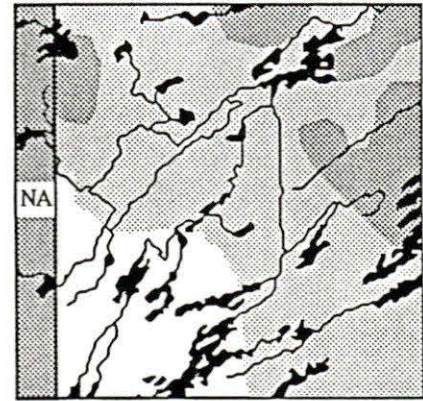


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	21	2	10/8/78	20	FFFF	1018

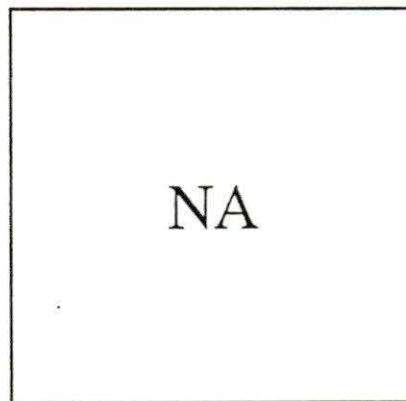




 opaque  
 transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	21	2	12/1/78	0	FFFF	1019

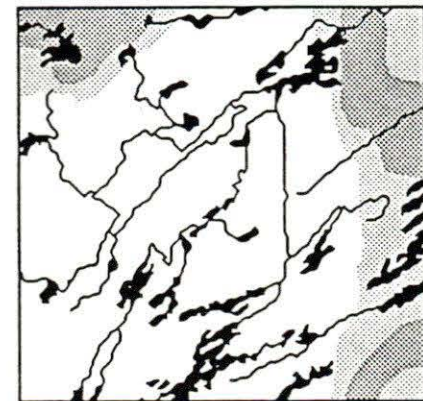


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	21	2	1/24/79	35	GGGG	1020



 opaque  
 transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	21	2	2/11/79	0	GGGG	1021



Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	21	2	4/6/79	10	GGGG	1022



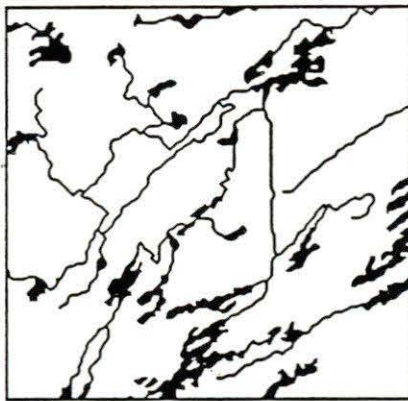


opaque  
transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	21	2	4/24/79	5	GGGG	1023

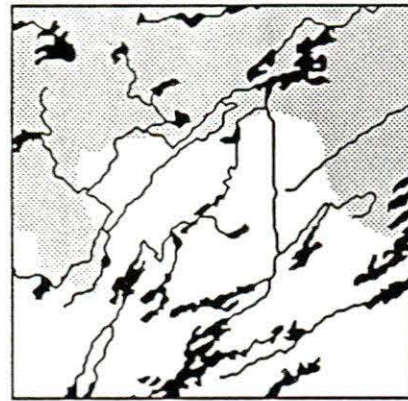


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	21	2	6/17/79	25	GGGG	1024

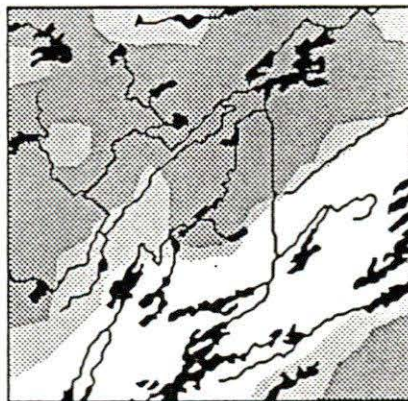


opaque  
transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	21	2	7/5/79	0	GGGG	1025

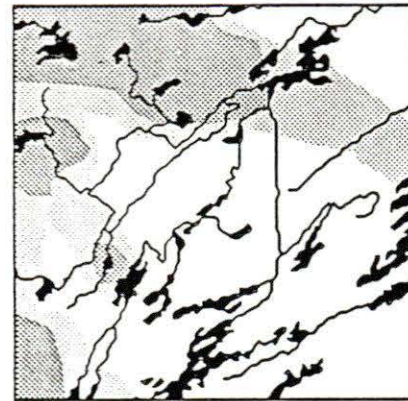


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	21	2	8/10/79	5	GGGG	1026

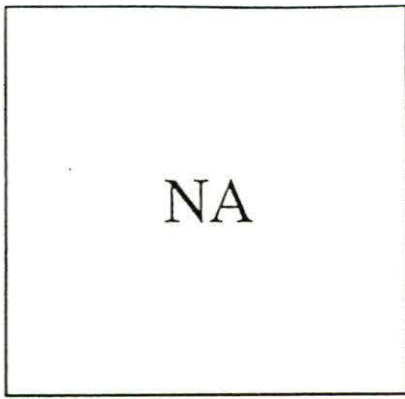




opaque  
transparent

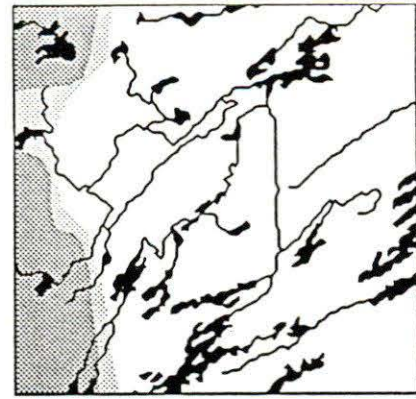
Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	21	2	8/28/79	50	GGGG	1027



Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	21	2	9/27/80	40	GGGG	1028

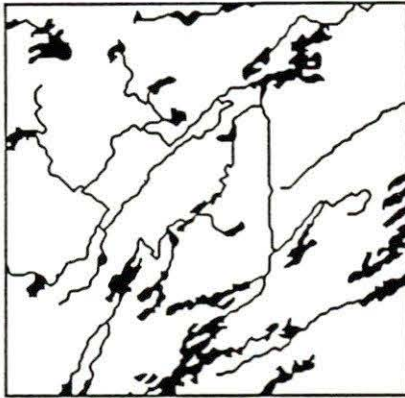




 opaque  
 transparent

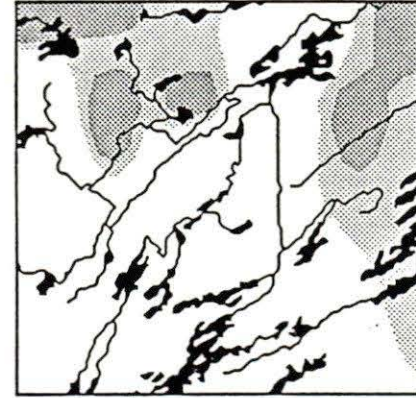


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	21	2	11/20/80	30	FGFF	1029

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	21	2	12/8/80	10	GGGG	1030

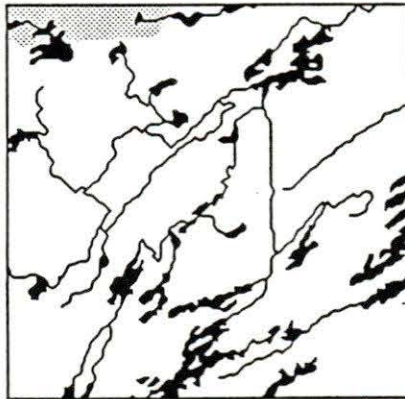


 opaque  
 transparent



Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	21	2	1/31/81	0	GGGG	1031

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	21	2	3/26/81	5	GGGG	1032

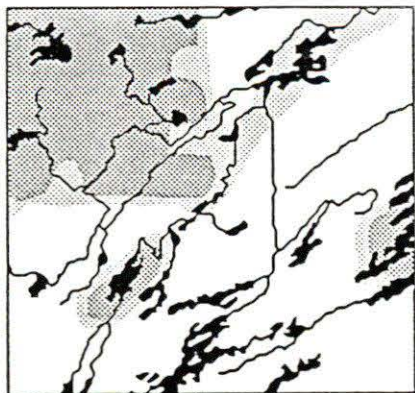




 opaque  
 transparent

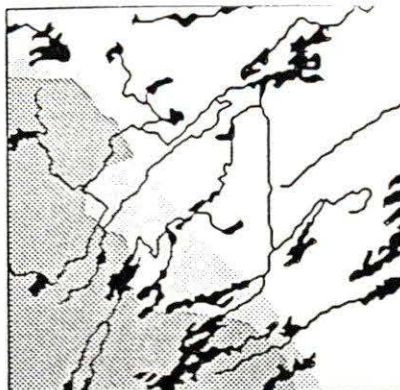


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	21	2	4/13/81	0	GGGG	1033

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	21	2	5/1/81	2	GGGG	1034

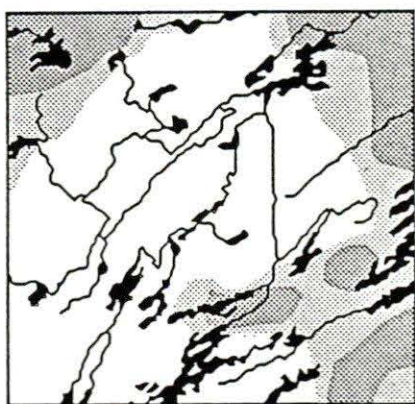




 opaque  
 transparent

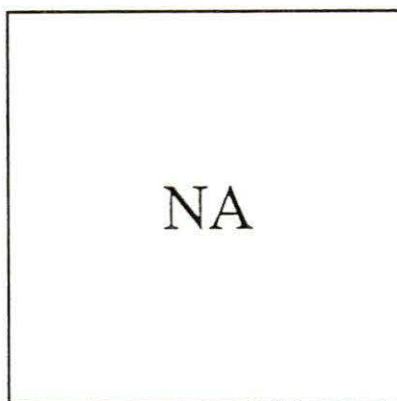


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	21	2	8/17/81	30	GGGG	1035

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	21	2	9/22/81	20	GGGG	1036

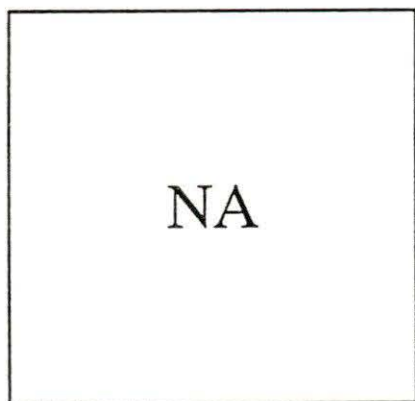




 opaque  
 transparent

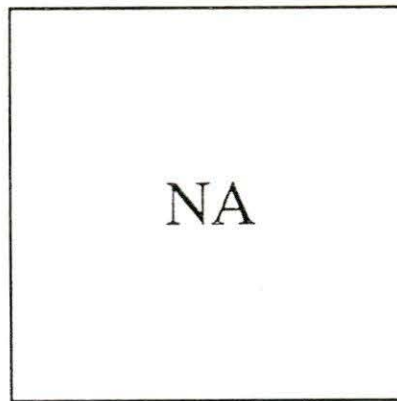


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	21	2	1/8/82	20	GGGG	1037

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	21	3	1/15/79	0	FFFF	1038

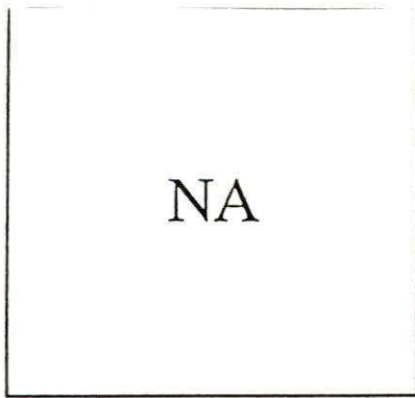




 opaque  
 transparent



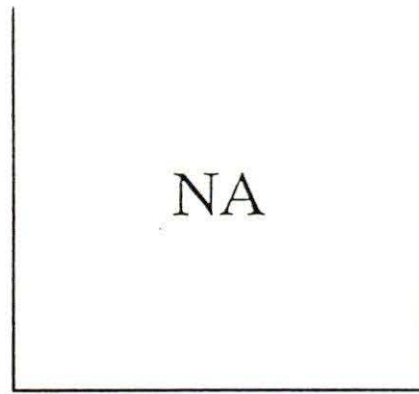
Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	21	3	2/2/79	30	FFFF	1039

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	21	3	2/20/79	30	GGGG	1040

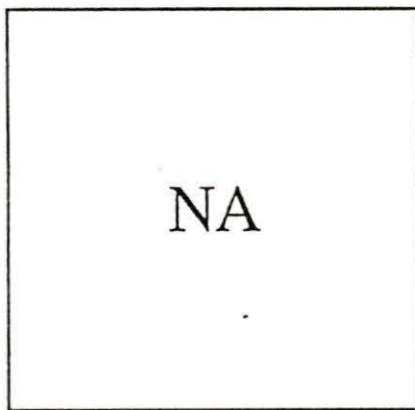




 opaque  
 transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	21	3	3/28/79	50	GGGG	1041

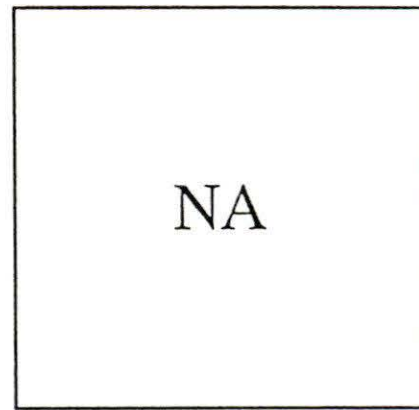


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	21	3	11/17/79	20	GGGG	1042

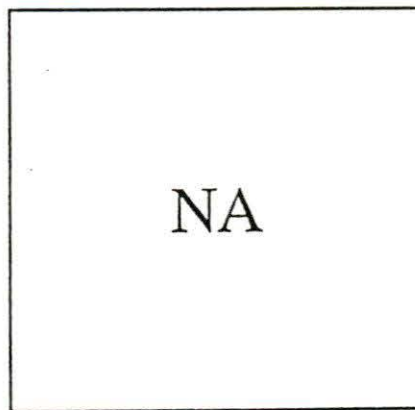


 opaque  
 transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	21	3	1/10/80	35	GGGG	1043

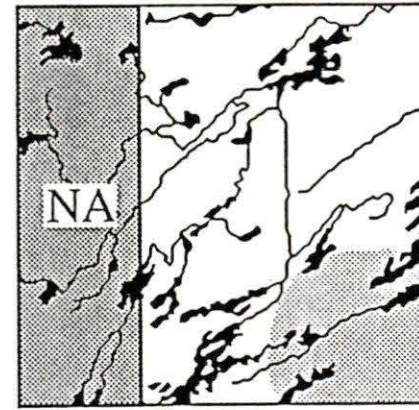


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	21	3	1/28/80	0	PPPP	1044

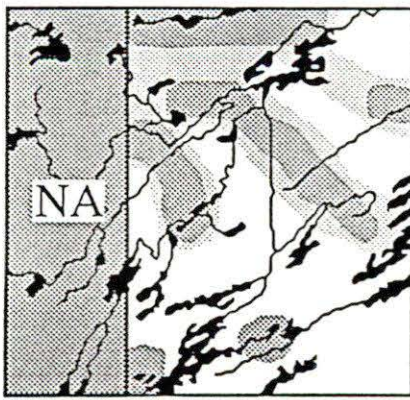


 opaque  
 transparent

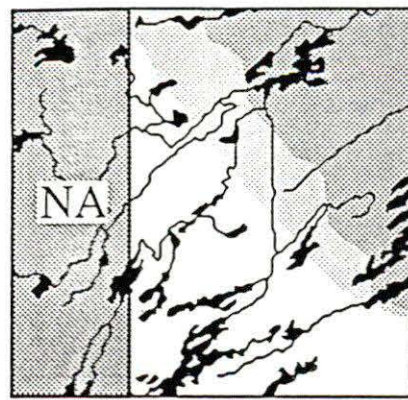
Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	21	3	2/15/80	10	UGGG	1045



Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	21	3	4/17/82	5	GGGG	1046

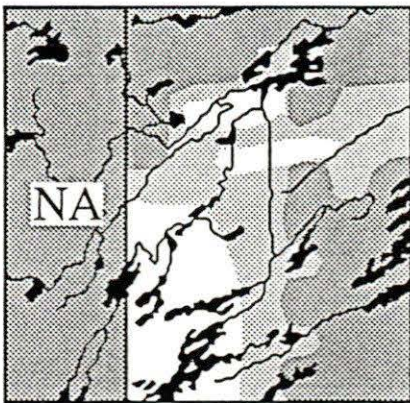


opaque  
transparent

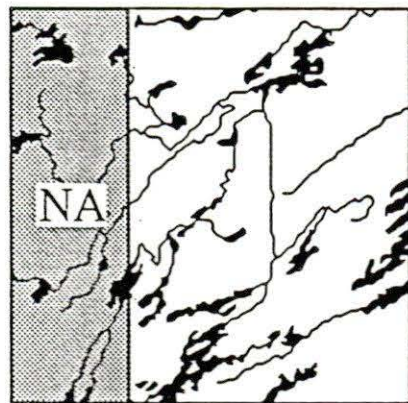


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	21	3	5/23/82	15	GGGG	1047

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	21	3	6/10/82	30	GGGG	1048



opaque  
transparent



Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	21	3	8/21/82	35	GGGG	1049

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	21	3	9/8/82	0	GGGG	1050

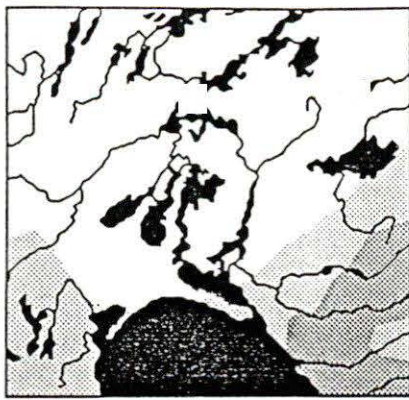


opaque  
transparent



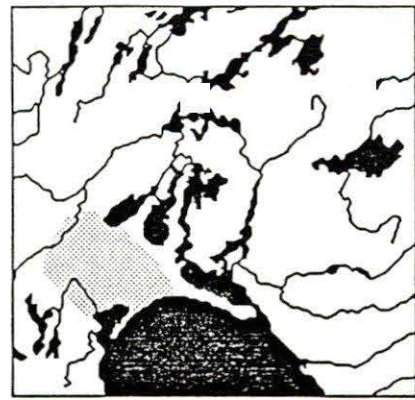
Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	22	1	10/30/72	20	GGGG	1051

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	22	1	11/17/72	9	FFFF	1052

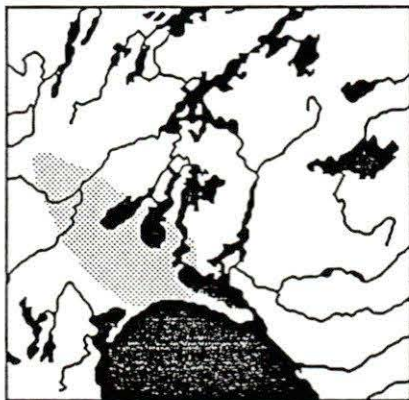


opaque  
transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	22	1	12/5/72	15	GGGG	1053



Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	22	1	12/23/72	0	GEEE	1054

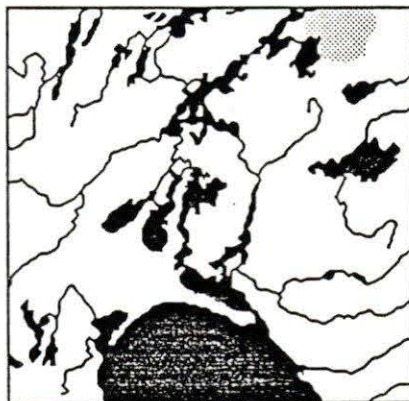


opaque  
transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	22	1	2/15/73	0	GGGG	1055

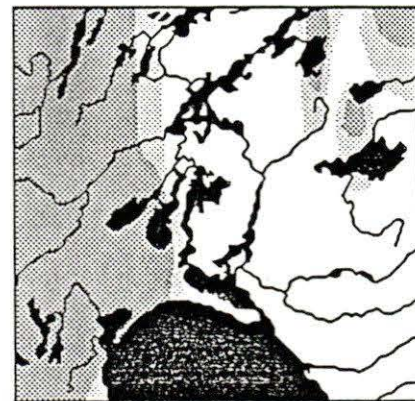


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	22	1	4/28/73	0	GGGG	1056

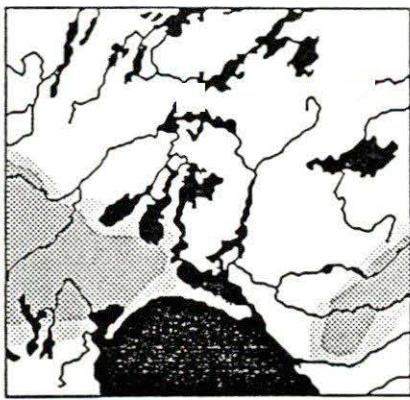




opaque  
transparent

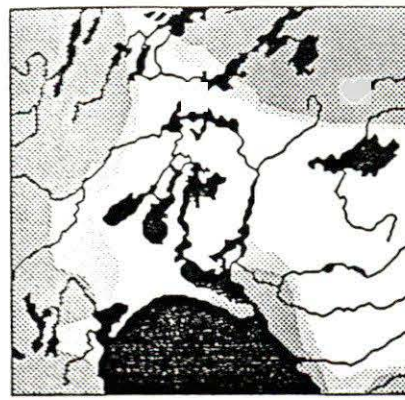
Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	22	1	5/16/73	1	GGGG	1057



Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	22	1	6/21/73	45	**GE	1058

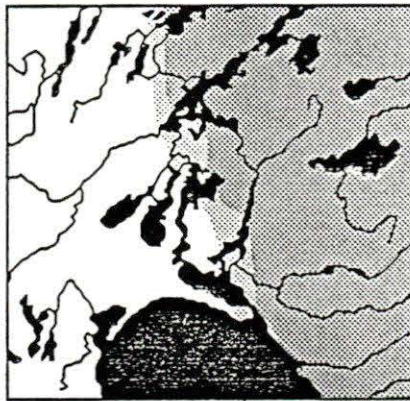




 opaque  
 transparent

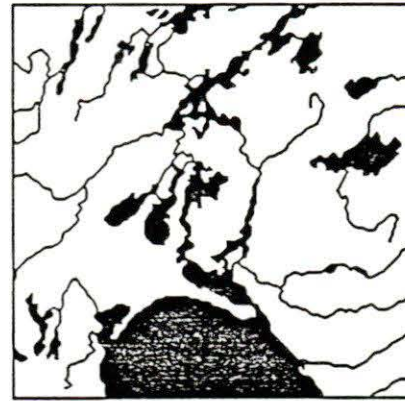


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	22	1	7/27/73	20	PFPF	1059

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	22	1	8/14/73	50	PFFG	1060





 opaque  
 transparent

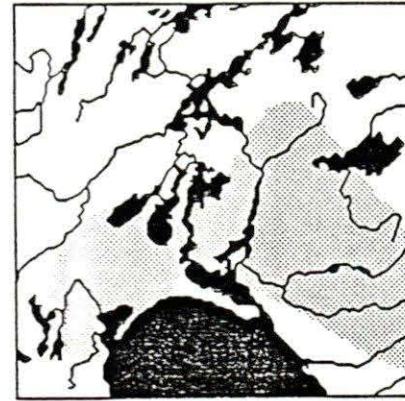


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	22	1	9/19/73	50	EGFG	1061

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	22	1	11/30/73	0	GGGG	1062

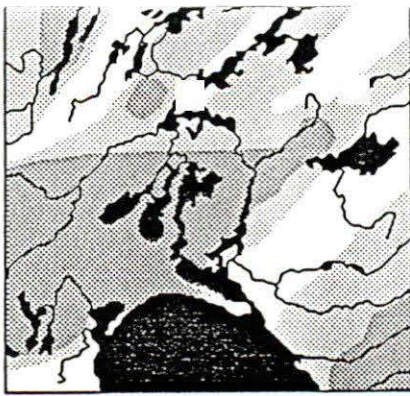




 opaque  
 transparent



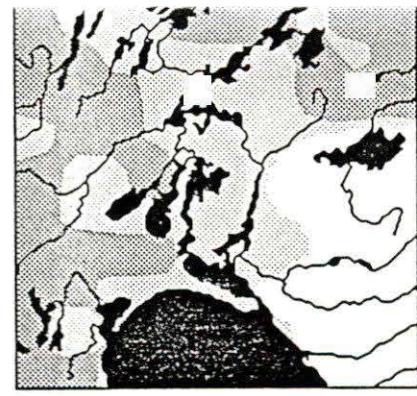
Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	22	1	3/18/74	0	GGG*	1063

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	22	1	4/23/74	15	PGGG	1064

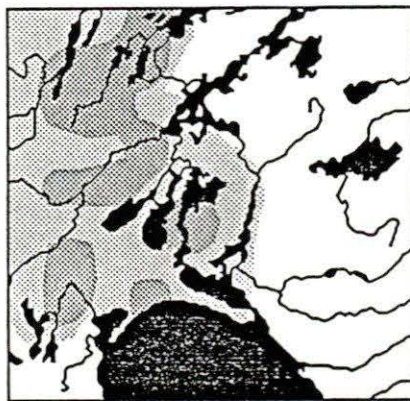




 opaque  
 transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	22	1	5/11/74	50	GGGG	1065

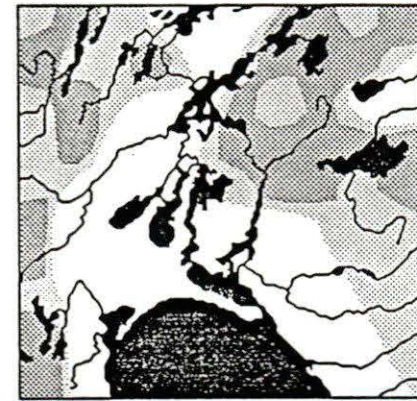


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	22	1	5/29/74	35	FGGG	1066

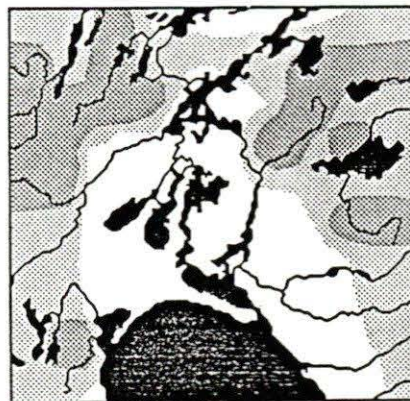




 opaque  
 transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	22	1	6/16/74	20	FGGE	1067



Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	22	1	7/4/74	30	PGGE	1068



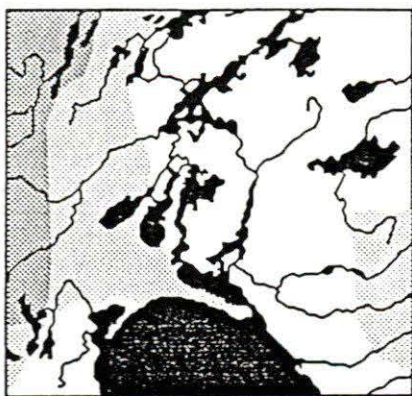
 opaque  
 transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	22	1	7/22/74	25	FGEE	1069



Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	22	1	11/7/74	8	GGEE	1070



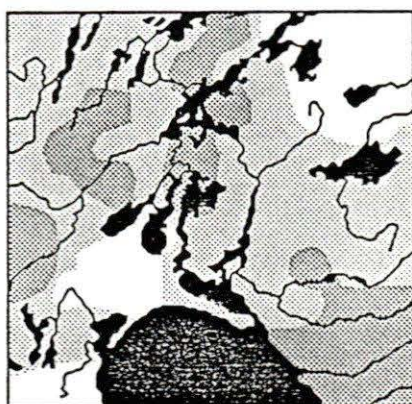


opaque  
transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	22	1	2/23/75	15	GGGG	1071

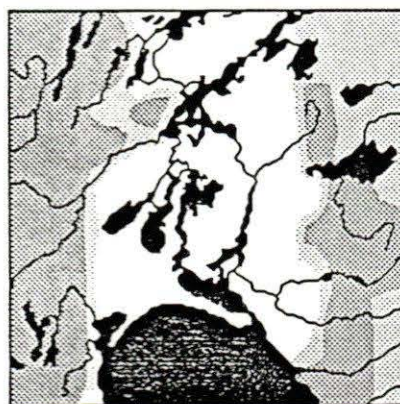


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	22	1	3/13/75	5	GGGG	1072



opaque  
transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	22	1	5/6/75	20	GGGG	1073



Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	22	1	6/29/75	40	FFGG	1074



opaque  
transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	22	1	2/18/76	0	GGGP	1075



Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	22	1	3/7/76	5	GGGG	1076



opaque  
transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	22	1	3/25/76	5	GGFG	1077

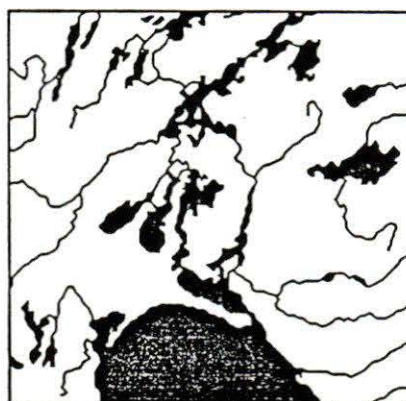


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	22	1	4/12/76	0	FF*G	1078

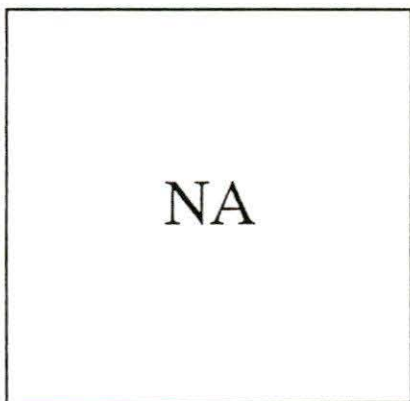


opaque  
transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	22	1	7/11/76	10	FFFF	1079

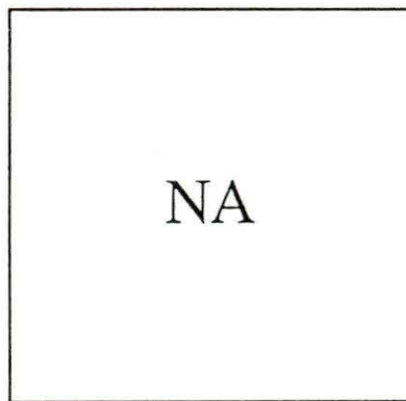


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	22	1	8/16/76	0	GGGG	1080

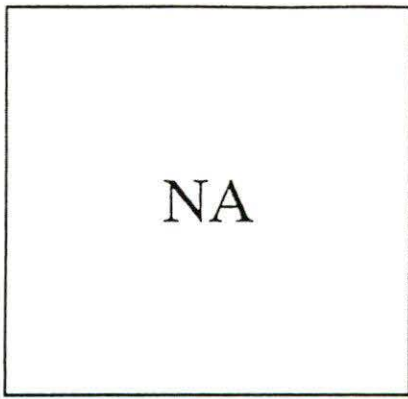




opaque  
transparent

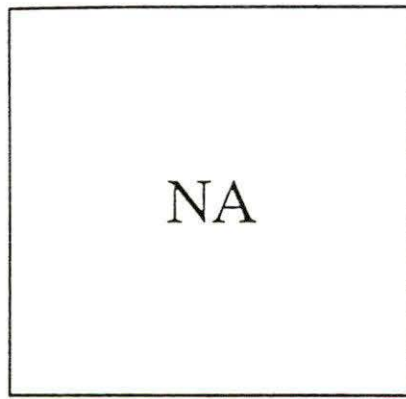
Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	22	1	7/3/77	40	*GGG	1081



Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	22	1	7/21/77	0	*GFG	1082

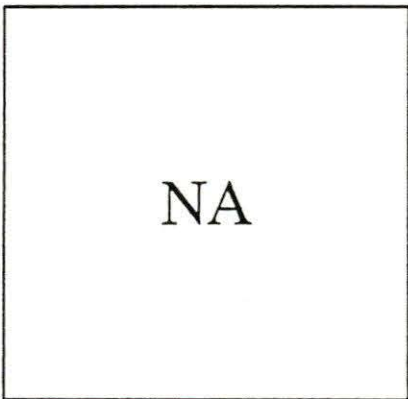




 opaque  
 transparent

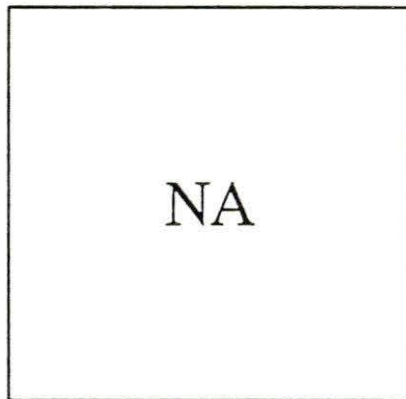


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	22	1	8/26/77	5	*GFG	1083

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	22	1	10/1/77	5	*GFG	1084

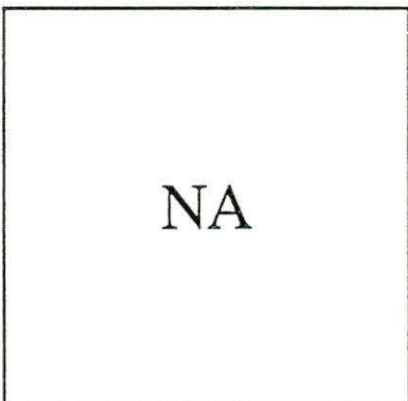




 opaque  
 transparent

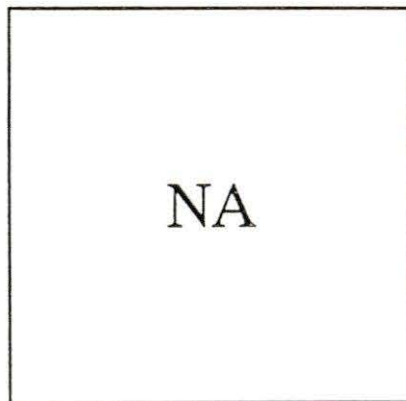


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	22	2	4/9/75	50	GGGG	1085

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	22	2	5/15/75	25	FFGG	1086

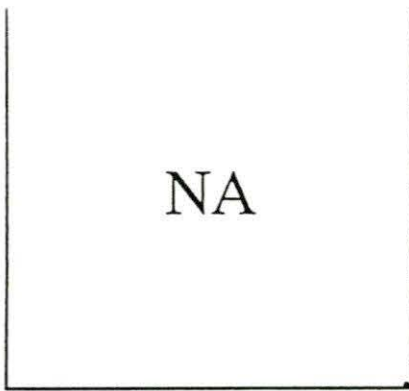


 opaque  
 transparent



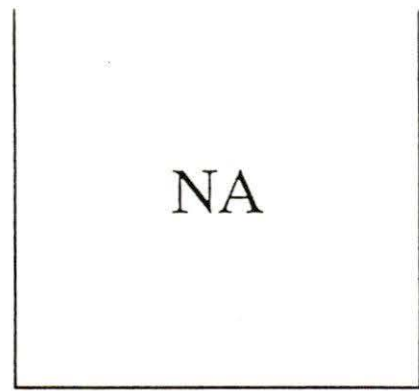
Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	22	2	8/13/75	25	GGGG	1087

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	22	2	12/17/75	0	GGGF	1088

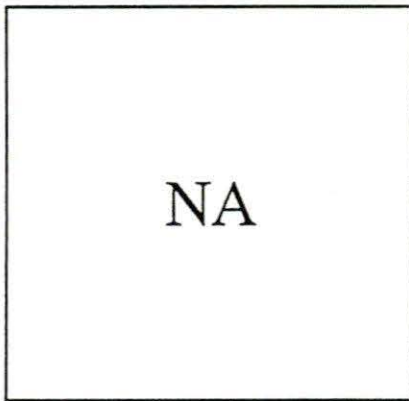


opaque  
transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	22	2	2/27/76	25	GGGG	1089

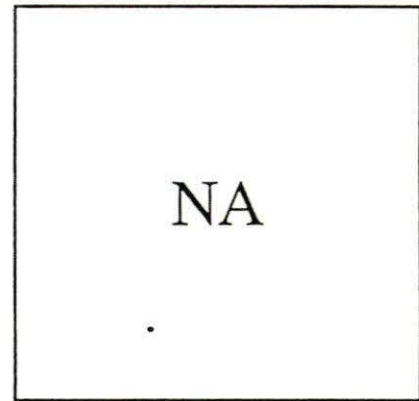


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	22	2	3/16/76	15	GGGG	1090

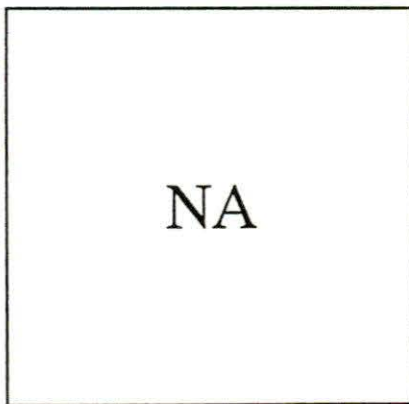


opaque  
transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	22	2	4/3/76	0	GGGG	1091

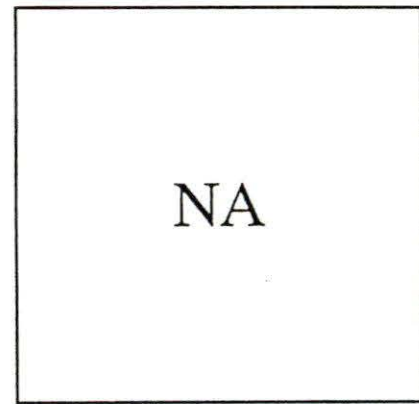


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	22	2	4/21/76	30	GGGG	1092

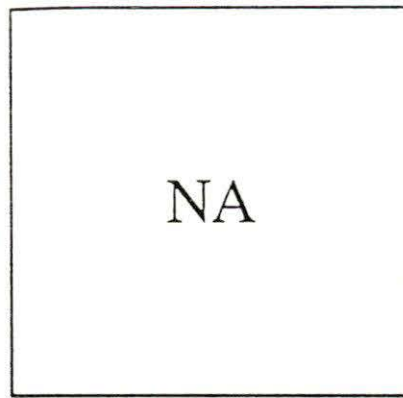
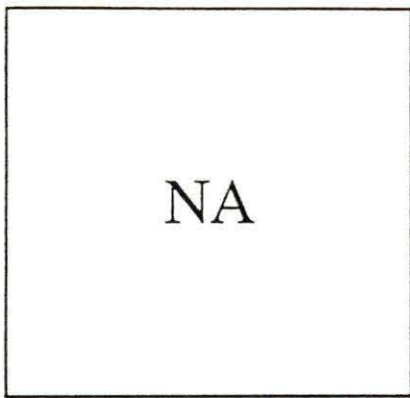




opaque  
transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	22	2	5/9/76	30	GGGG	1093



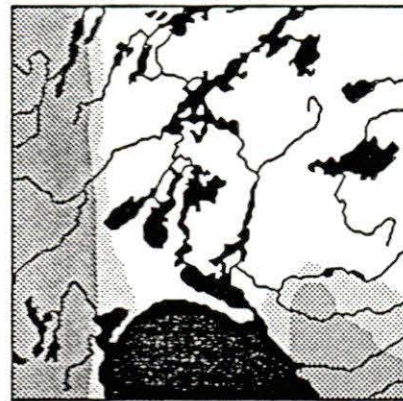
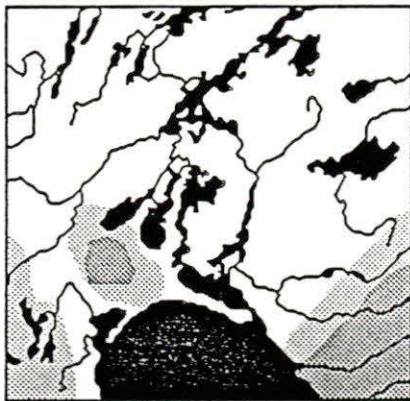
Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	22	2	7/2/76	0	GGGG	1094





 opaque  
 transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	22	2	7/20/76	35	GGFG	1095

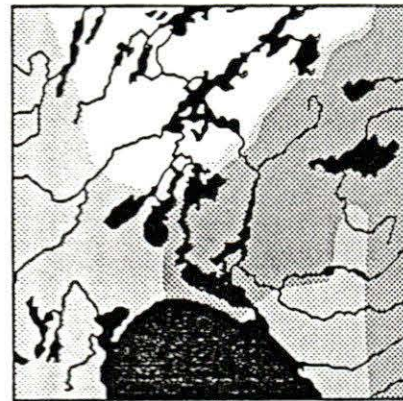
Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	22	2	8/7/76	50	GGGG	1096





 opaque  
 transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	22	2	12/11/76	5	GGGG	1097

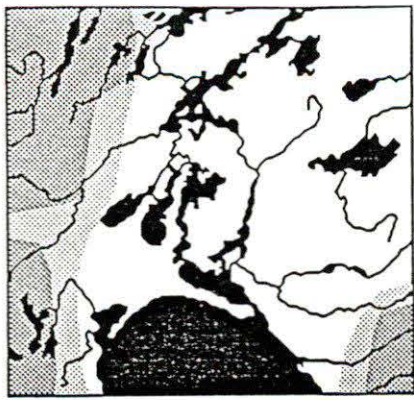
Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	22	2	12/29/76	25	GGGF	1098





 opaque  
 transparent

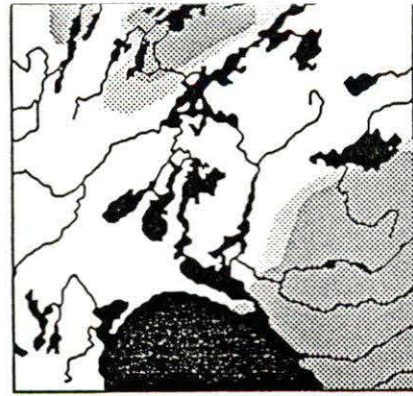
Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	22	2	2/21/77	30	GGGG	1099

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	22	2	3/29/77	20	GGPG	1100

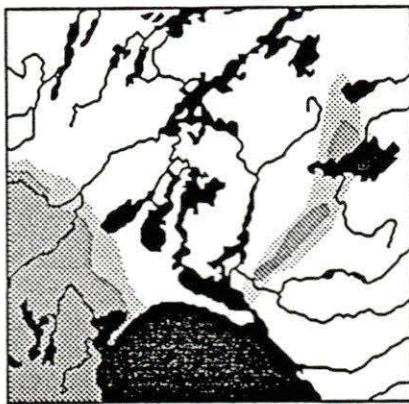




 opaque  
 transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	22	2	4/16/77	10	G G G G	1101

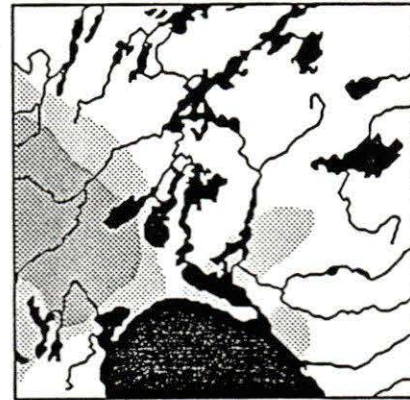


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	22	2	5/4/77	20	F G G G	1102

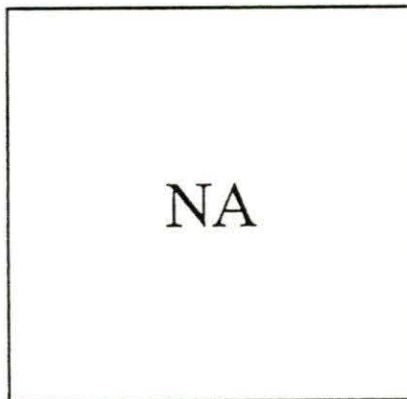




 opaque  
 transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	22	2	5/22/77	15	*G G G	1103

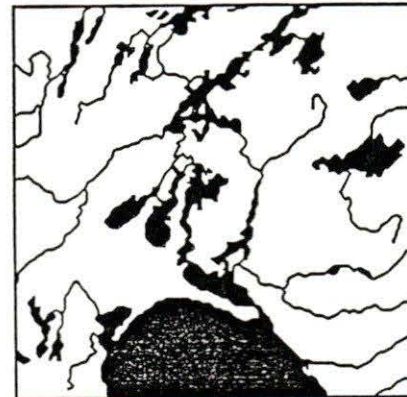


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	22	2	6/27/77	15	G G G G	1104





 opaque  
 transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	22	2	1/29/78	15	G G G G	1105

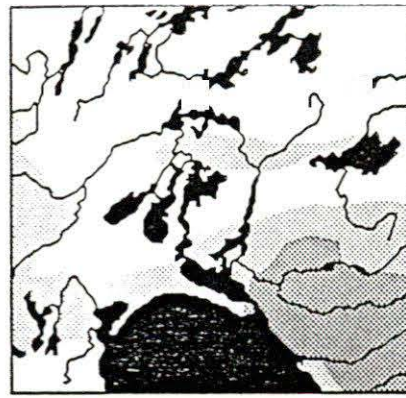


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	22	2	4/29/78	0	G G G G	1106

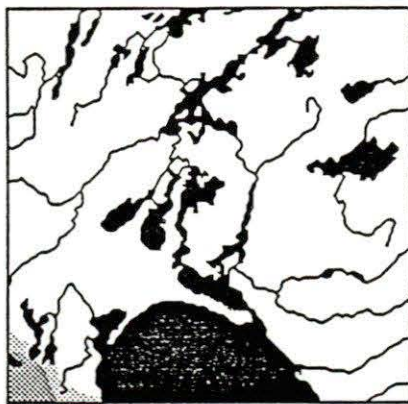




 opaque  
 transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	22	2	5/17/78	5	GGGG	1107

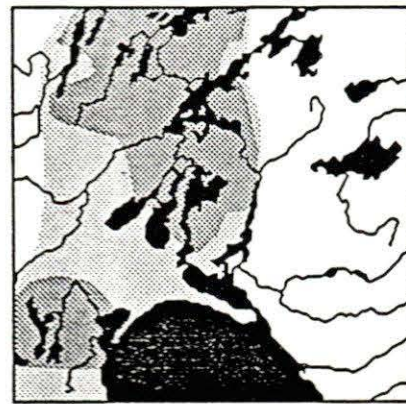


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	22	2	7/10/78	40	FFFF	1108

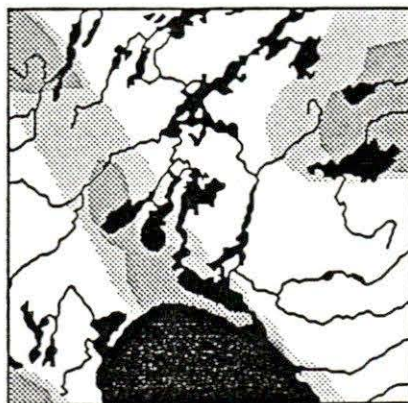


 opaque  
 transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	22	2	12/1/78	2	FFFF	1109

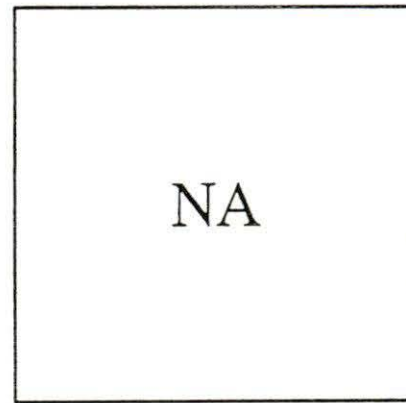


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	22	2	1/6/79	40	FFFF	1110





 opaque  
 transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	22	2	1/24/79	25	GGGG	1111



Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	22	2	2/11/79	0	GGGG	1112

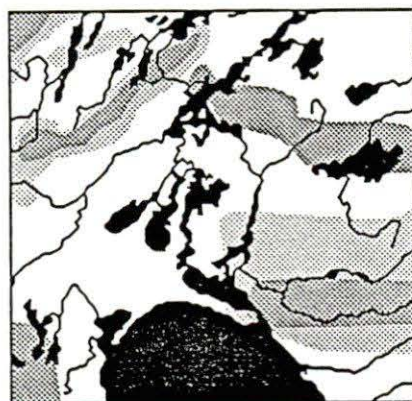




 opaque  
 transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	22	2	4/6/79	0	GGGG	1113

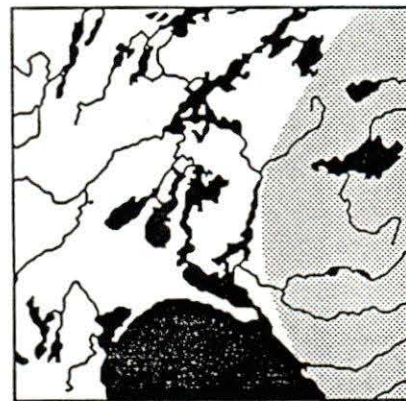


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	22	2	4/24/79	0	GGGG	1114





 opaque  
 transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	22	2	6/17/79	40	GGGG	1115

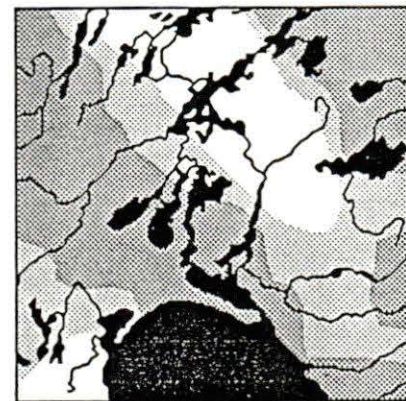


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	22	2	7/5/79	0	GGGG	1116



 opaque  
 transparent



Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	22	2	8/10/79	5	GGGG	1117

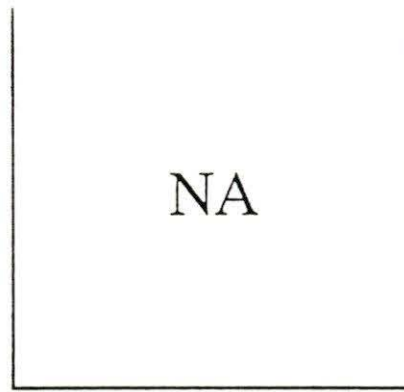


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	22	2	9/9/80	40	GGGF	1118



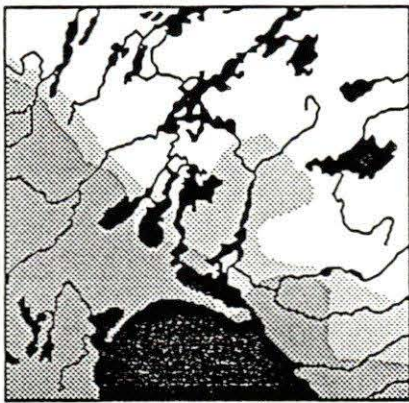




 opaque  
 transparent



Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	22	2	9/27/80	20	GGGG	1119

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	22	2	11/20/80	25	GGFG	1120





 opaque  
 transparent



Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	22	2	12/8/80	40	GGGG	1121

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	22	2	12/26/80	40	GGGG	1122

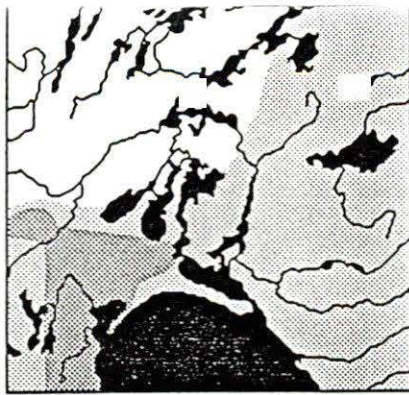




 opaque  
 transparent



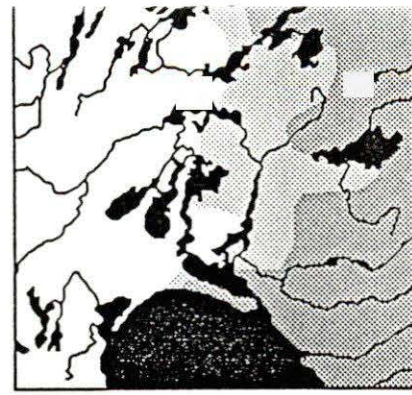
Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	22	2	1/31/81	20	GGGG	1123

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	22	2	3/26/81	5	GGGG	1124





 opaque  
 transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	22	2	4/13/81	5	GGGG	1125

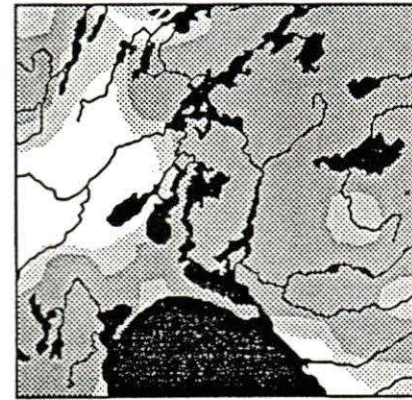


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	22	2	5/1/81	20	GGGG	1126

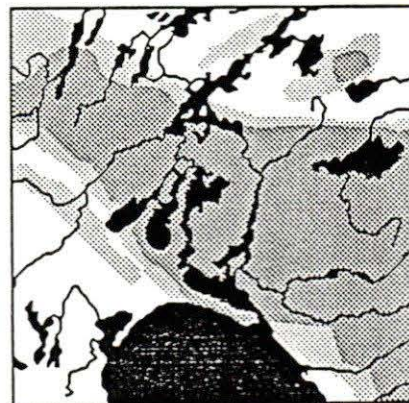




 opaque  
 transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	22	2	5/19/81	5	GGGG	1127



Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	22	2	7/12/81	40	GGGG	1128

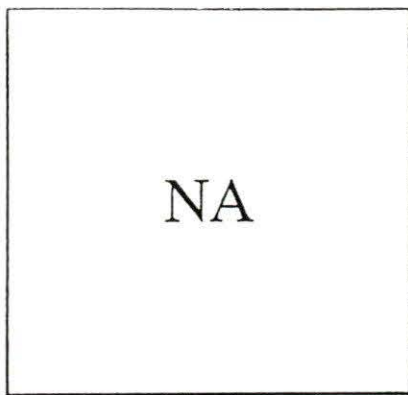


 opaque  
 transparent

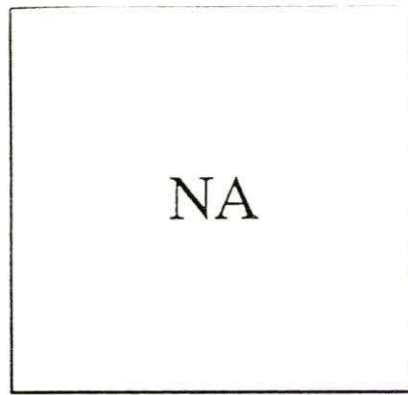
Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	22	2	8/17/81	45	GGGG	1129



Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	22	2	1/8/82	5	GGGG	1130

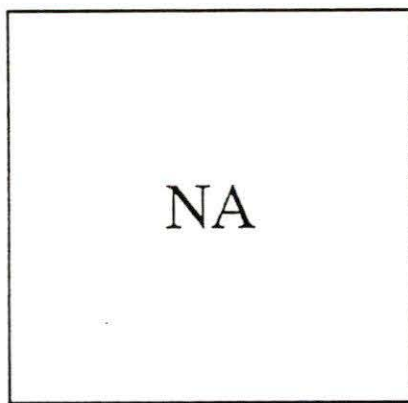


opaque  
transparent

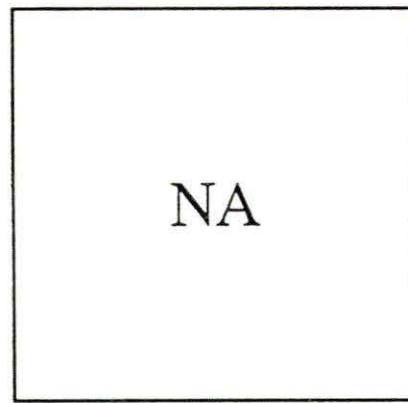


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	22	3	12/28/78	3	FFFF	1131

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	22	3	1/15/79	0	FFFF	1132

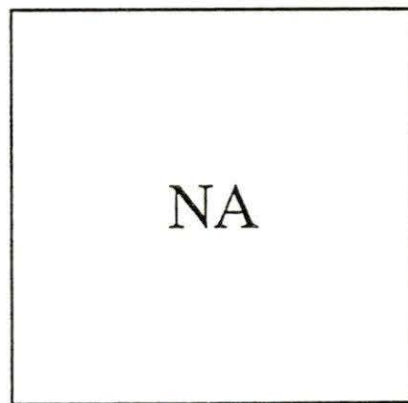


opaque  
transparent

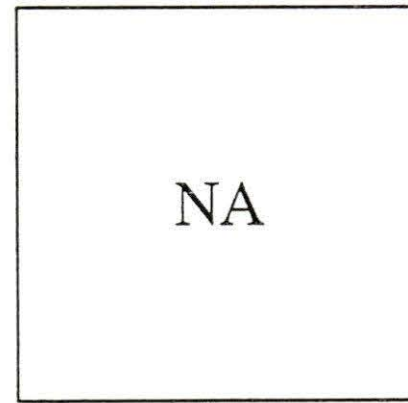


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	22	3	2/2/79	5	FFFF	1133

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	22	3	2/20/79	40	GGGG	1134

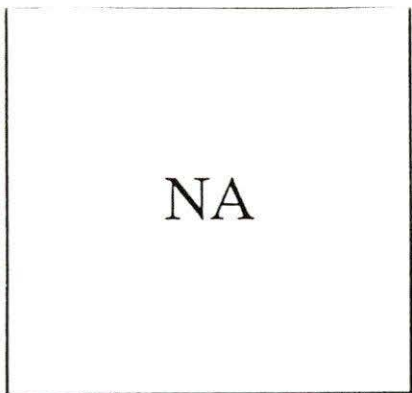




opaque  
transparent



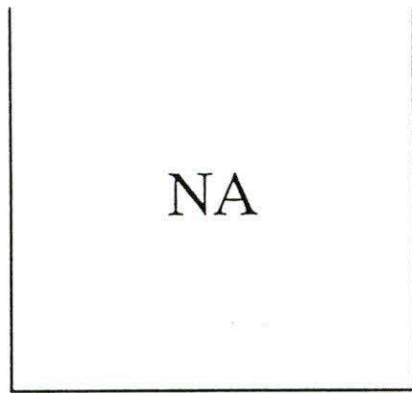
Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	22	3	3/28/79	20	GGGG	1135

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	22	3	11/17/79	20	GGGG	1136

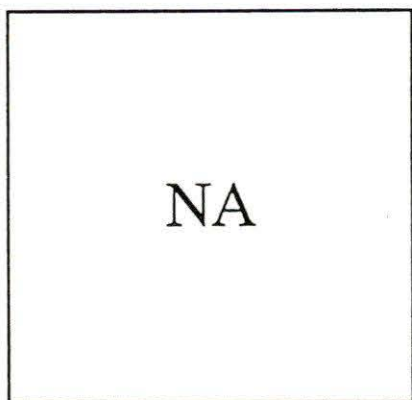




 opaque  
 transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	22	3	1/10/80	40	GGGG	1137

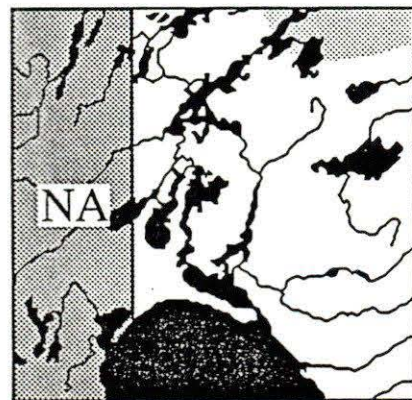


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	22	3	1/28/80	25	PPPP	1138

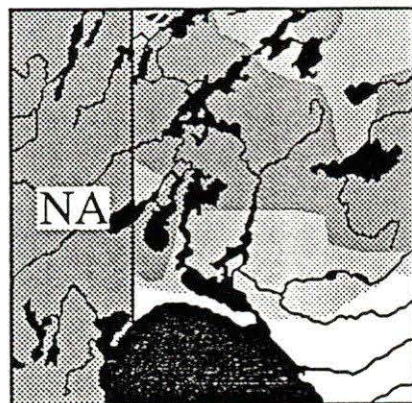


 opaque  
 transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	22	3	2/15/80	0	GGGG	1139

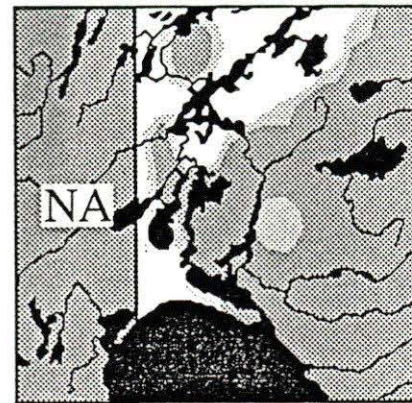


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	22	3	4/17/82	5	GGGG	1140

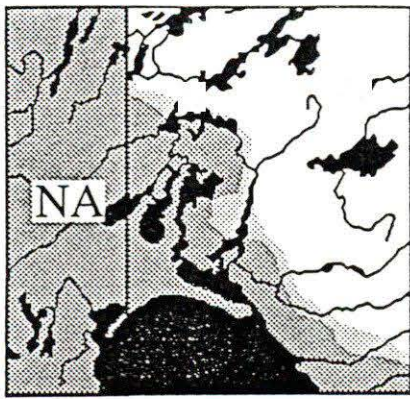




 opaque  
 transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	22	3	5/5/82	20	GGGG	1141

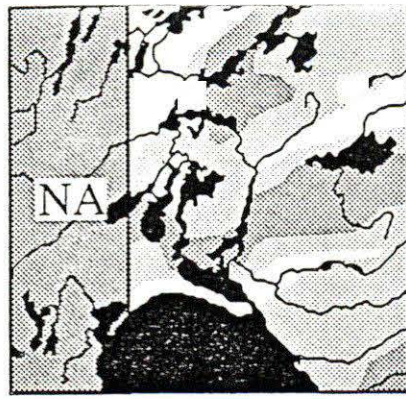


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	22	3	5/23/82	45	GGGG	1142

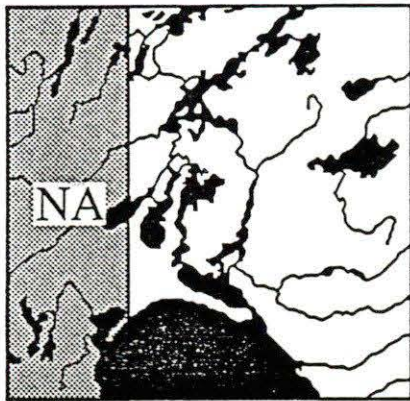




 opaque  
 transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	22	3	6/10/82	35	GGGG	1143

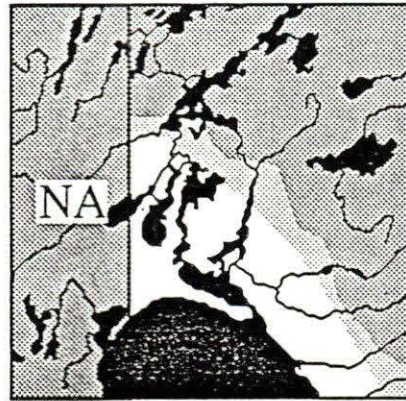


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	22	3	8/21/82	25	GGGG	1144

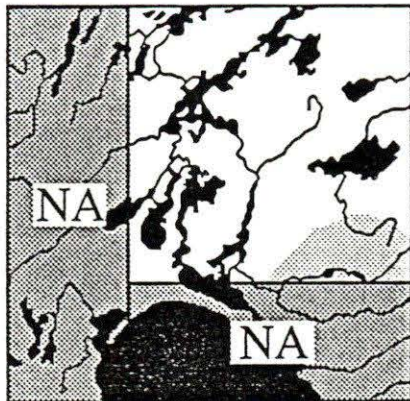




 opaque  
 transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	22	3	9/8/82	3	GGGG	1145

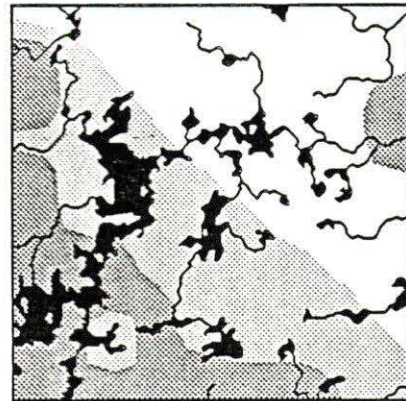


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	22	3	10/14/82	50	GGGG	1146

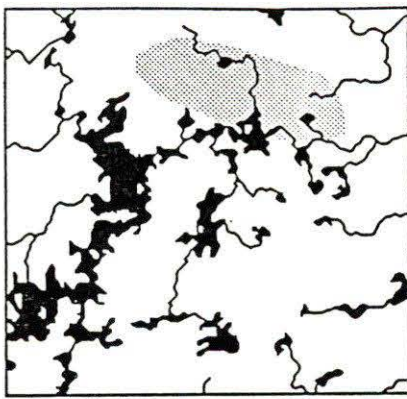


 opaque  
 transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
35	22	3	11/1/82	5	GGGG	1147

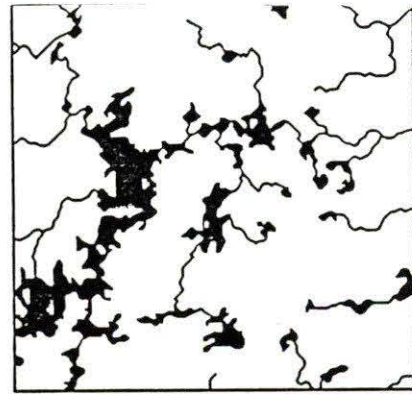


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
36	20	1	12/6/72	40	EEEE	1148

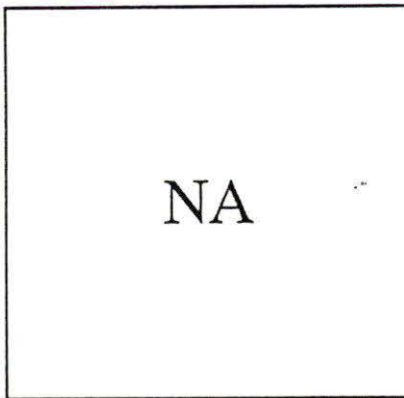


opaque  
transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
36	20	1	3/24/73	1	EGGG	1149

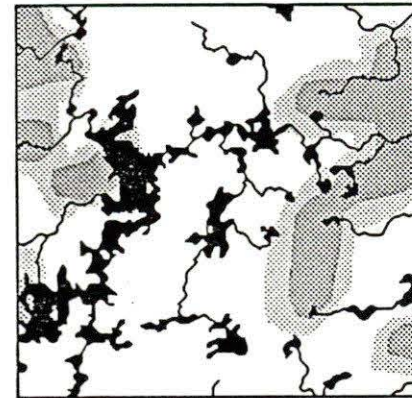


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
36	20	1	4/11/73	0	GGGG	1150

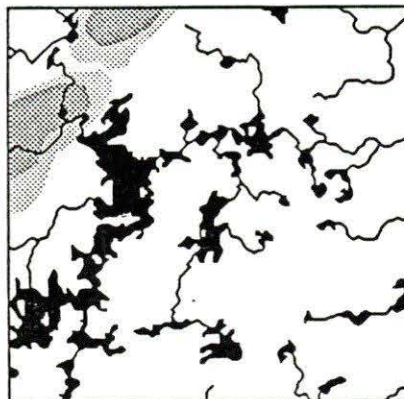


opaque  
transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
36	20	1	4/29/73	45	GGGF	1151

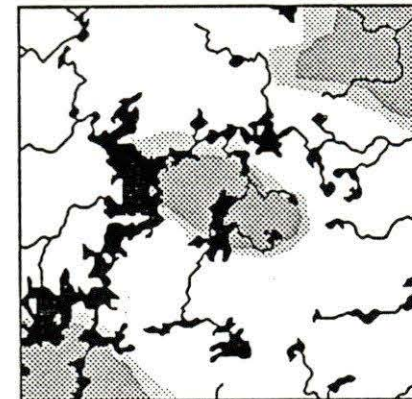


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
36	20	1	8/15/73	10	GGGG	1152

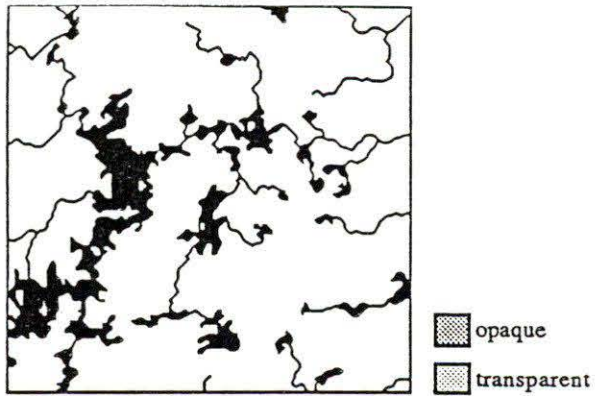


opaque  
transparent

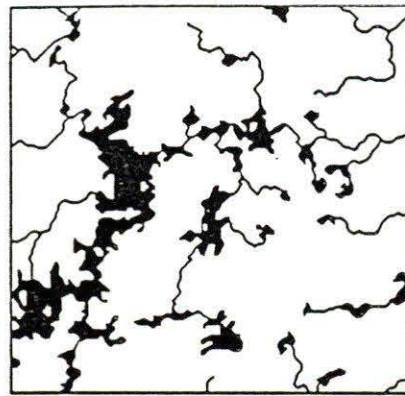
Path	Row	LS	Date	C/C	Qual. of MSS	App.#
36	20	1	9/2/73	5	GGGG	1153



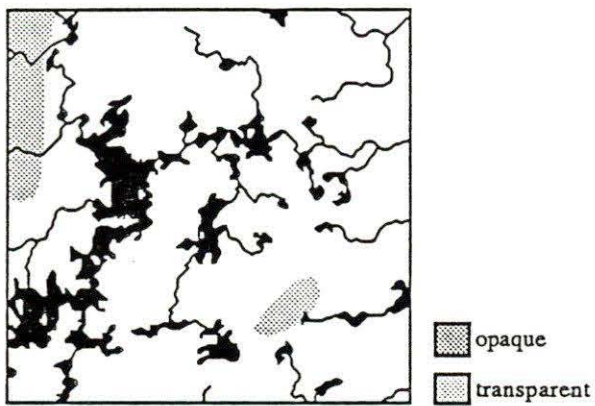
Path	Row	LS	Date	C/C	Qual. of MSS	App.#
36	20	1	11/13/73	25	EEEE	1154



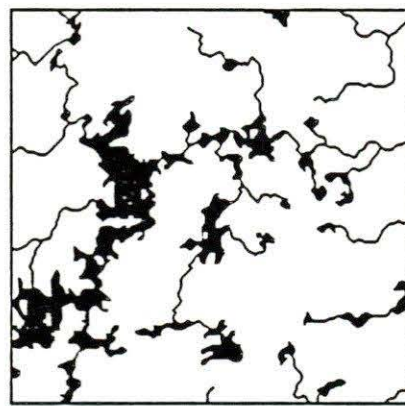
Path	Row	LS	Date	C/C	Qual. of MSS	App.#
36	20	1	1/24/74	0	EGEE	1155



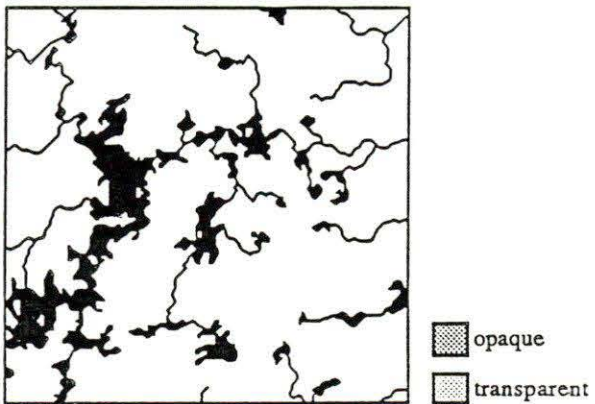
Path	Row	LS	Date	C/C	Qual. of MSS	App.#
36	20	1	2/11/74	0	GGGG	1156



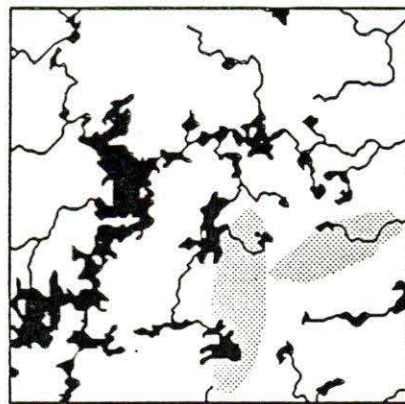
Path	Row	LS	Date	C/C	Qual. of MSS	App.#
36	20	1	3/19/74	0	GGGG	1157



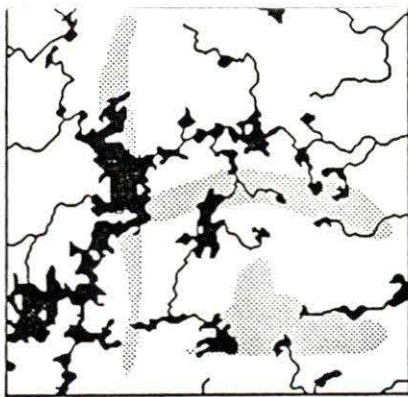
Path	Row	LS	Date	C/C	Qual. of MSS	App.#
36	20	1	4/6/74	0	G*GG	1158





Path	Row	LS	Date	C/C	Qual. of MSS	App.#
36	20	1	5/12/74	5	FFGG	1159

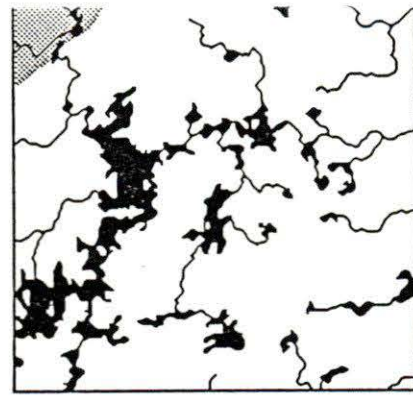


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
36	20	1	6/17/74	5	FFFF	1160

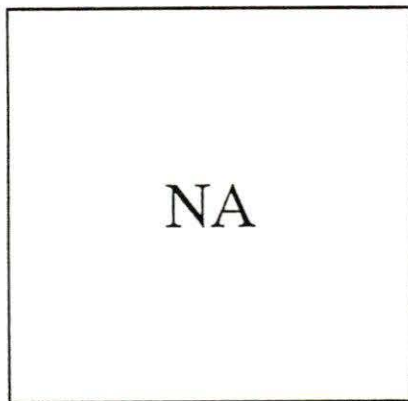




 opaque  
 transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
36	20	1	7/23/74	10	FFGE	1161

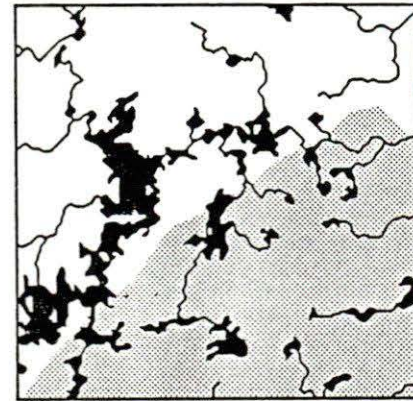


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
36	20	1	10/3/74	20	FGGG	1162

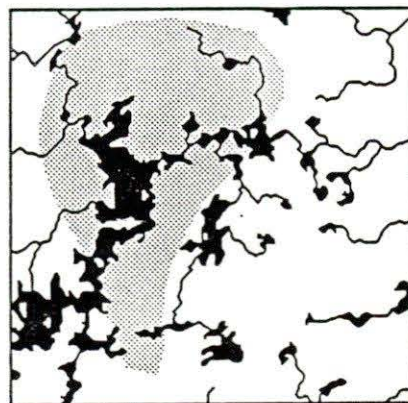




 opaque  
 transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
36	20	1	3/14/75	40	GGGG	1163

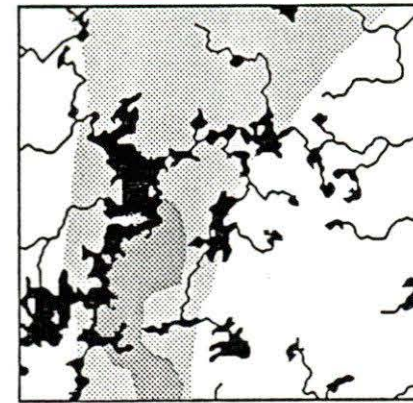


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
36	20	1	5/7/75	5	GGPE	1164



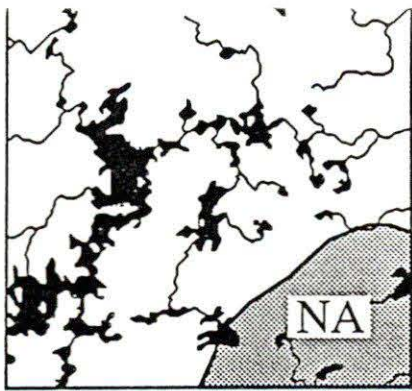
 opaque  
 transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
36	20	1	11/21/75	20	GGFG	1165



Path	Row	LS	Date	C/C	Qual. of MSS	App.#
36	20	1	2/1/76	35	GGPG	1166



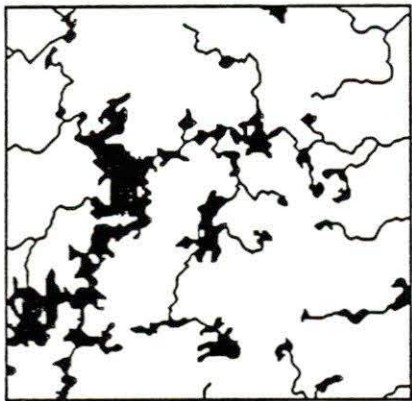


opaque  
transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
36	20	1	3/8/76	0	GGGG	1167

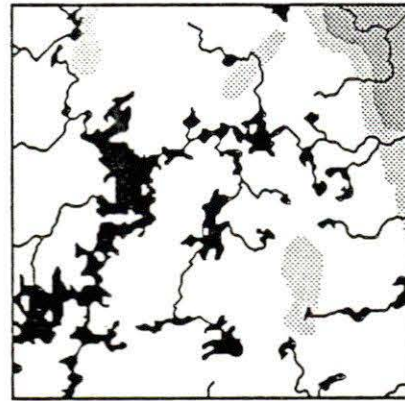


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
36	20	1	7/12/76	20	PGPG	1168

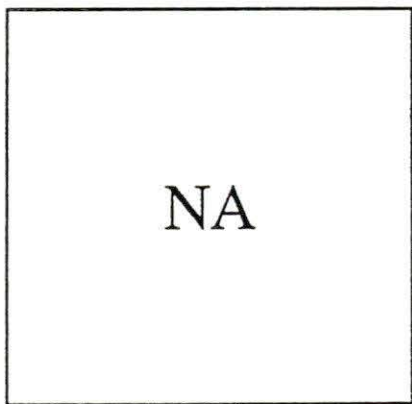


opaque  
transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
36	20	1	7/30/76	0	GGGG	1169

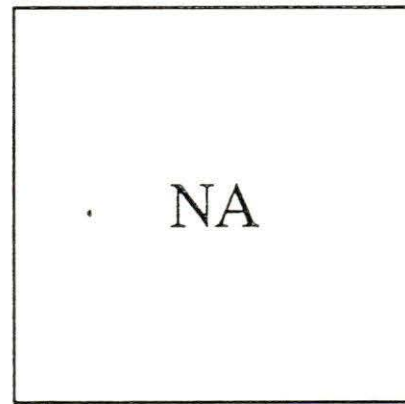


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
36	20	1	9/4/76	5	FF*G	1170

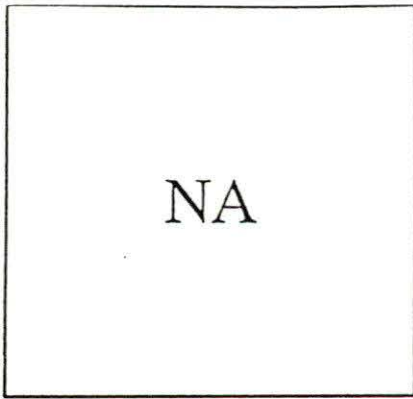


opaque  
transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
36	20	1	10/2/77	25	*GFG	1171

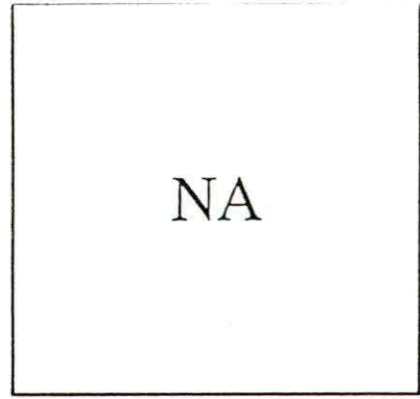


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
36	20	2	4/28/75	0	GGGG	1172

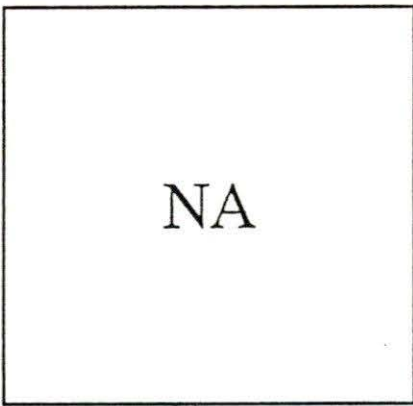


opaque  
transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
36	20	2	11/30/75	15	GGGG	1173

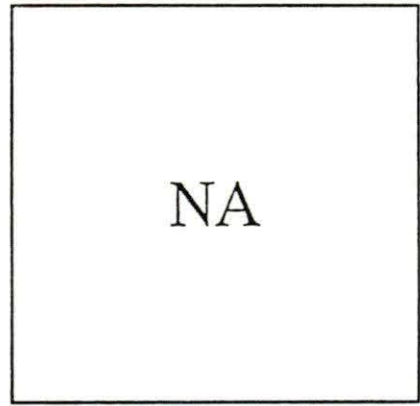


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
36	20	2	2/28/76	0	GGGG	1174

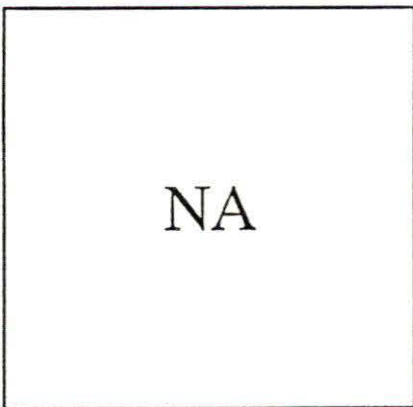


opaque  
transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
36	20	2	3/17/76	15	FGGG	1175

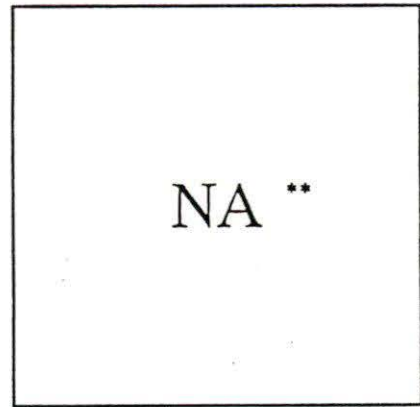


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
36	20	2	5/28/76	25	GGGG	1176



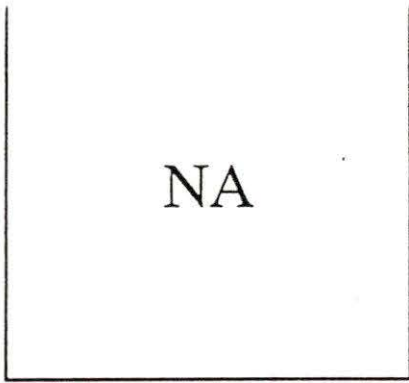
opaque  
transparent



Path	Row	LS	Date	C/C	Qual. of MSS	App.#
36	20	2	6/15/76	15	GGGF	1177

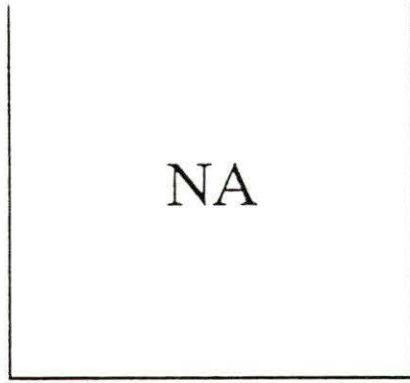


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
36	20	2	7/3/76	20	GGGG	1178

\*\* = App.# 1178 has been duplicated as # 1197

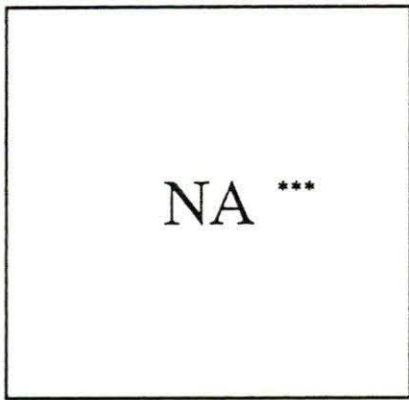




 opaque  
 transparent

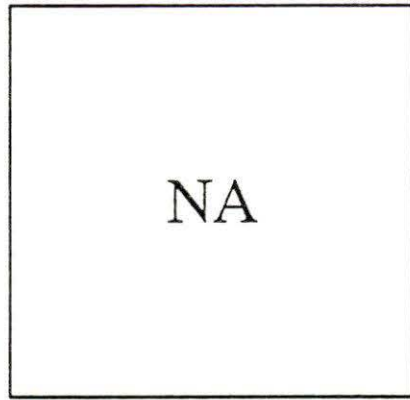


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
36	20	2	7/21/76	10	GGGG	1179

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
36	20	2	8/8/76	0	GGGG	1180



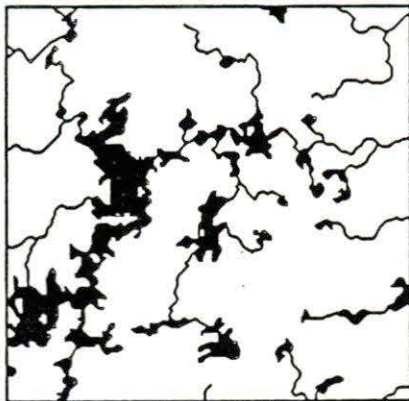
 opaque  
 transparent





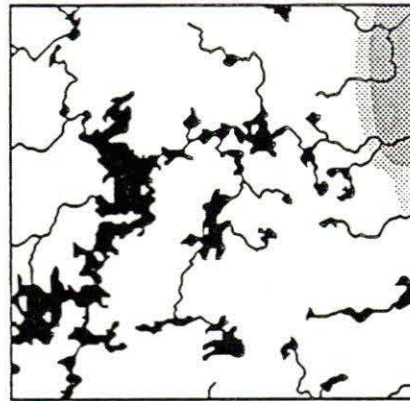
Path	Row	LS	Date	C/C	Qual. of MSS	App.#
36	20	2	9/13/76	1	GGGG	1181

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
36	20	2	10/1/76	15	GGGG	1182

\*\*\* = App.# 1181 has been duplicated as # 1198

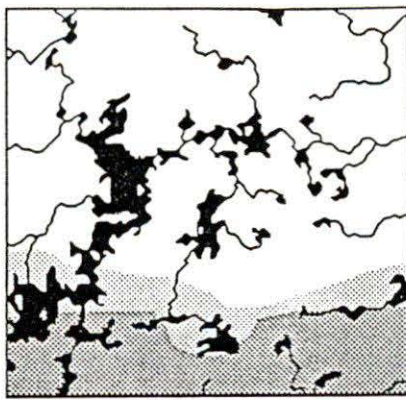




 opaque  
 transparent



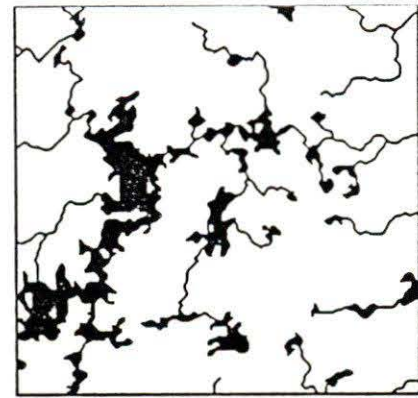
Path	Row	LS	Date	C/C	Qual. of MSS	App.#
36	20	2	11/6/76	0	FFGG	1183

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
36	20	2	1/17/77	7	GGGG	1184

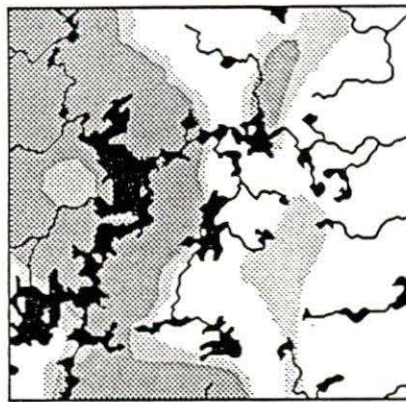




 opaque  
 transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
36	20	2	3/30/77	15	GG*G	1185

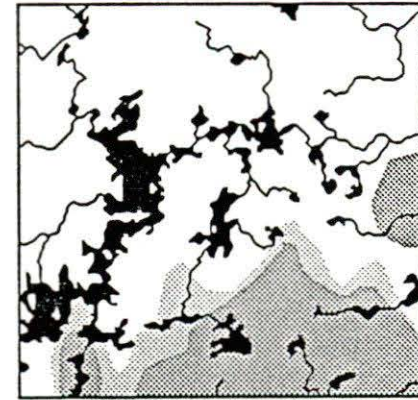


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
36	20	2	5/5/77	0	FGGG	1186

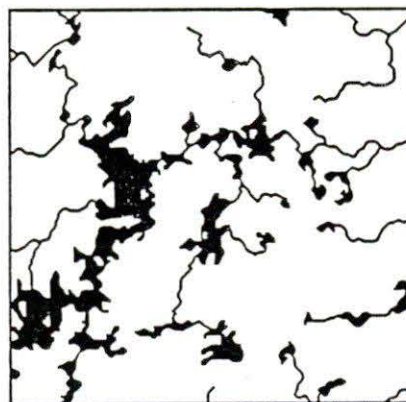




 opaque  
 transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
36	20	2	9/8/77	25	GGGG	1187

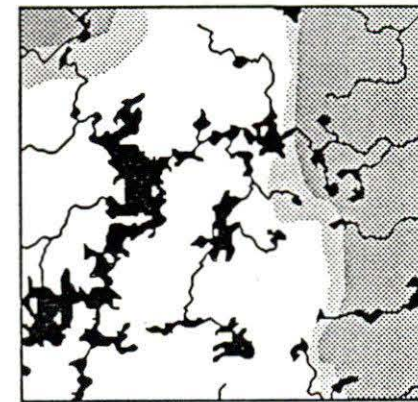


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
36	20	2	10/14/77	10	GGGG	1188

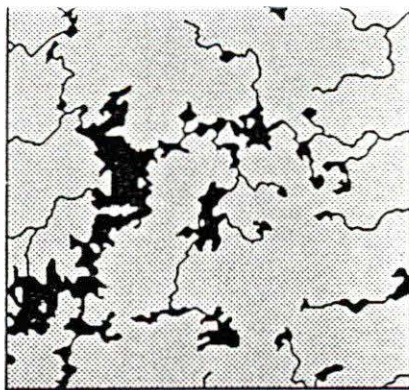


 opaque  
 transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
36	20	2	2/17/78	0	GGGG	1189

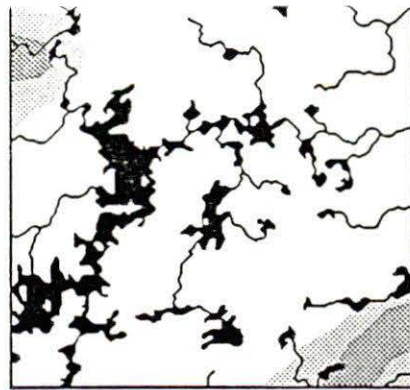


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
36	20	2	10/27/78	35	FFFF	1190

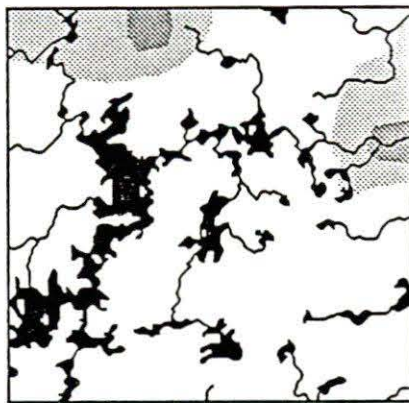


opaque  
transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
36	20	2	1/25/79	10	GGGG	1191

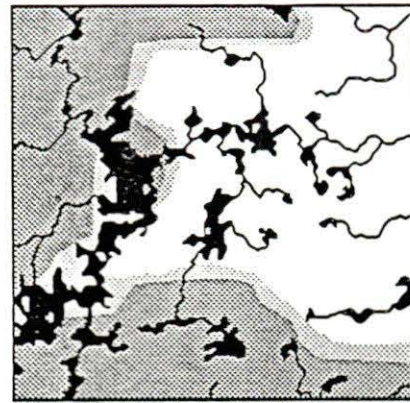


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
36	20	2	2/12/79	5	GGGG	1192

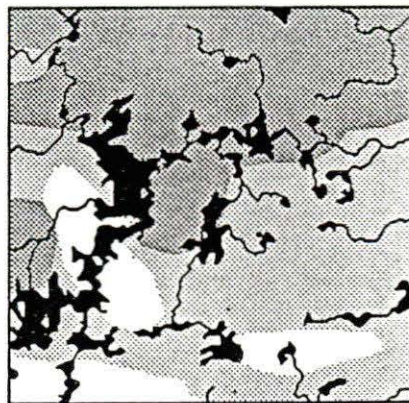


opaque  
transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
36	20	2	3/2/79	10	FFFF	1193

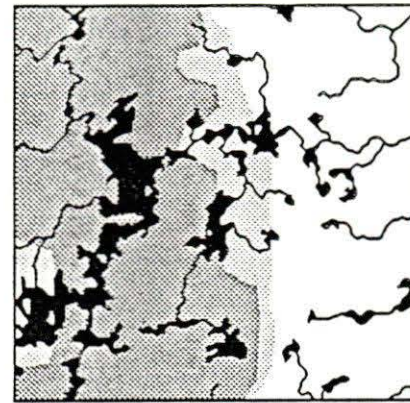


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
36	20	2	6/18/79	50	GGGG	1194

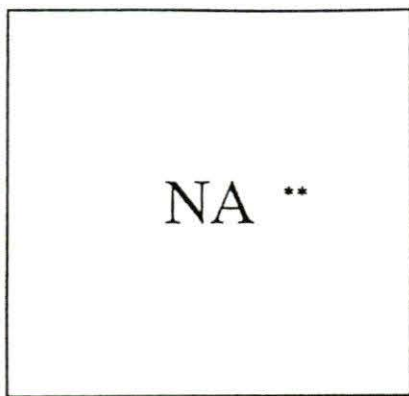




opaque  
transparent

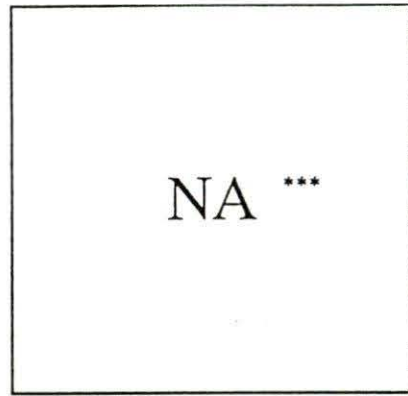
Path	Row	LS	Date	C/C	Qual. of MSS	App.#
36	20	2	7/24/79	50	GGGG	1195



Path	Row	LS	Date	C/C	Qual. of MSS	App.#
36	20	2	10/16/80	45	GGGG	1196



 opaque  
 transparent

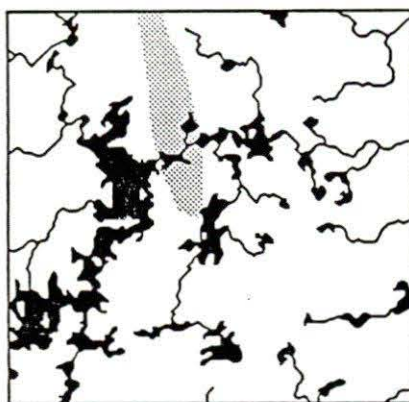




Path	Row	LS	Date	C/C	Qual. of MSS	App.#
36	20	2	7/3/76	10	****	1197

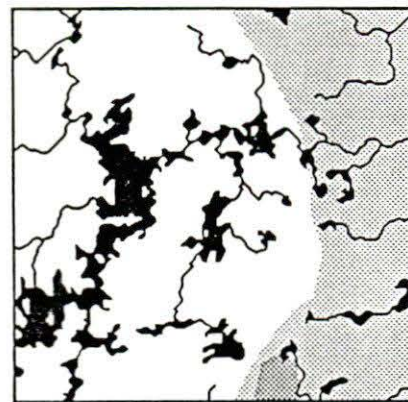
\*\* = App.# 1197 has been duplicated as # 1178

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
36	20	2	9/13/76	1	****	1198

\*\*\* = App.# 1198 has been duplicated as # 1181

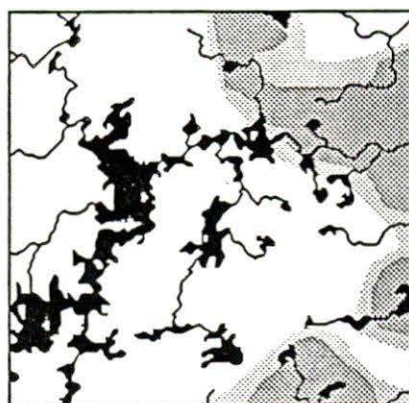




 opaque  
 transparent

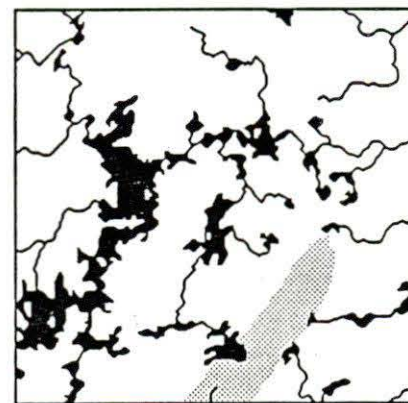


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
36	20	2	2/1/81	0	GGGG	1199

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
36	20	2	4/14/81	5	GGGG	1200

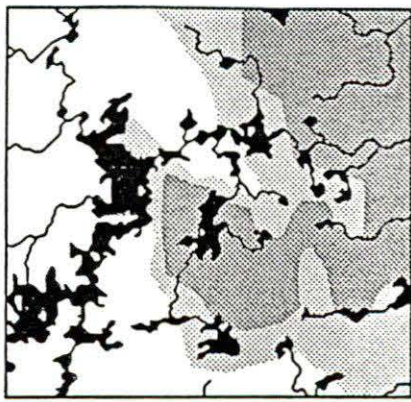




 opaque  
 transparent

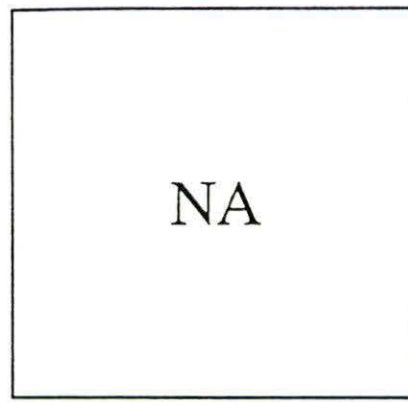


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
36	20	2	5/20/81	15	GGGG	1201

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
36	20	2	6/25/81	0	GGGG	1202

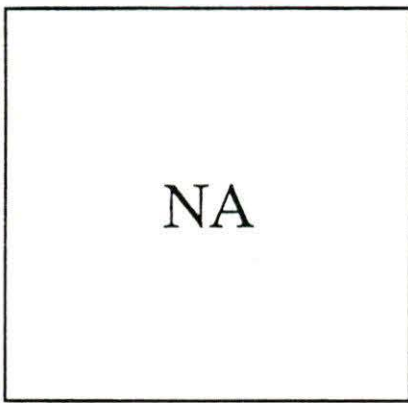




 opaque  
 transparent

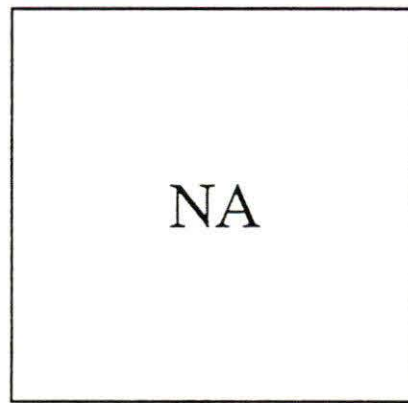


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
36	20	2	7/13/81	10	GGGG	1203

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
36	20	3	6/14/78	40	FFFF	1204

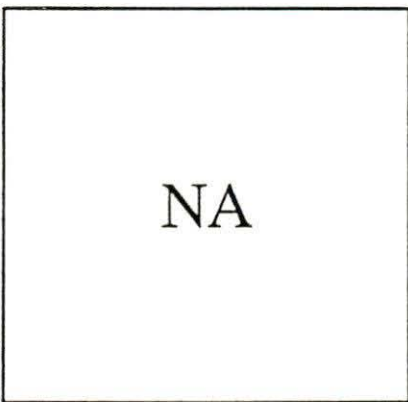




 opaque  
 transparent

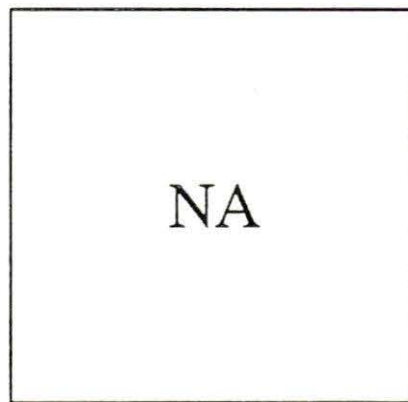


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
36	20	3	9/12/78	20	FFFF	1205

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
36	20	3	1/16/79	12	FFFF	1206

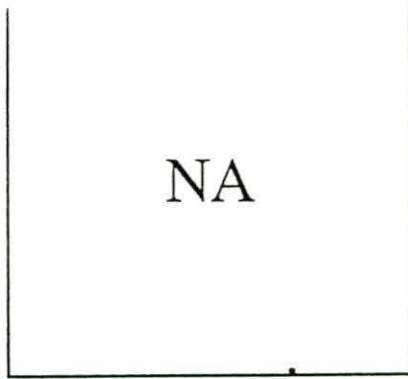




 opaque  
 transparent

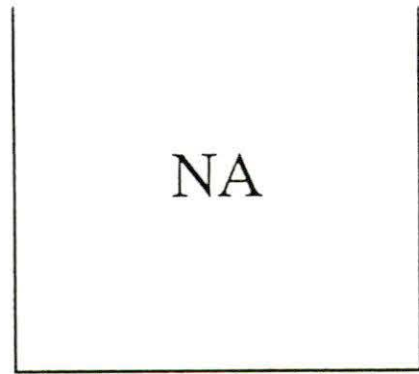


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
36	20	3	2/3/79	40	FFFF	1207

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
36	20	3	2/21/79	10	GGGG	1208

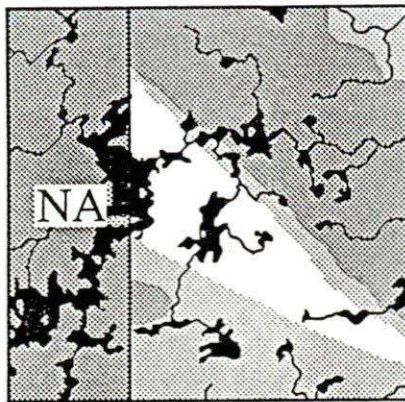




 opaque  
 transparent

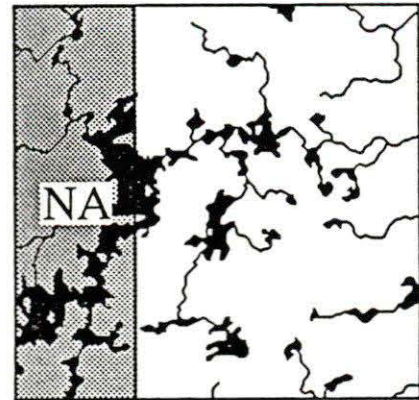


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
36	20	3	3/11/79	0	GGGG	1209

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
36	20	3	1/29/80	0	GGGG	1210

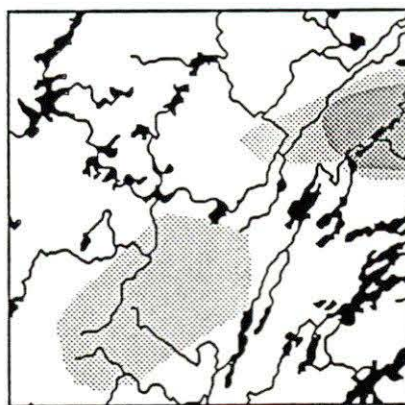




 opaque  
 transparent

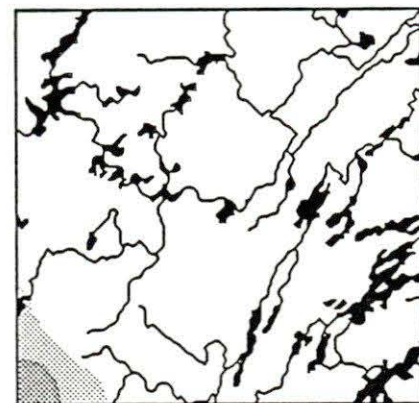


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
36	20	3	6/29/82	40	GGGG	1211

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
36	20	3	9/9/82	0	GGGG	1212



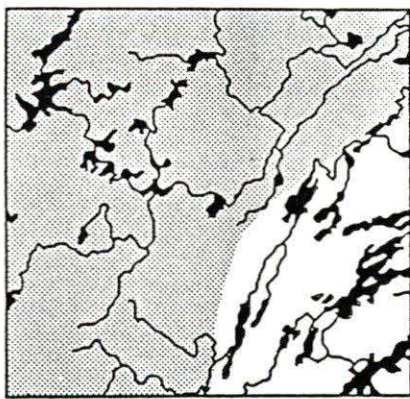
 opaque  
 transparent





Path	Row	LS	Date	C/C	Qual. of MSS	App.#
36	21	1	3/24/73	5	GGGG	1213

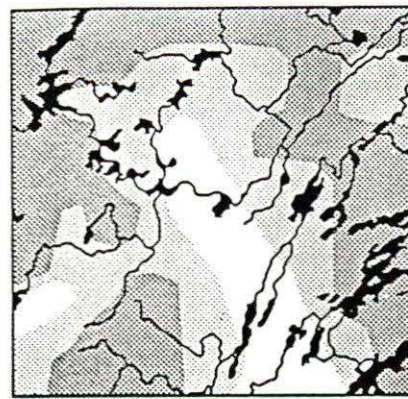
Path	Row	LS	Date	C/C	Qual. of MSS	App.#
36	21	1	4/11/73	1	EGGG	1214



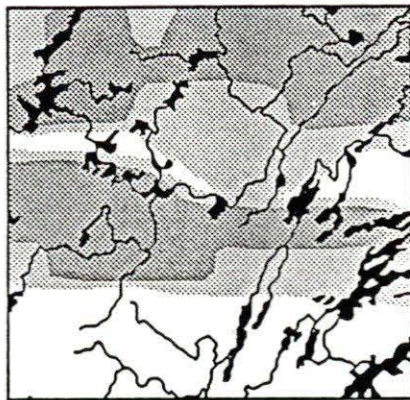




 opaque  
 transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
36	21	1	4/29/73	0	GGGG	1215

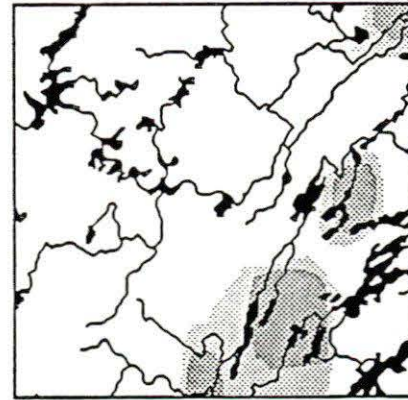


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
36	21	1	7/10/73	40	FF*G	1216

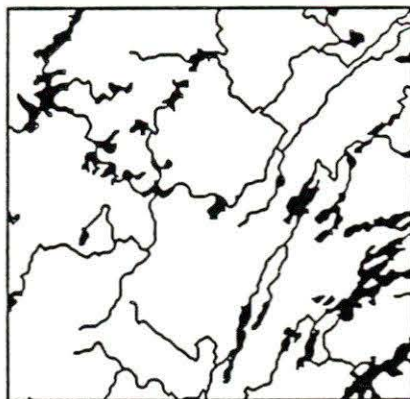




 opaque  
 transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
36	21	1	7/28/73	35	FFFG	1217

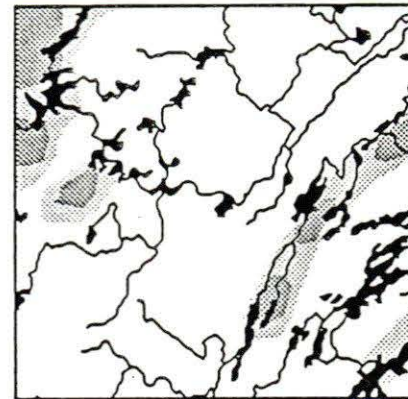


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
36	21	1	8/15/73	12	GGEE	1218

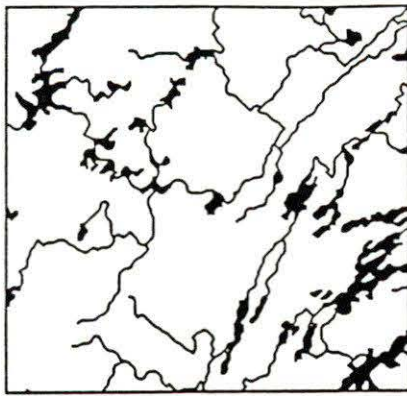


 opaque  
 transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
36	21	1	9/2/73	0	EEEE	1219

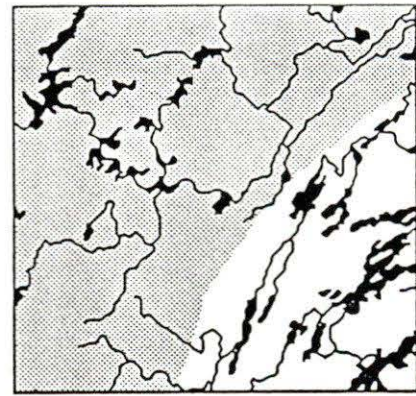


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
36	21	1	9/20/73	2	FGFG	1220

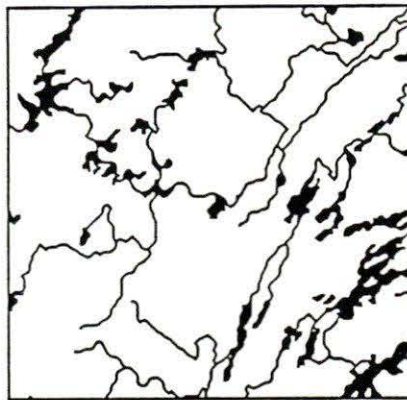


opaque  
transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
36	21	1	1/24/74	0	EEEE	1221

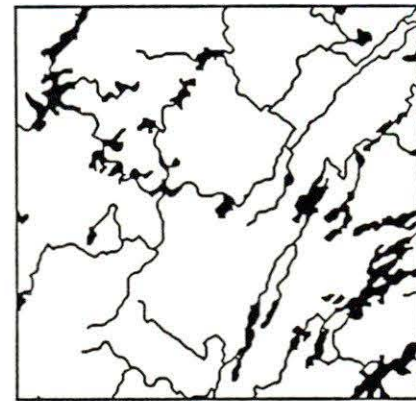


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
36	21	1	2/11/74	5	PGPG	1222

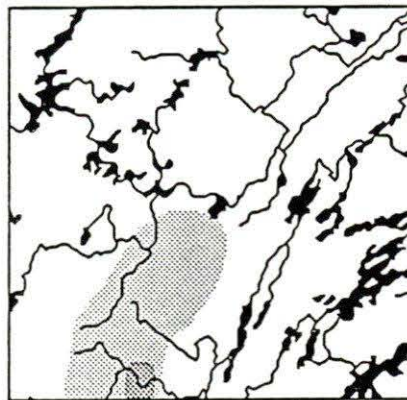


opaque  
transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
36	21	1	3/19/74	0	GGGG	1223

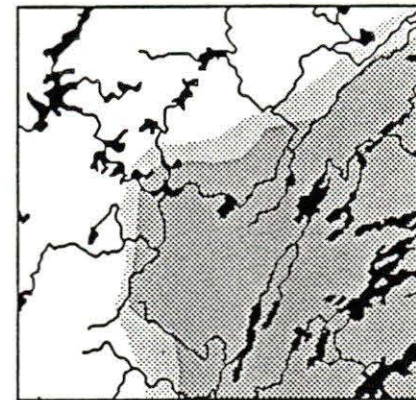


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
36	21	1	4/6/74	0	GGG*	1224

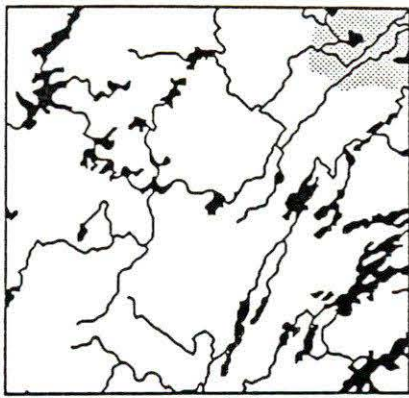




opaque  
transparent

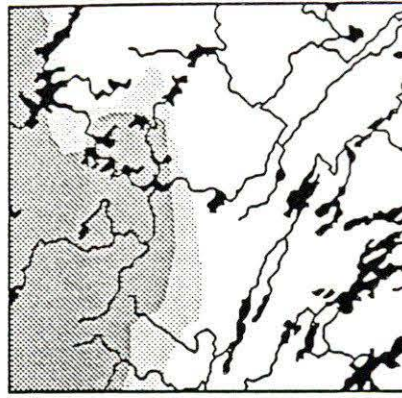
Path	Row	LS	Date	C/C	Qual. of MSS	App.#
36	21	1	4/24/74	5	GGFG	1225



Path	Row	LS	Date	C/C	Qual. of MSS	App.#
36	21	1	5/12/74	45	FGGF	1226

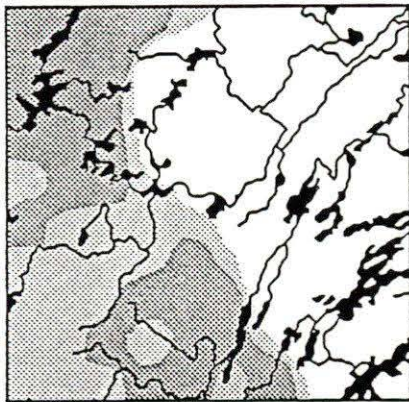




 opaque  
 transparent

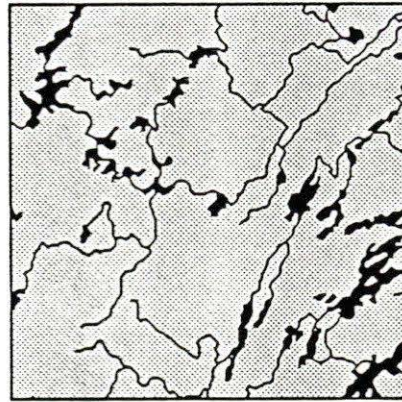


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
36	21	1	6/17/74	5	GGGG	1227

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
36	21	1	10/3/74	40	FGGG	1228

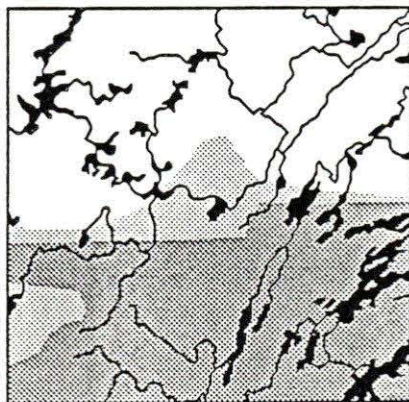




 opaque  
 transparent

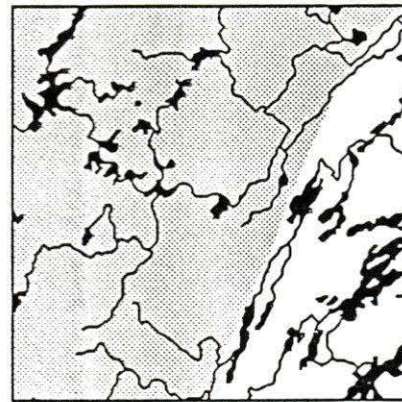


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
36	21	1	4/1/75	35	FFFF	1229

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
36	21	1	5/7/75	10	FFPP	1230

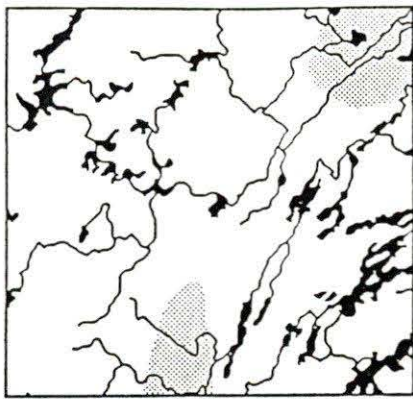




 opaque  
 transparent



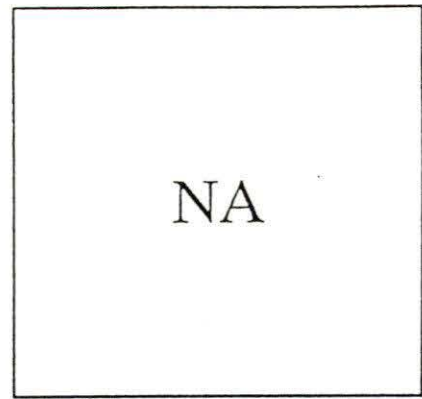
Path	Row	LS	Date	C/C	Qual. of MSS	App.#
36	21	1	11/21/75	50	GGFF	1231

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
36	21	1	2/1/76	25	GGPF	1232

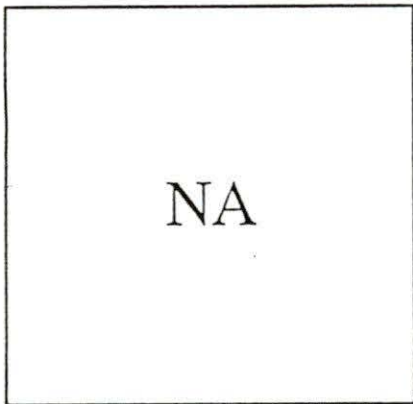




 opaque  
 transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
36	21	1	3/8/76	0	GGGG	1233

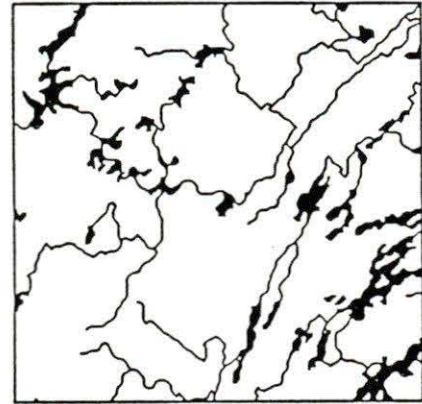


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
36	21	1	3/26/76	5	FFFF	1234

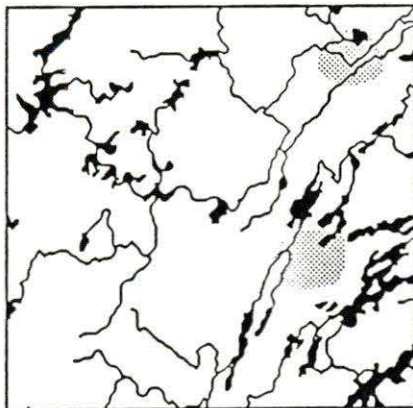




 opaque  
 transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
36	21	1	4/13/76	10	GGG*	1235

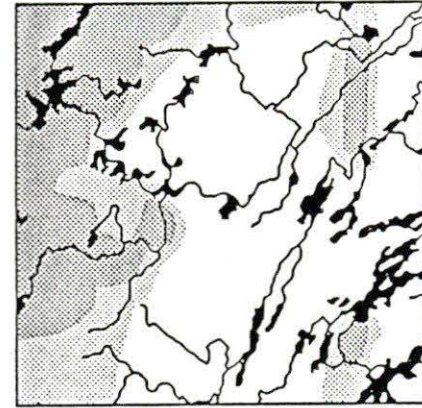


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
36	21	1	7/30/76	0	GGGG	1236

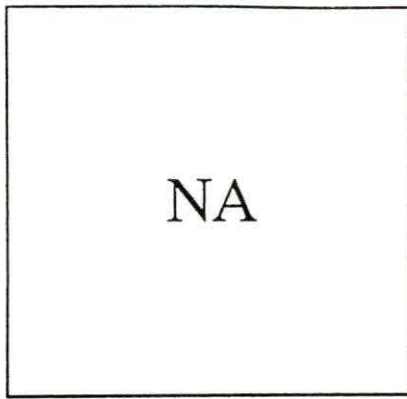




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 transparent

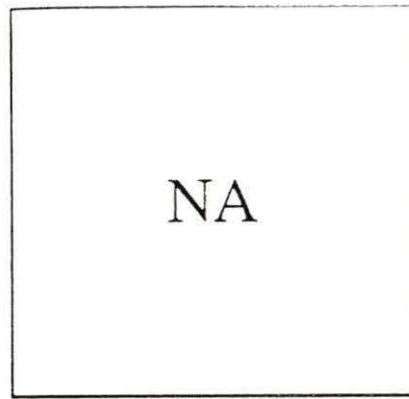
Path	Row	LS	Date	C/C	Qual. of MSS	App.#
36	21	1	9/4/76	2	GG*G	1237



Path	Row	LS	Date	C/C	Qual. of MSS	App.#
36	21	1	10/10/76	25	GGGG	1238

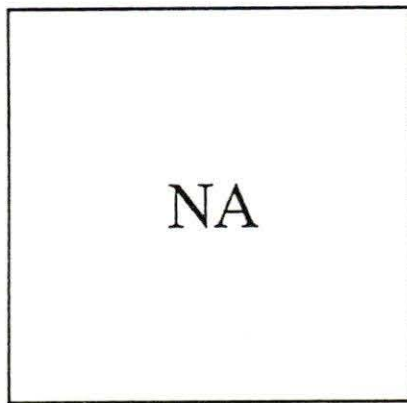




 opaque  
 transparent

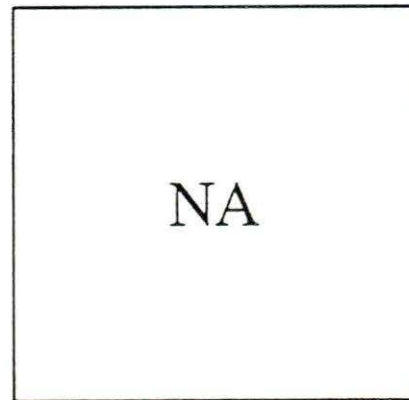


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
36	21	1	10/2/77	50	*GFG	1239

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
36	21	1	10/20/77	5	*GFG	1240

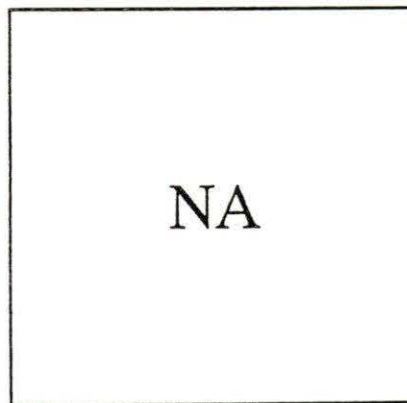



 opaque  
 transparent

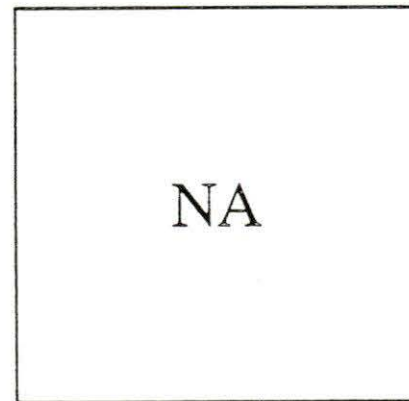


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
36	21	2	4/28/75	10	GGGG	1241

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
36	21	2	7/27/75	50	FGGG	1242

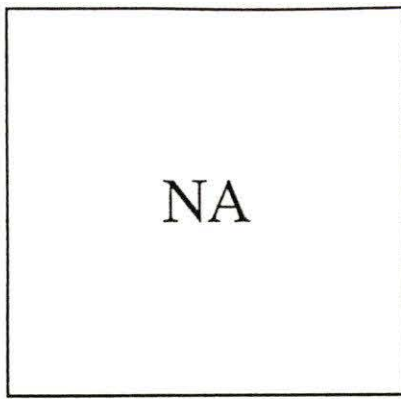


 opaque  
 transparent



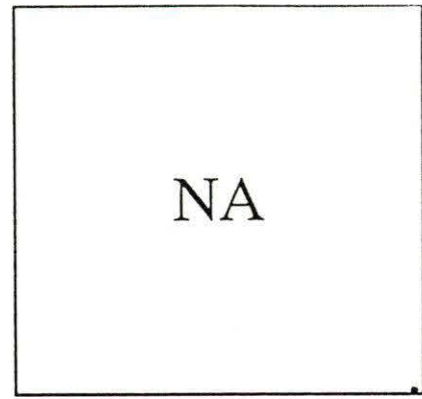
Path	Row	LS	Date	C/C	Qual. of MSS	App.#
36	21	2	11/30/75	0	GGGG	1243

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
36	21	2	2/28/76	0	GGGG	1244

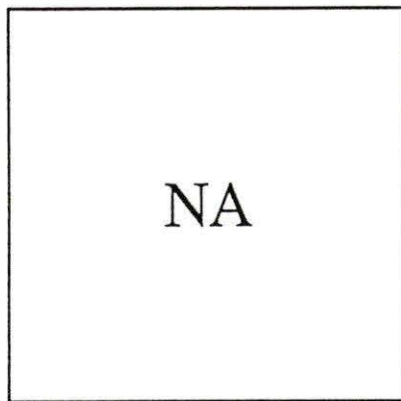


opaque  
transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
36	21	2	3/17/76	45	GGGG	1245

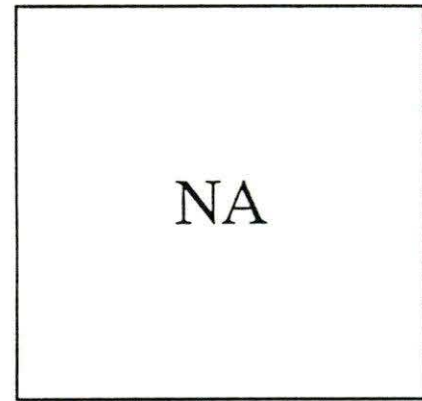


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
36	21	2	4/4/76	15	GGGG	1246

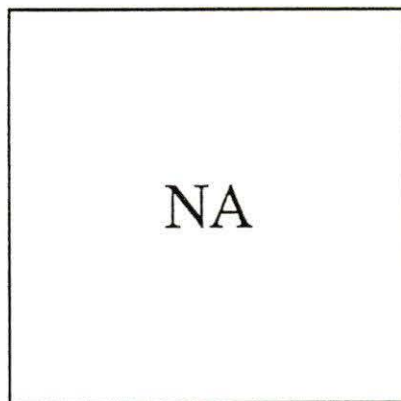


opaque  
transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
36	21	2	4/22/76	5	GGGG	1247

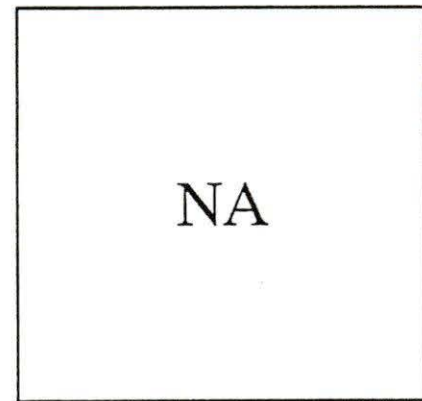


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
36	21	2	5/28/76	5	GFGF	1248

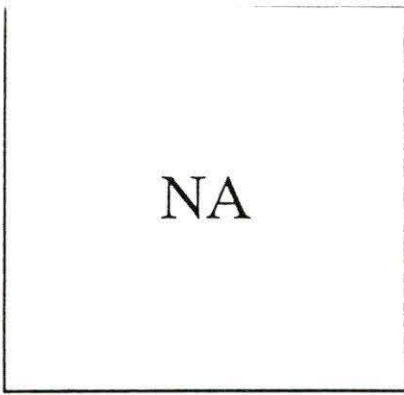




opaque  
transparent

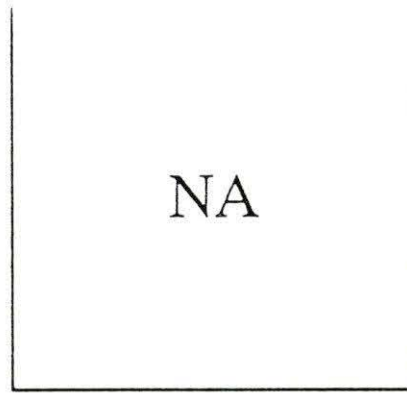
Path	Row	LS	Date	C/C	Qual. of MSS	App.#
36	21	2	7/3/76	40	FGGG	1249



Path	Row	LS	Date	C/C	Qual. of MSS	App.#
36	21	2	7/21/76	10	GGGG	1250

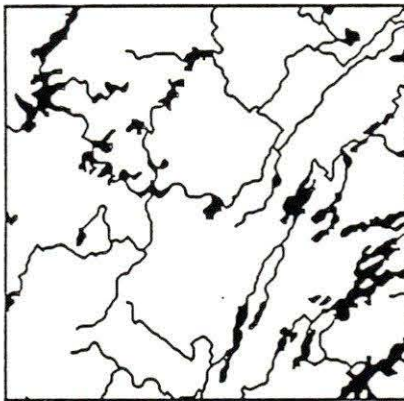




 opaque  
 transparent

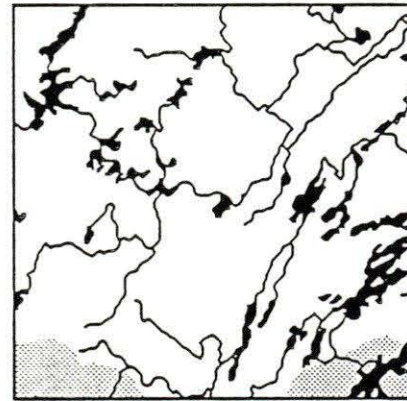


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
36	21	2	8/8/76	40	GGGG	1251

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
36	21	2	10/1/76	0	GGGG	1252

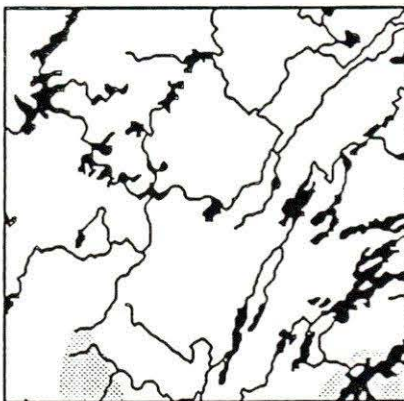




 opaque  
 transparent

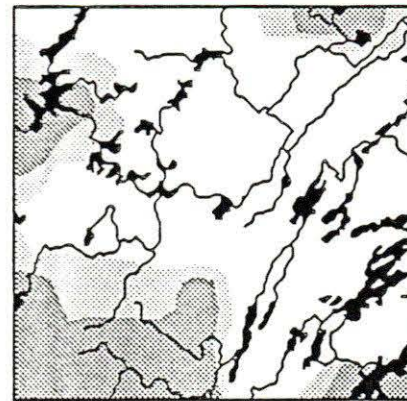


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
36	21	2	11/6/76	0	PPPP	1253

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
36	21	2	12/12/76	0	GGGG	1254

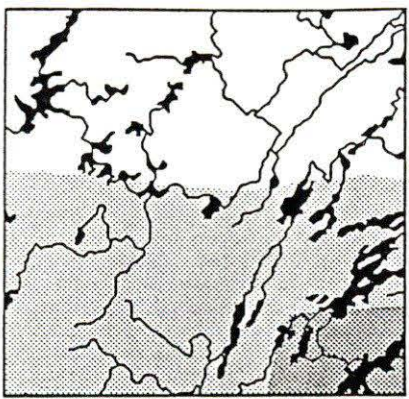


 opaque  
 transparent



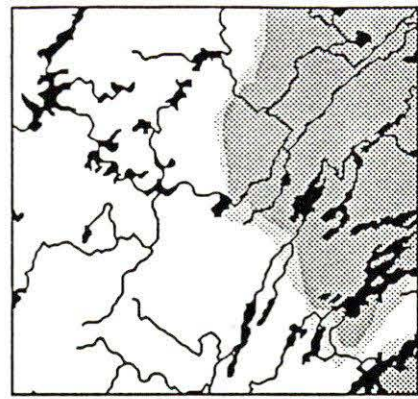
Path	Row	LS	Date	C/C	Qual. of MSS	App.#
36	21	2	1/17/77	0	GGGG	1255

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
36	21	2	3/30/77	10	GG*G	1256

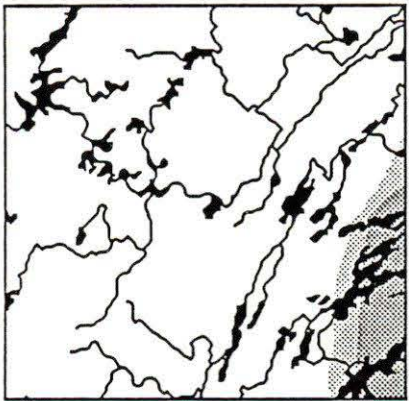


opaque  
transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
36	21	2	5/5/77	10	GGGG	1257

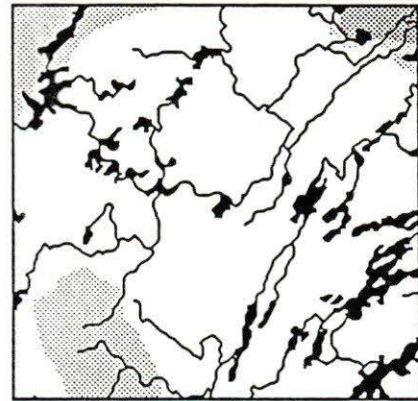


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
36	21	2	9/26/77	30	GGGG	1258

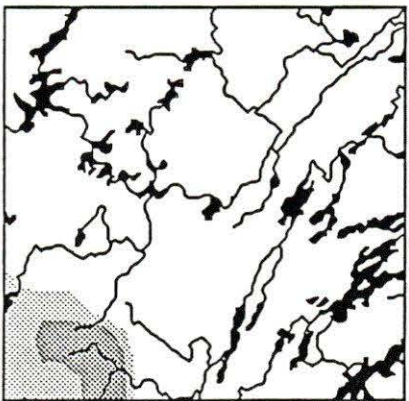


opaque  
transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
36	21	2	2/17/78	15	GGGG	1259

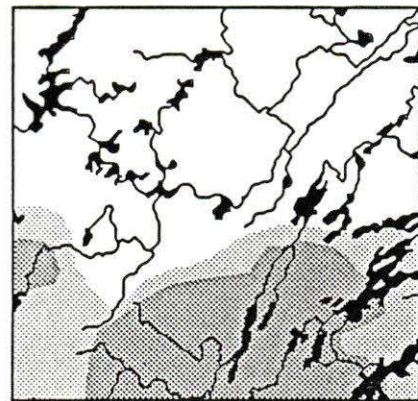


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
36	21	2	10/27/78	10	FFFF	1260



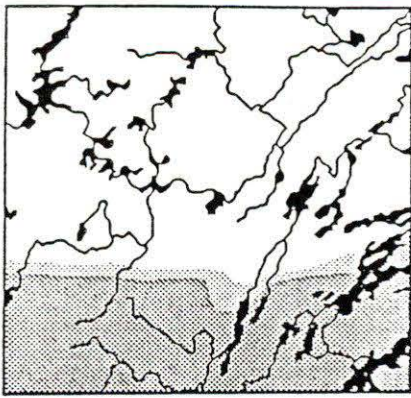
opaque  
transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
36	21	2	12/2/78	2	FFFF	1261



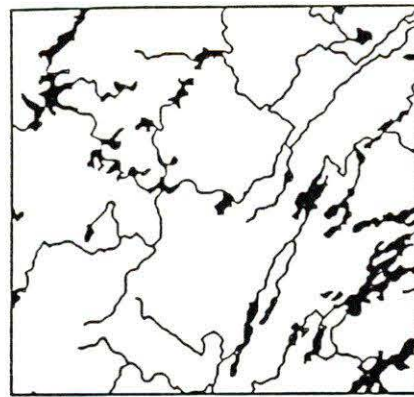
Path	Row	LS	Date	C/C	Qual. of MSS	App.#
36	21	2	1/25/79	35	GGGG	1262



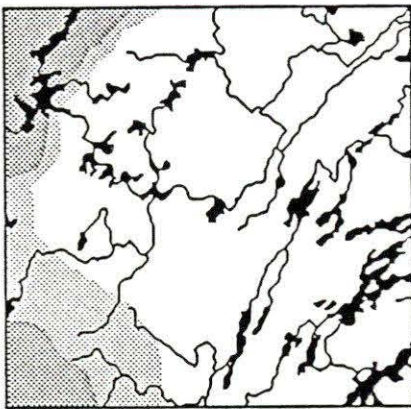


opaque  
transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
36	21	2	2/12/79	35	GGGG	1263

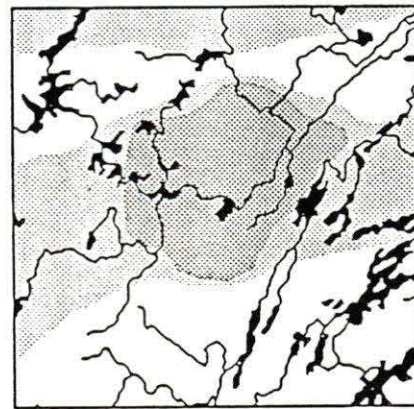


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
36	21	2	3/2/79	0	FFFF	1264

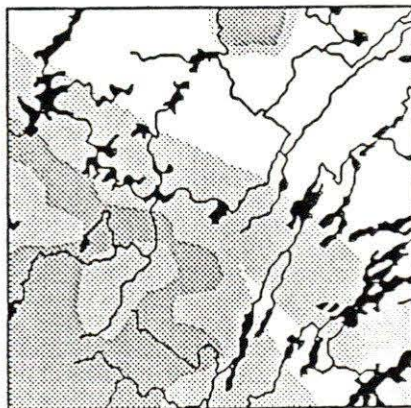


opaque  
transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
36	21	2	4/25/79	10	GGGG	1265

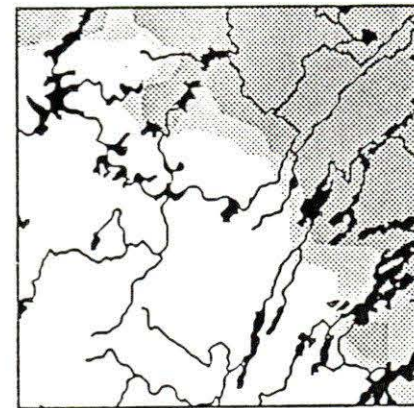


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
36	21	2	7/24/79	35	GGGG	1266

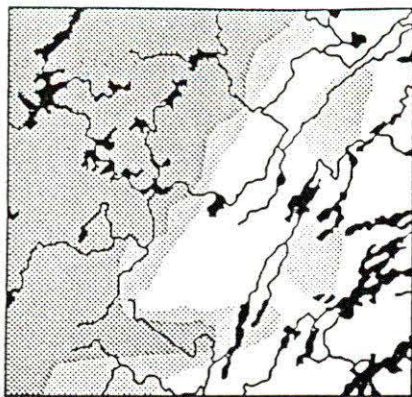




opaque  
transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
36	21	2	8/11/79	45	GGGG	1267

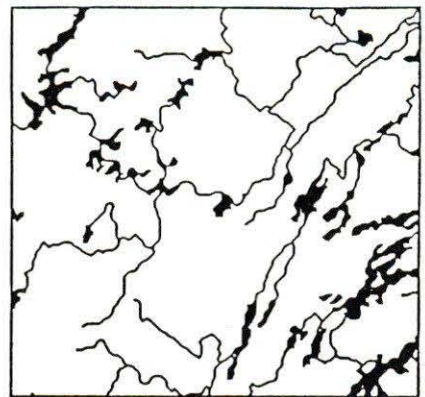


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
36	21	2	9/10/80	45	GGGG	1268

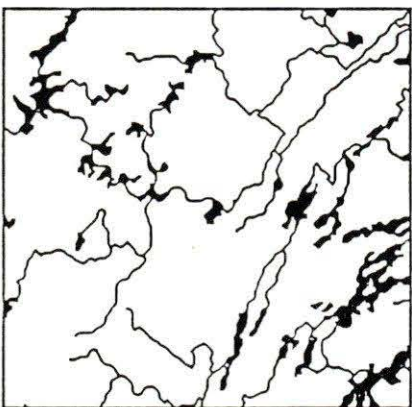




 opaque  
 transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
36	21	2	10/16/80	45	GGGG	1269

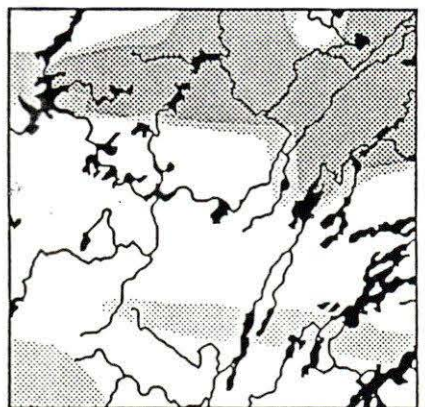


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
36	21	2	2/1/81	0	GGGG	1270

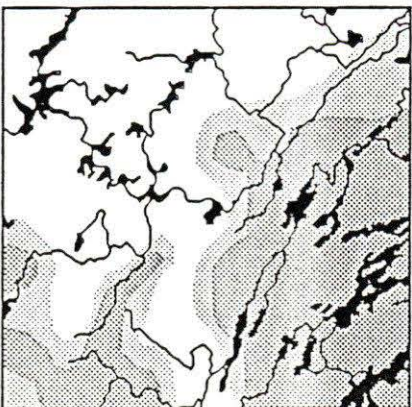




 opaque  
 transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
36	21	2	4/14/81	0	GGGG	1271

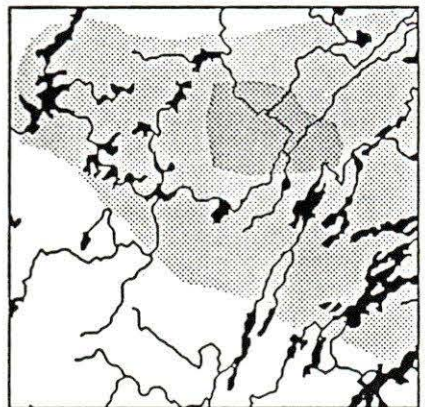


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
36	21	2	5/20/81	15	GGGG	1272

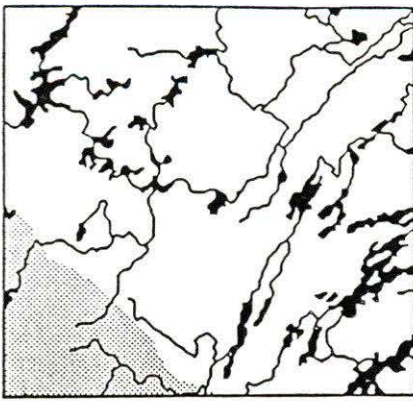




 opaque  
 transparent

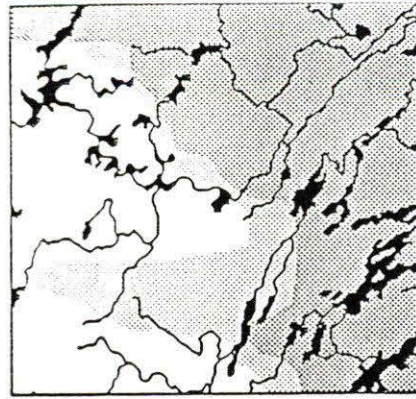
Path	Row	LS	Date	C/C	Qual. of MSS	App.#
36	21	2	6/25/81	20	GGGG	1273



Path	Row	LS	Date	C/C	Qual. of MSS	App.#
36	21	2	7/13/81	5	GGGG	1274

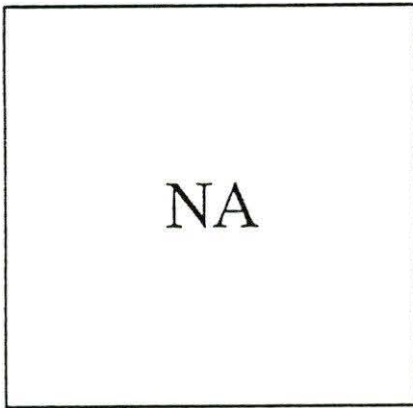




 opaque  
 transparent

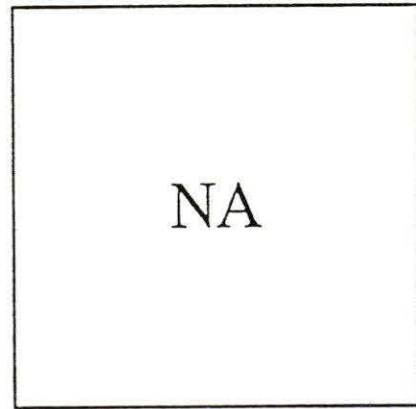


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
36	21	2	1/9/82	0	GGGG	1275

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
36	21	2	1/27/82	30	GGGG	1276

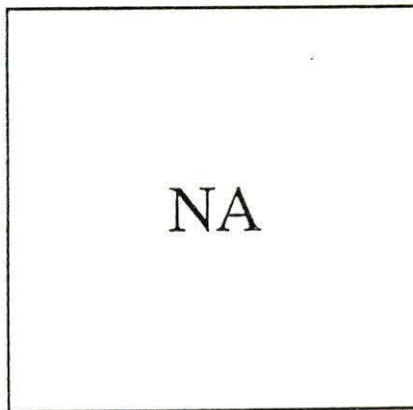


 opaque  
 transparent

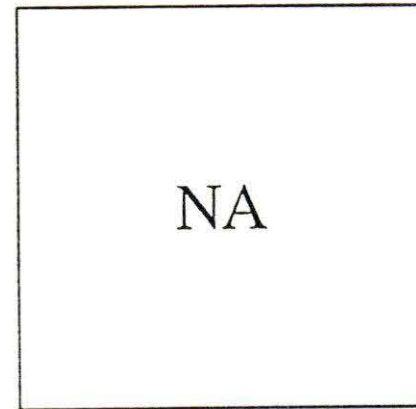


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
36	21	3	9/12/78	0	FFFF	1277

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
36	21	3	1/16/79	20	FFFF	1278

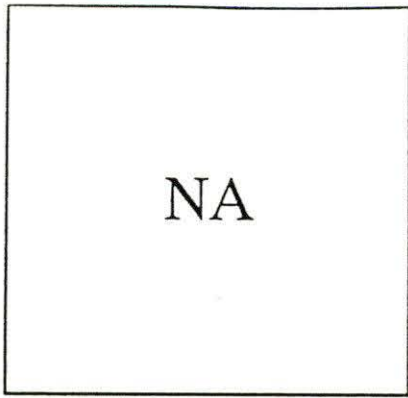




 opaque  
 transparent



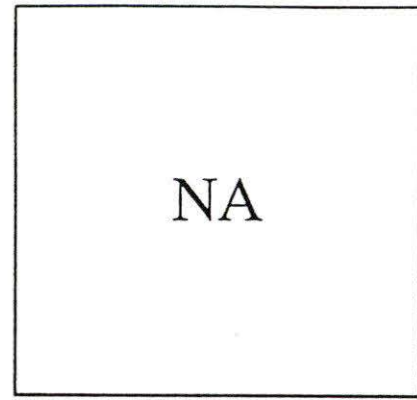
Path	Row	LS	Date	C/C	Qual. of MSS	App.#
36	21	3	2/3/79	30	FFFF	1279

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
36	21	3	2/21/79	25	GGGG	1280

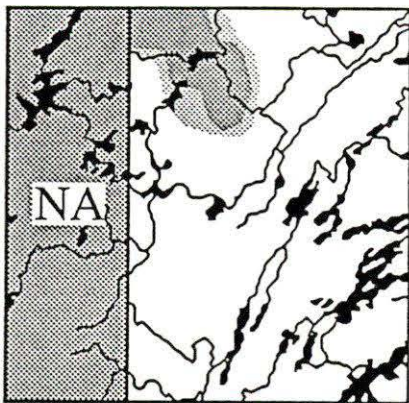




 opaque  
 transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
36	21	3	3/11/79	10	GGGG	1281

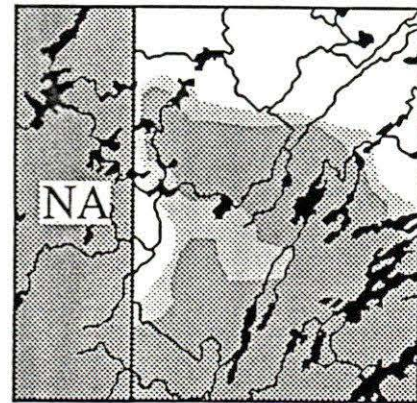


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
36	21	3	1/29/80	0	GGGG	1282

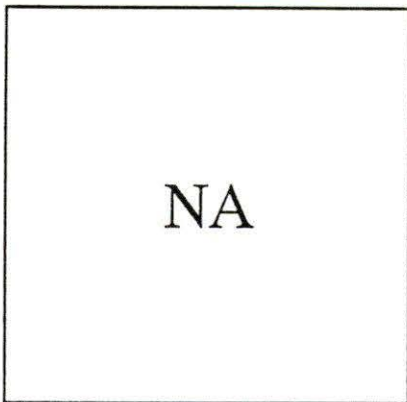



 opaque  
 transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
36	21	3	4/18/82	10	GGGG	1283

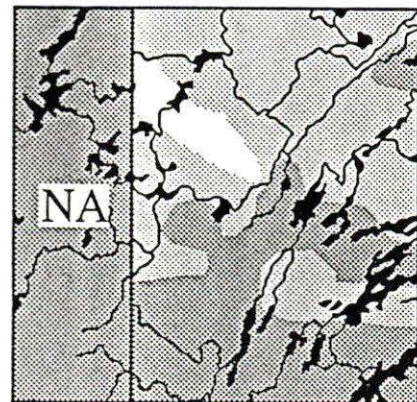


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
36	21	3	5/24/82	40	GGGG	1284

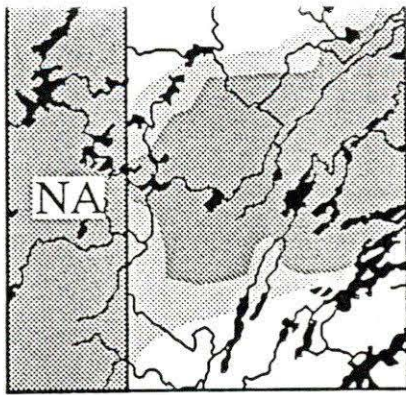




 opaque  
 transparent

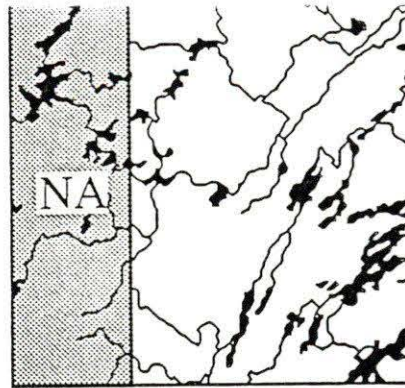
Path	Row	LS	Date	C/C	Qual. of MSS	App.#
36	21	3	6/11/82	10	GGGG	1285



Path	Row	LS	Date	C/C	Qual. of MSS	App.#
36	21	3	6/29/82	30	GGGG	1286





 opaque  
 transparent



Path	Row	LS	Date	C/C	Qual. of MSS	App.#
36	21	3	9/9/82	45	GGGG	1287

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
36	21	3	12/8/82	0	GGGG	1288

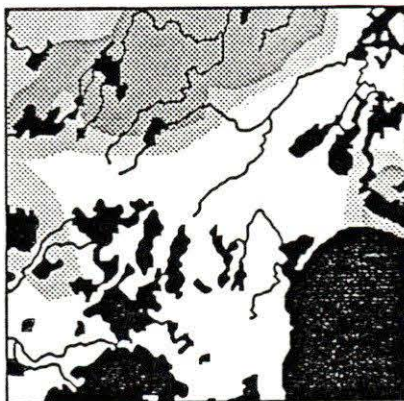




 opaque  
 transparent

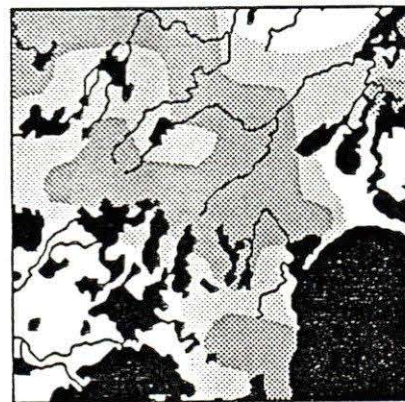


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
36	22	1	4/11/73	25	GGGG	1289

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
36	22	1	4/29/73	10	GGGG	1290





 opaque  
 transparent



Path	Row	LS	Date	C/C	Qual. of MSS	App.#
36	22	1	6/22/73	15	GPGG	1291

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
36	22	1	7/10/73	35	GPGG	1292

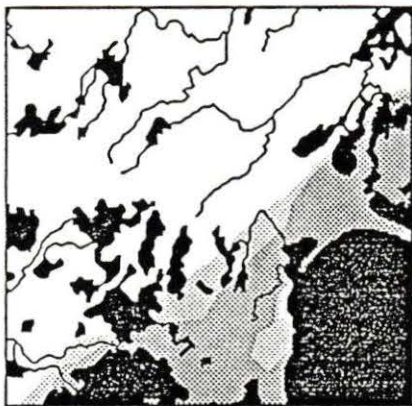




 opaque  
 transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
36	22	1	7/28/73	7	GPFG	1293

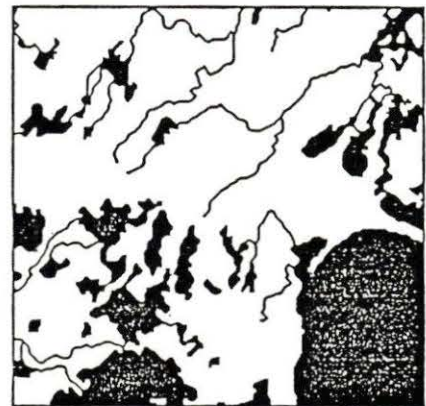


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
36	22	1	8/15/73	10	GGGG	1294





 opaque  
 transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
36	22	1	9/2/73	25	*FEG	1295



Path	Row	LS	Date	C/C	Qual. of MSS	App.#
36	22	1	9/20/73	0	FFFG	1296

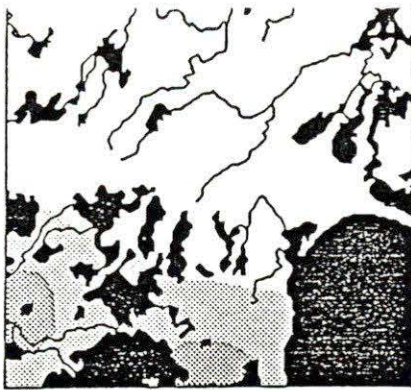


 opaque  
 transparent

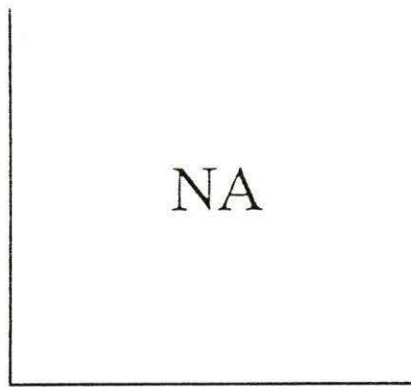
Path	Row	LS	Date	C/C	Qual. of MSS	App.#
36	22	1	12/19/73	0	GGEE	1297



Path	Row	LS	Date	C/C	Qual. of MSS	App.#
36	22	1	1/6/74	5	GGGG	1298

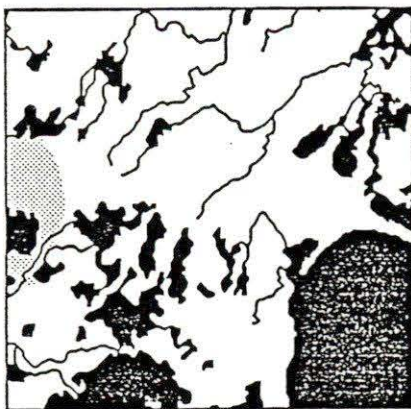


opaque  
transparent

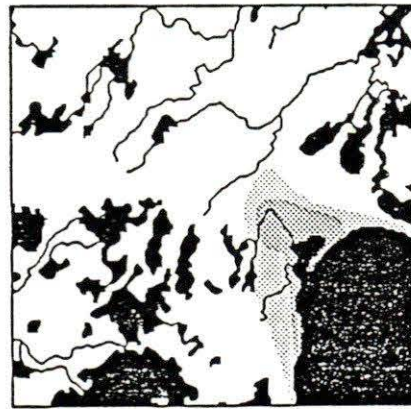


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
36	22	1	1/24/74	10	EEEE	1299

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
36	22	1	2/11/74	50	GGGG	1300

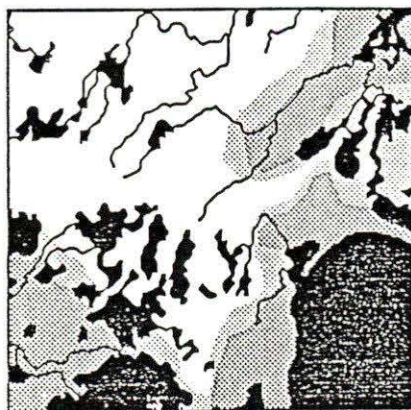


opaque  
transparent



Path	Row	LS	Date	C/C	Qual. of MSS	App.#
36	22	1	3/19/74	0	GGGG	1301

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
36	22	1	4/6/74	20	G*GG	1302

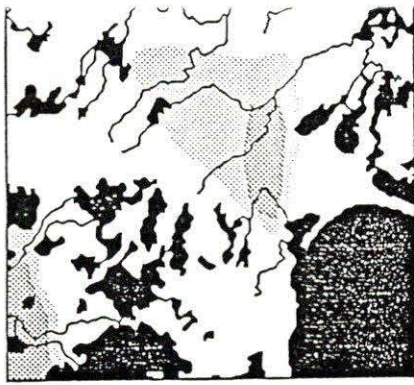




opaque  
transparent



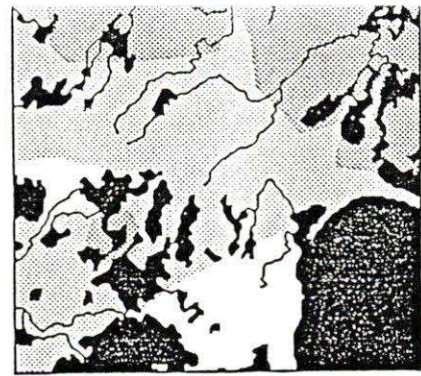
Path	Row	LS	Date	C/C	Qual. of MSS	App.#
36	22	1	4/24/74	30	GGPG	1303

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
36	22	1	5/12/74	50	GGGG	1304

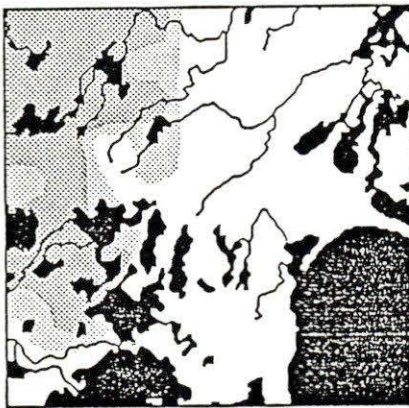




 opaque  
 transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
36	22	1	6/17/74	20	FGFG	1305

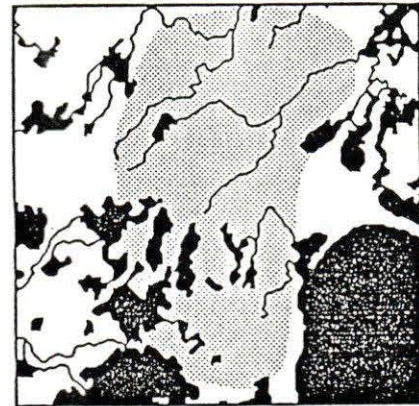


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
36	22	1	8/10/74	45	FFGG	1306





 opaque  
 transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
36	22	1	10/3/74	25	FFGG	1307

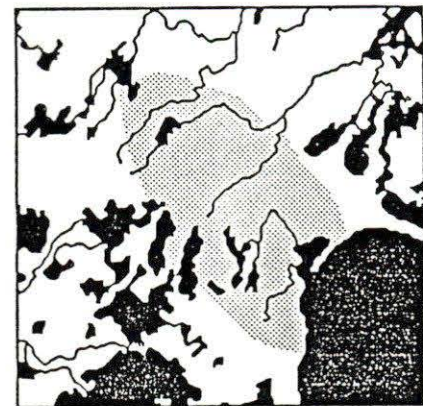


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
36	22	1	5/7/75	10	GEGE	1308



 opaque  
 transparent



Path	Row	LS	Date	C/C	Qual. of MSS	App.#
36	22	1	6/30/75	45	FFPF	1309



Path	Row	LS	Date	C/C	Qual. of MSS	App.#
36	22	1	1/14/76	5	GGGG	1310



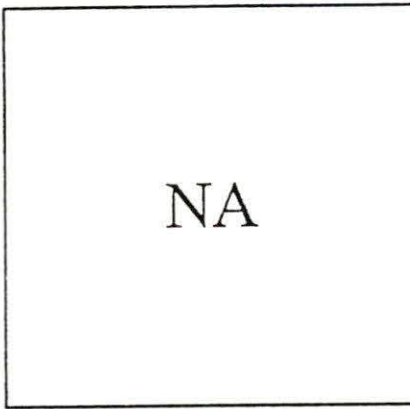




 opaque  
 transparent

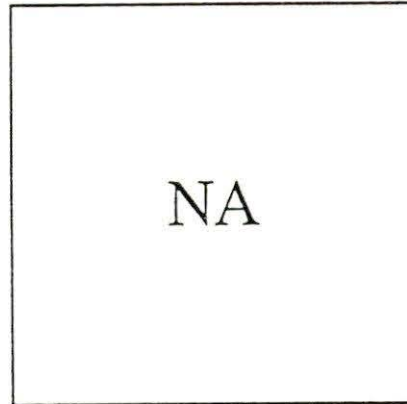


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
36	22	1	2/19/76	35	GGGG	1311

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
36	22	1	3/8/76	5	GGGG	1312





 opaque  
 transparent

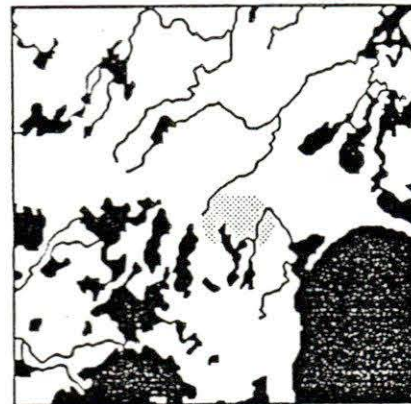


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
36	22	1	3/26/76	5	GGGG	1313

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
36	22	1	4/13/76	30	GG*F	1314



 opaque  
 transparent

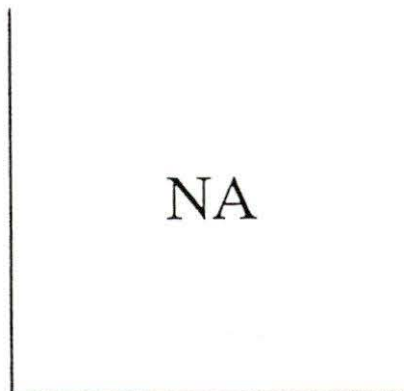


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
36	22	1	7/30/76	20	GGGG	1315

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
36	22	1	9/4/76	0	GG*G	1316

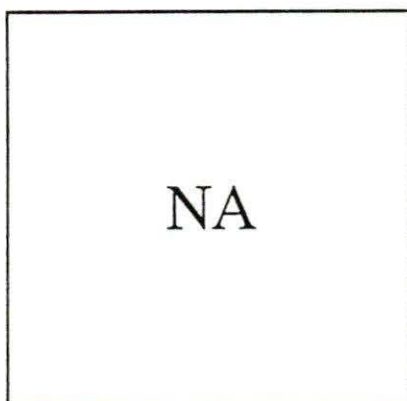


opaque  
transparent

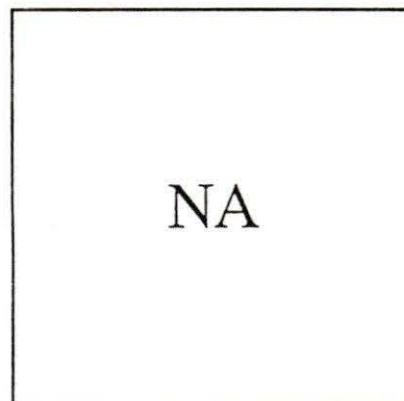


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
36	22	1	10/10/76	25	GGGG	1317

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
36	22	1	7/4/77	50	*GGG	1318

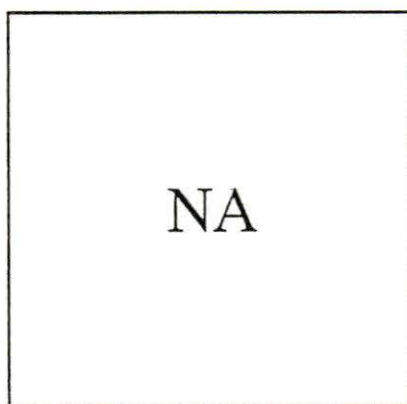


opaque  
transparent

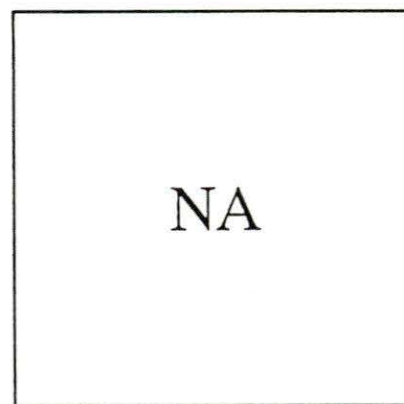


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
36	22	1	9/14/77	25	*GFG	1319

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
36	22	1	10/2/77	15	*GFG	1320

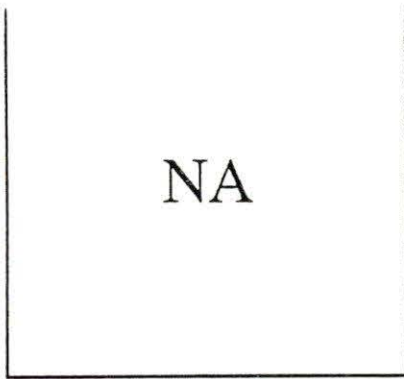


opaque  
transparent

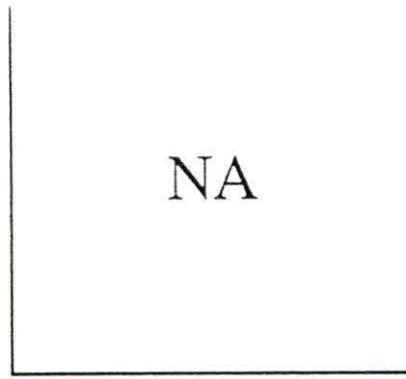


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
36	22	1	10/20/77	35	*GFG	1321

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
36	22	2	4/10/75	5	GGGG	1322

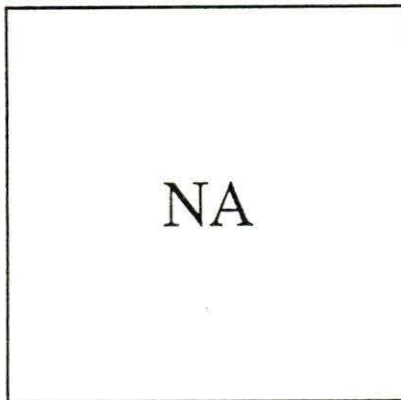


opaque  
transparent

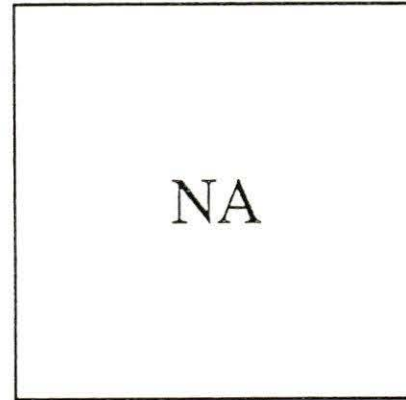


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
36	22	2	4/28/75	20	GGGG	1323

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
36	22	2	7/27/75	15	FGGF	1324

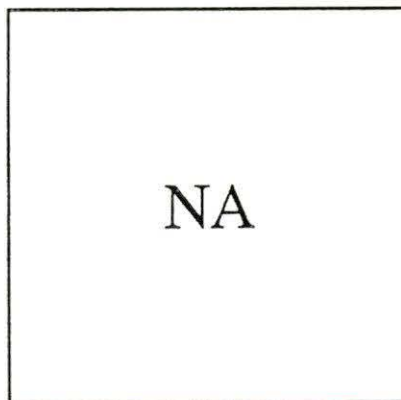


opaque  
transparent

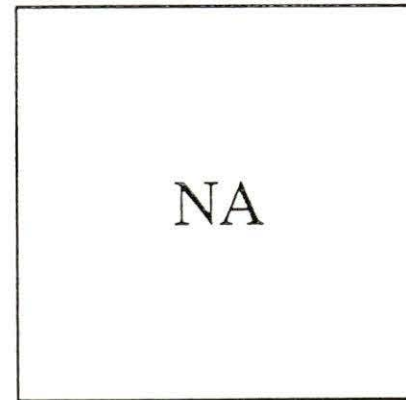


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
36	22	2	10/25/75	50	GGPP	1325

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
36	22	2	11/30/75	5	GGGG	1326

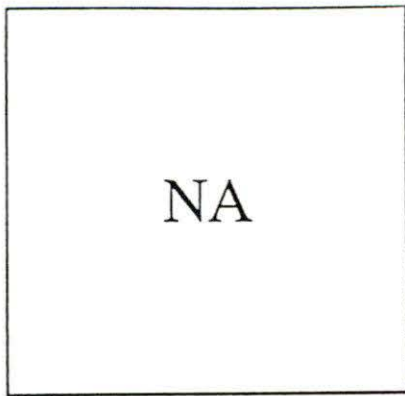




opaque  
transparent



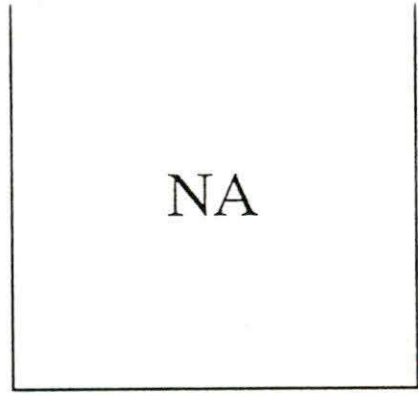
Path	Row	LS	Date	C/C	Qual. of MSS	App.#
36	22	2	4/22/76	10	GGGG	1327

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
36	22	2	5/10/76	30	GGFG	1328

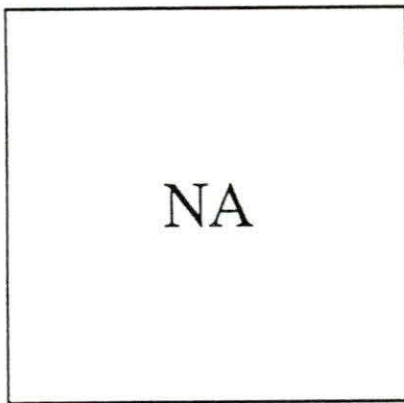




 opaque  
 transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
36	22	2	5/28/76	2	FFGG	1329

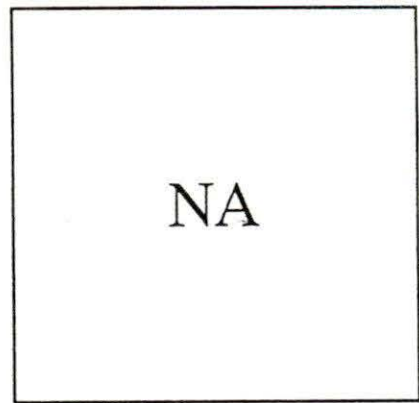


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
36	22	2	7/3/76	40	FGGF	1330

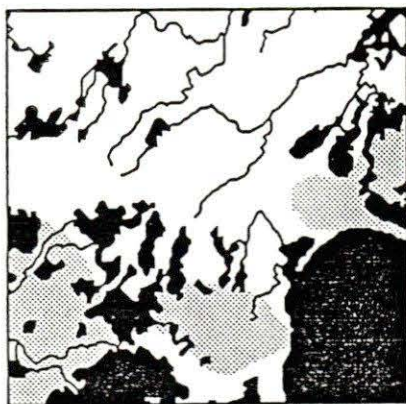




 opaque  
 transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
36	22	2	7/21/76	10	GGGG	1331

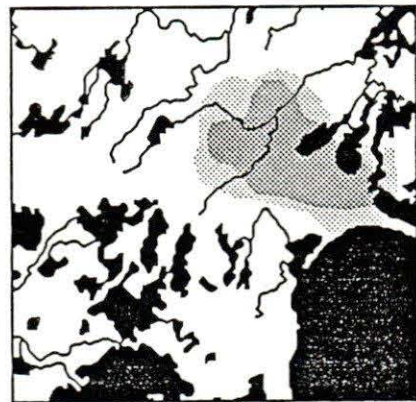


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
36	22	2	10/1/76	35	GGGF	1332



 opaque  
 transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
36	22	2	12/12/76	0	GGGG	1333



Path	Row	LS	Date	C/C	Qual. of MSS	App.#
36	22	2	1/17/77	5	GGGG	1334

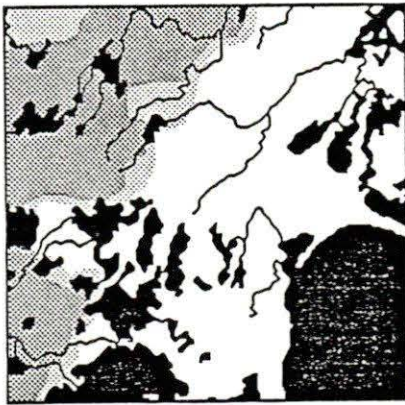


opaque  
transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
36	22	2	3/30/77	0	GG*G	1335

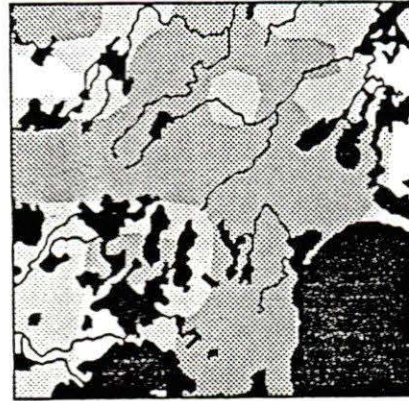


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
36	22	2	5/23/77	25	GGFG	1336

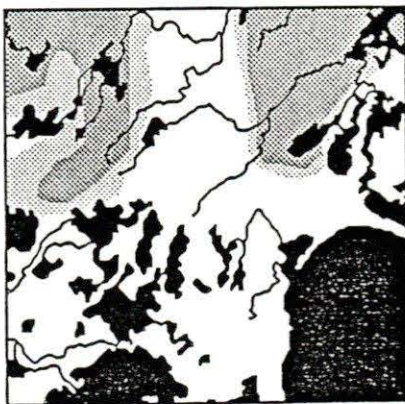


opaque  
transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
36	22	2	6/10/77	20	FG*G	1337



Path	Row	LS	Date	C/C	Qual. of MSS	App.#
36	22	2	6/28/77	50	G*G*G	1338

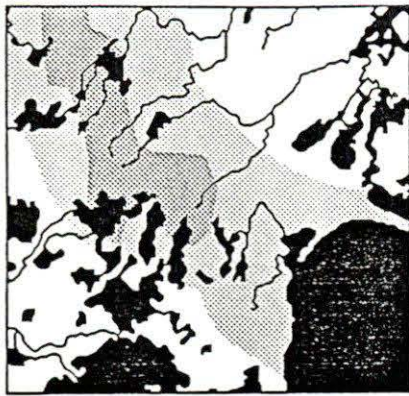




opaque  
transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
36	22	2	8/3/77	20	G*G*G	1339

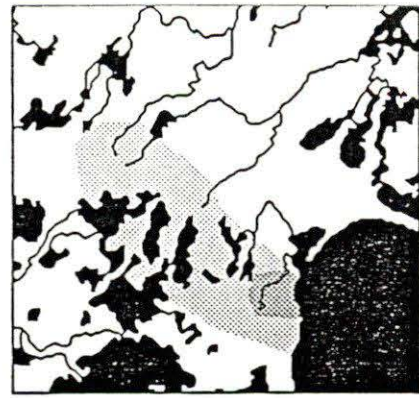


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
36	22	2	9/26/77	30	G*G*G	1340

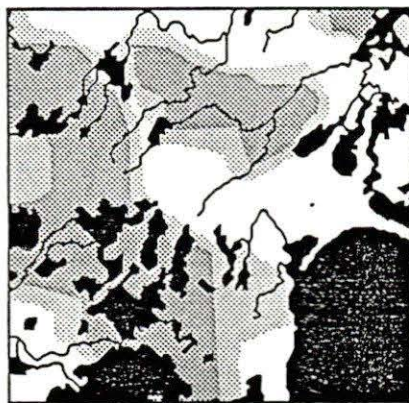




 opaque  
 transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
36	22	2	1/30/78	25	GGGG	1341

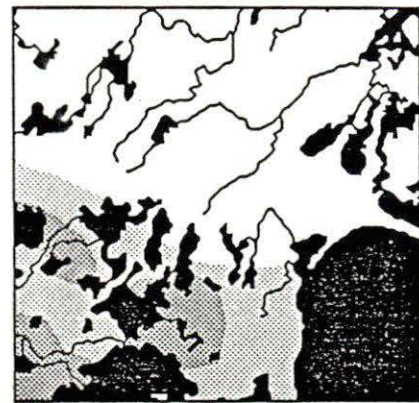


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
36	22	2	2/17/78	2	GGGG	1342





 opaque  
 transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
36	22	2	8/16/78	25	FFFF	1343



Path	Row	LS	Date	C/C	Qual. of MSS	App.#
36	22	2	10/27/78	25	FFFF	1344



 opaque  
 transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
36	22	2	12/2/78	5	FFFF	1345



Path	Row	LS	Date	C/C	Qual. of MSS	App.#
36	22	2	12/20/78	50	FFFF	1346

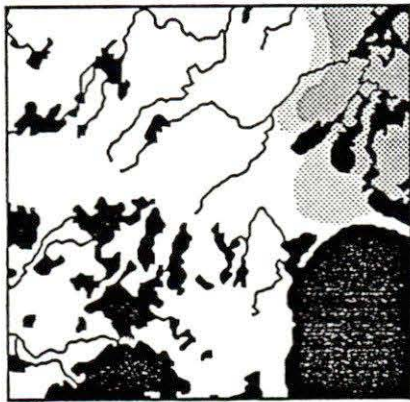


opaque  
transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
36	22	2	3/2/79	20	FFFF	1347



Path	Row	LS	Date	C/C	Qual. of MSS	App.#
36	22	2	4/25/79	15	GGGG	1348

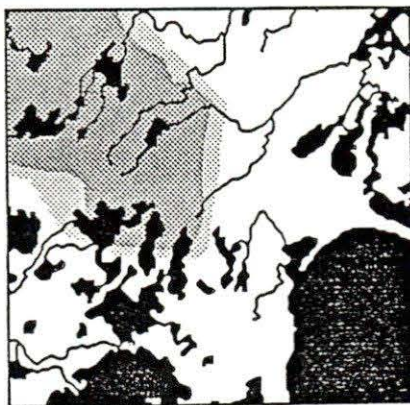


opaque  
transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
36	22	2	5/13/79	25	GGGG	1349

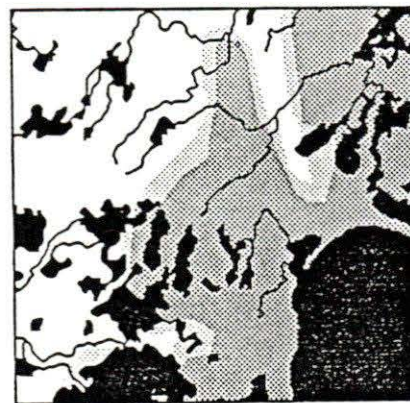


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
36	22	2	6/18/79	40	GGGG	1350

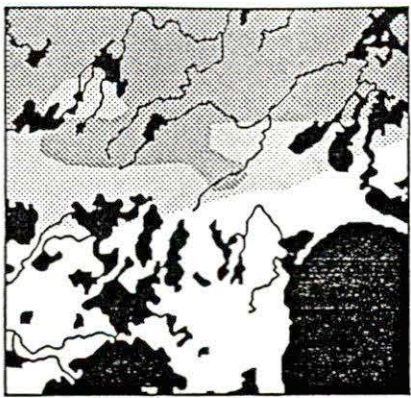


opaque  
transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
36	22	2	9/16/79	25	GGGG	1351

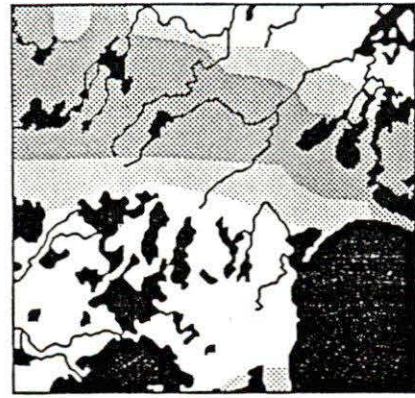


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
36	22	2	10/4/79	50	GGGG	1352

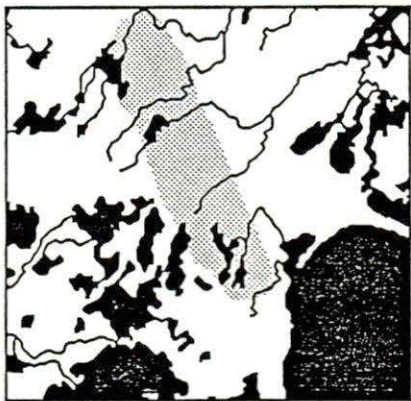


opaque  
transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
36	22	2	8/23/80	30	GGGG	1353

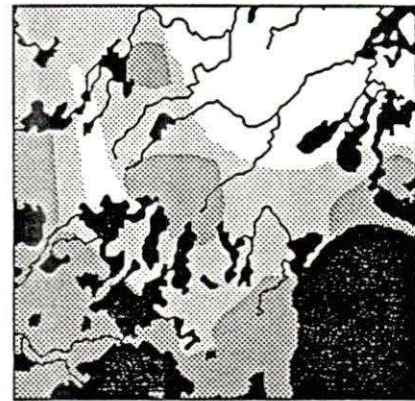


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
36	22	2	9/10/80	25	GGGG	1354

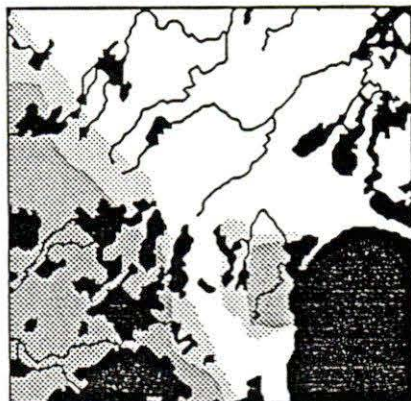


opaque  
transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
36	22	2	2/1/81	0	GGGG	1355

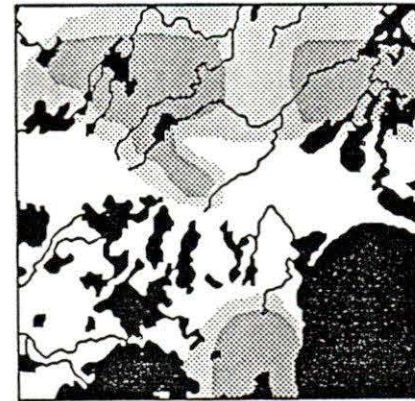


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
36	22	2	3/9/81	50	GGGG	1356



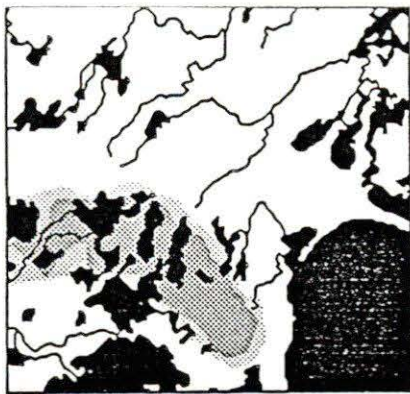
opaque  
transparent



Path	Row	LS	Date	C/C	Qual. of MSS	App.#
36	22	2	4/14/81	25	GGGG	1357



Path	Row	LS	Date	C/C	Qual. of MSS	App.#
36	22	2	5/20/81	15	GGGG	1358







 opaque  
 transparent



Path	Row	LS	Date	C/C	Qual. of MSS	App.#
36	22	2	7/13/81	5	GGGG	1359

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
36	22	2	12/4/81	5	GGGG	1360

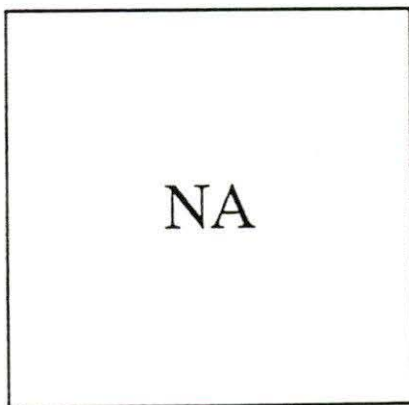



 opaque  
 transparent

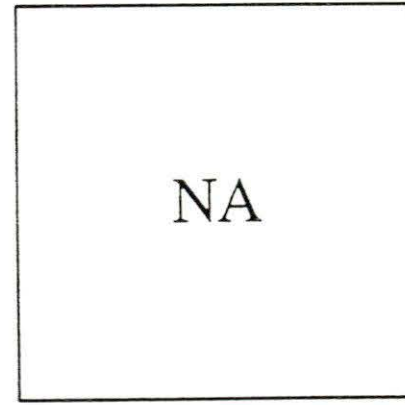


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
36	22	2	1/9/82	5	GGGG	1361

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
36	22	2	1/27/82	10	GGGG	1362

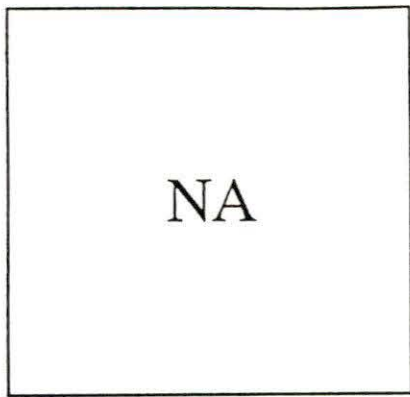




 opaque  
 transparent



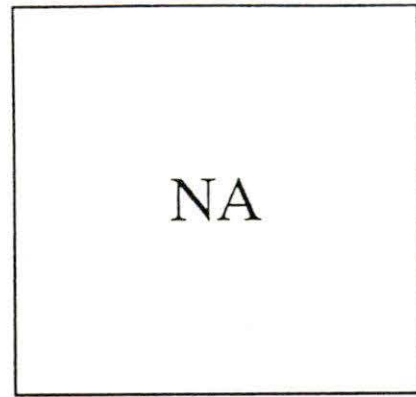
Path	Row	LS	Date	C/C	Qual. of MSS	App.#
36	22	3	9/12/78	5	FFFF	1363

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
36	22	3	9/30/78	10	FFFF	1364

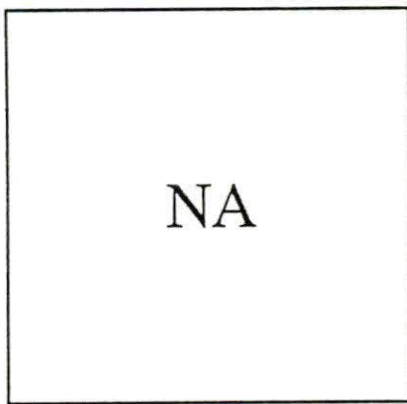




 opaque  
 transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
36	22	3	1/16/79	15	FFFF	1365

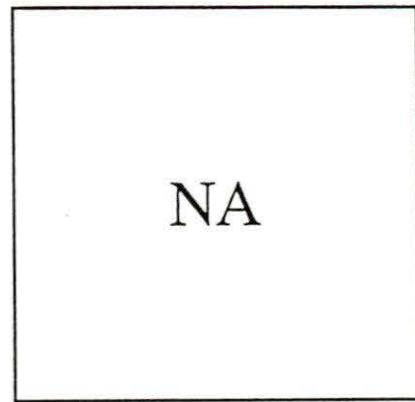


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
36	22	3	2/3/79	25	FFFF	1366

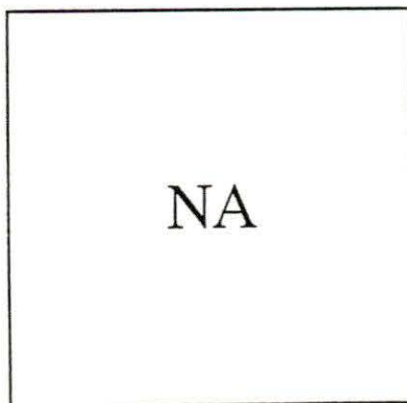




 opaque  
 transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
36	22	3	2/21/79	40	GGGG	1367

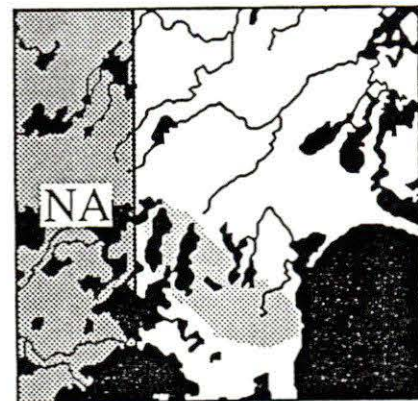


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
36	22	3	3/11/79	10	GGGG	1368

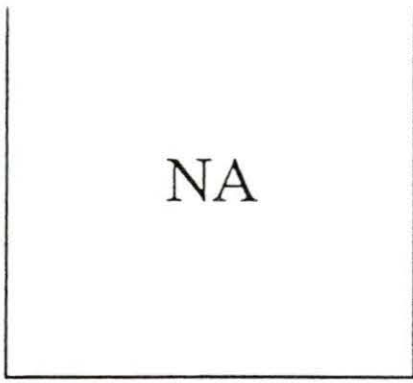




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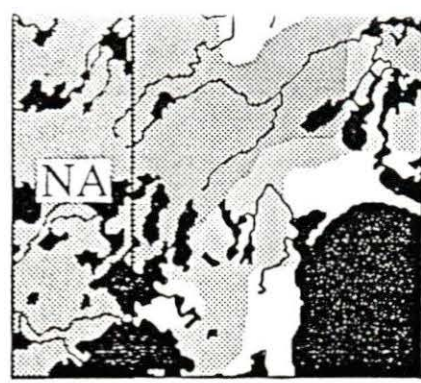
Path	Row	LS	Date	C/C	Qual. of MSS	App.#
36	22	3	1/29/80	0	GGGG	1369



Path	Row	LS	Date	C/C	Qual. of MSS	App.#
36	22	3	4/18/82	0	GGGG	1370





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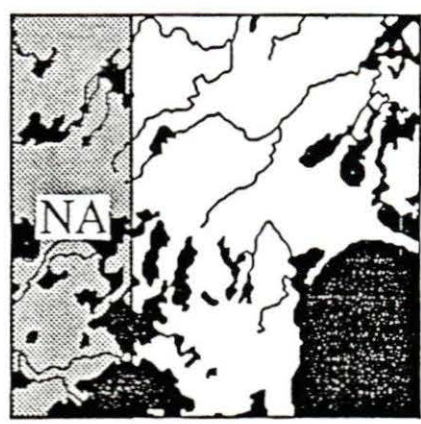


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
36	22	3	6/11/82	15	GGGG	1371

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
36	22	3	6/29/82	20	GGGG	1372

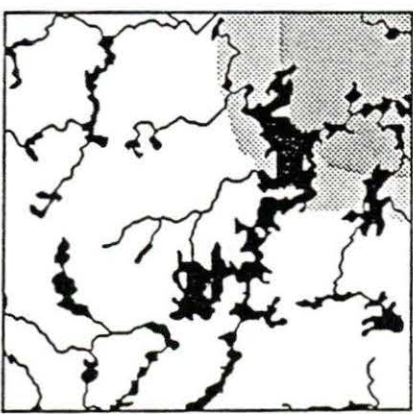




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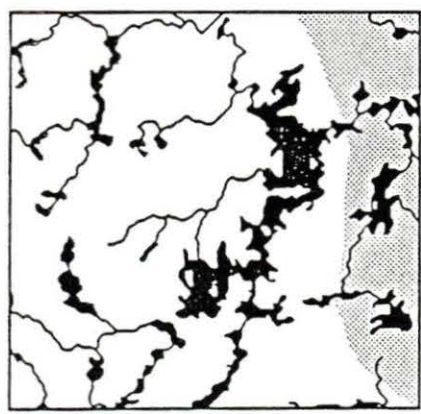


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
36	22	3	9/9/82	30	GGGG	1373

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
36	22	3	12/8/82	0	GGGG	1374

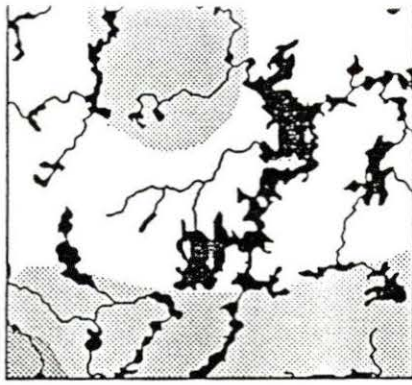




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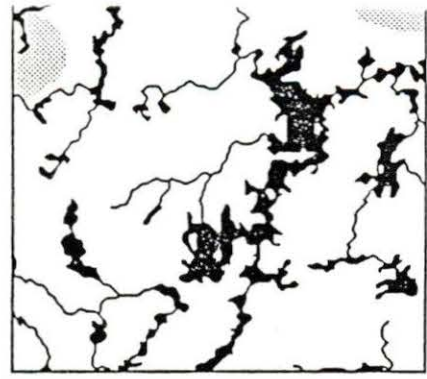
Path	Row	LS	Date	C/C	Qual. of MSS	App.#
37	20	1	8/21/72	15	EEEE	1375

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
37	20	1	12/7/72	0	EEEE	1376

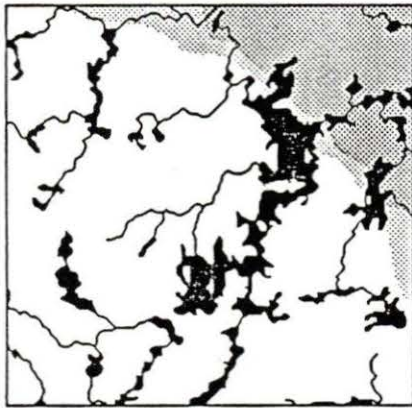




 opaque  
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Path	Row	LS	Date	C/C	Qual. of MSS	App.#
37	20	1	3/25/73	5	GGGG	1377

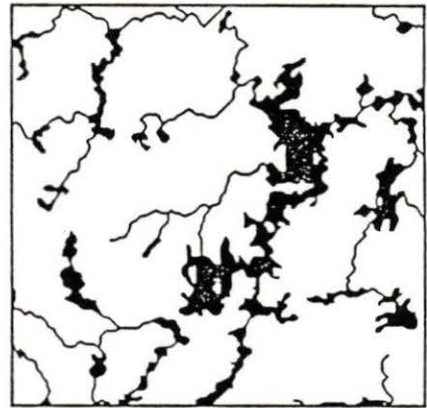


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
37	20	1	4/30/73	0	GGGG	1378

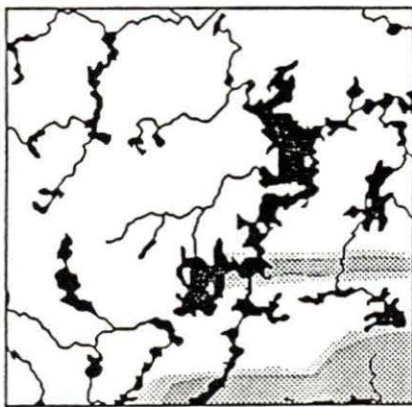




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Path	Row	LS	Date	C/C	Qual. of MSS	App.#
37	20	1	6/23/73	10	**GG	1379

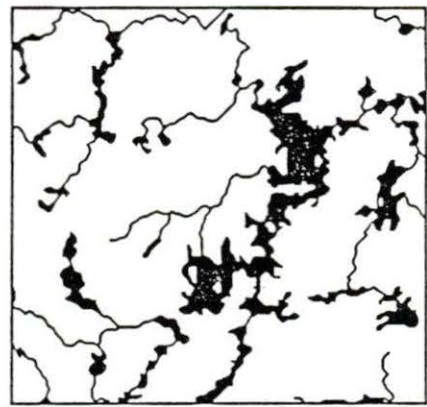


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
37	20	1	7/29/73	0	GGEE	1380

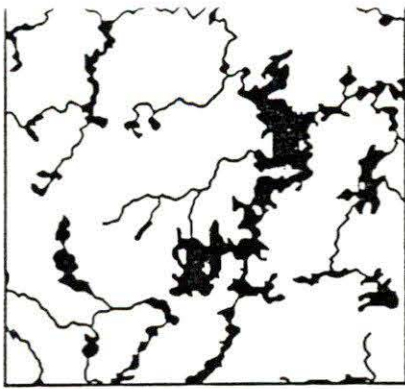


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Path	Row	LS	Date	C/C	Qual. of MSS	App.#
37	20	1	9/21/73	5	GGEE	1381

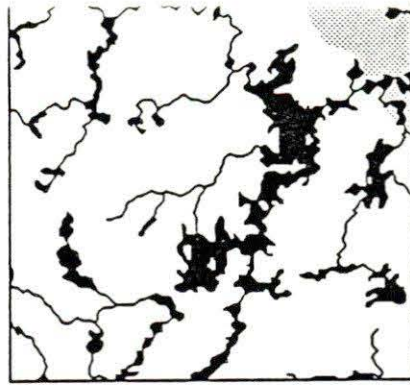


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
37	20	1	2/12/74	0	GGGG	1382

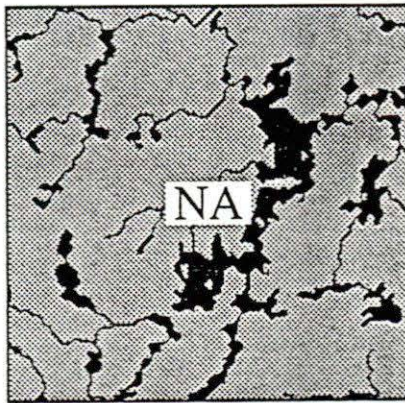


opaque
   
transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
37	20	1	4/7/74	5	GGGF	1383

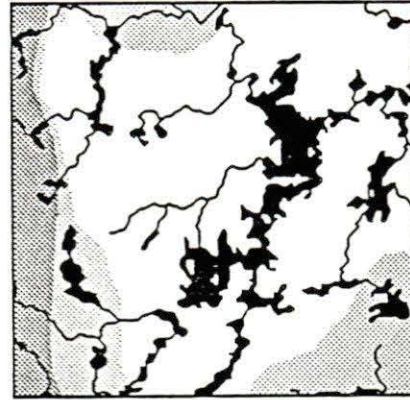


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
37	20	1	4/25/74	0	GGGP	1384

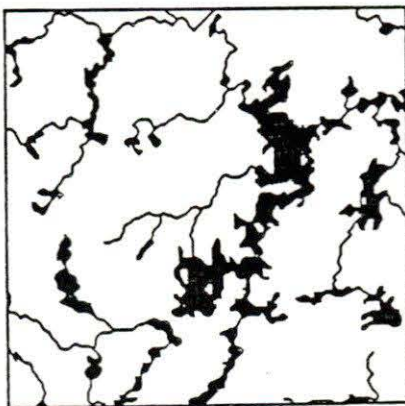


opaque
   
transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
37	20	1	5/13/74	20	FGGG	1385

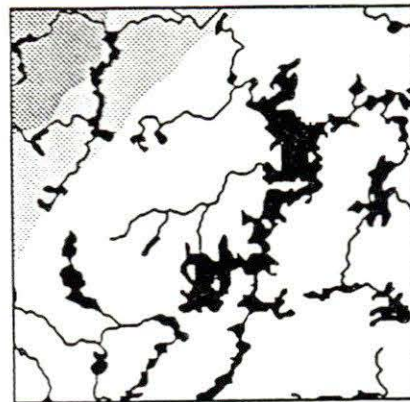


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
37	20	1	4/20/75	10	GGGG	1386





opaque
   
transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
37	20	1	5/8/75	0	GEFE	1387

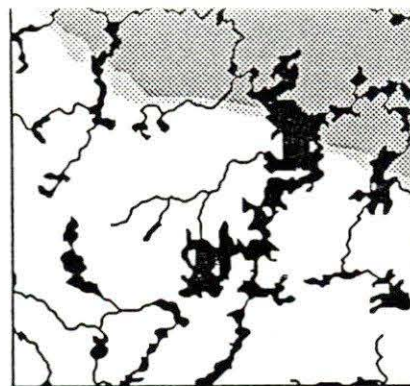


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
37	20	1	7/19/75	15	FFGG	1388

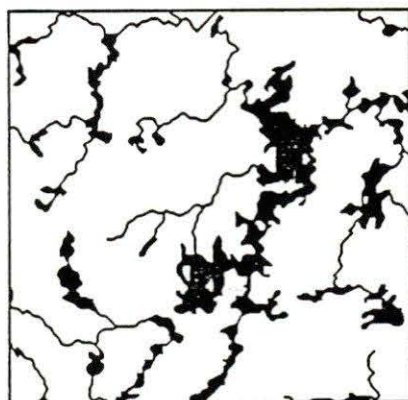




 opaque  
 transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
37	20	1	8/24/75	50	FGGG	1389

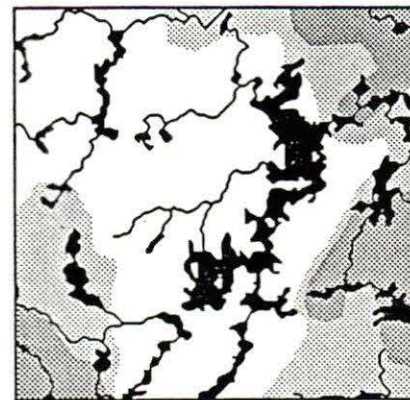


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
37	20	1	11/4/75	30	GGFF	1390

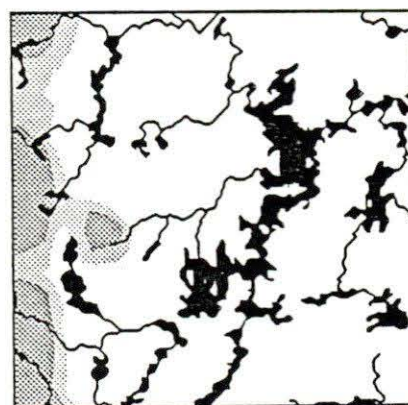




 opaque  
 transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
37	20	1	11/22/75	0	GGGG	1391

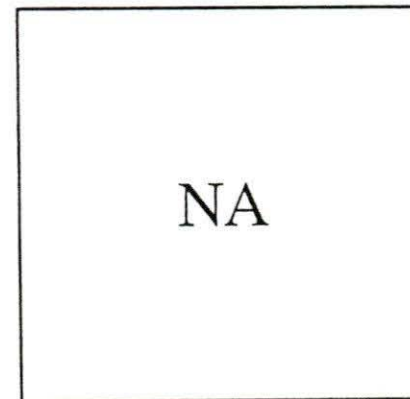


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
37	20	1	2/20/76	50	PGGG	1392

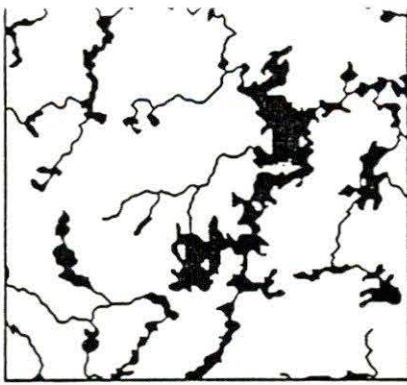




 opaque  
 transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
37	20	1	3/9/76	10	GGGG	1393

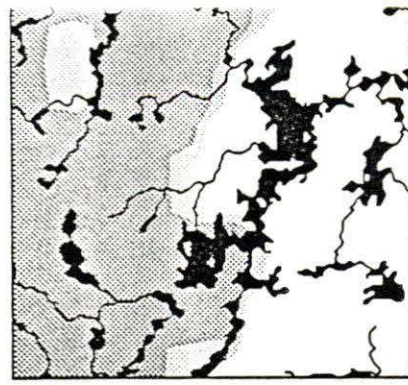


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
37	20	1	3/27/76	25	FF*F	1394

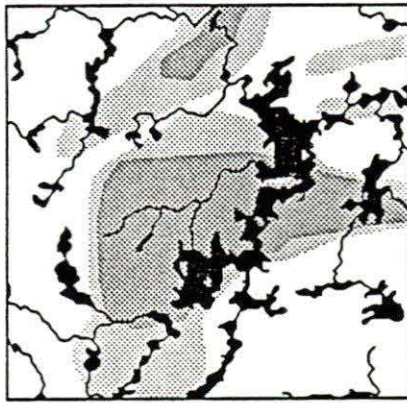




 opaque  
 transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
37	20	1	5/2/76	0	GGGG	1395

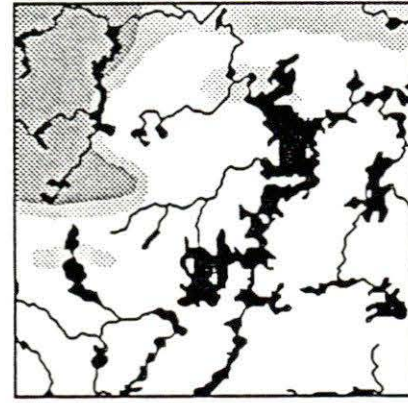


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
37	20	1	5/20/76	50	GGGG	1396

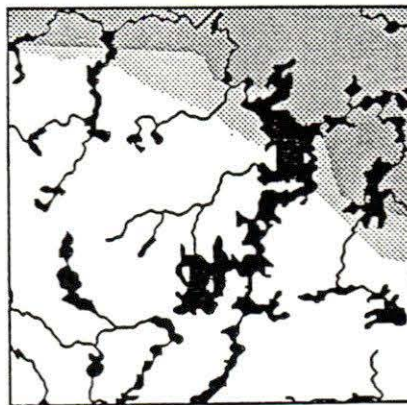




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 transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
37	20	1	6/7/76	40	GGGG	1397

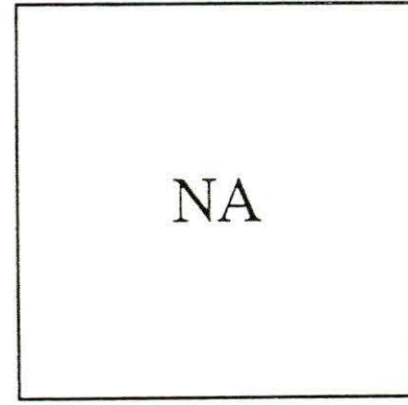


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
37	20	1	7/31/76	15	FFFF	1398

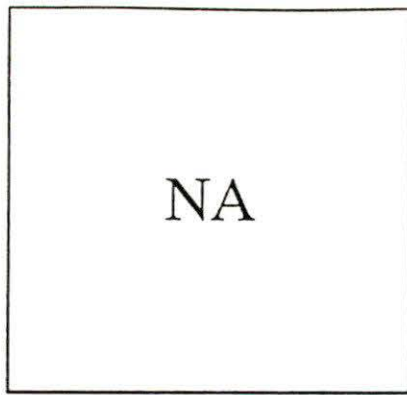


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 transparent

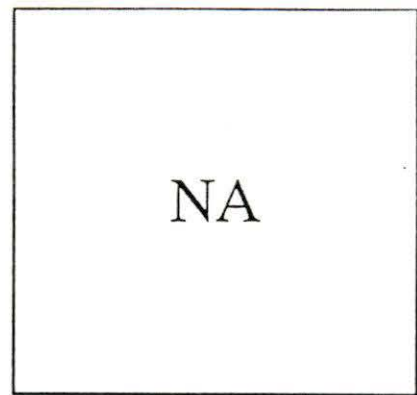
Path	Row	LS	Date	C/C	Qual. of MSS	App.#
37	20	1	10/11/76	20	GGGG	1399



Path	Row	LS	Date	C/C	Qual. of MSS	App.#
37	20	1	7/23/77	10	*GFG	1400

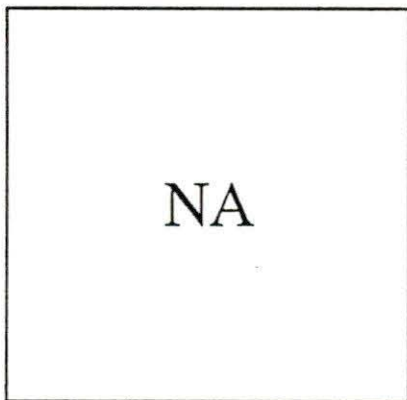


opaque  
transparent

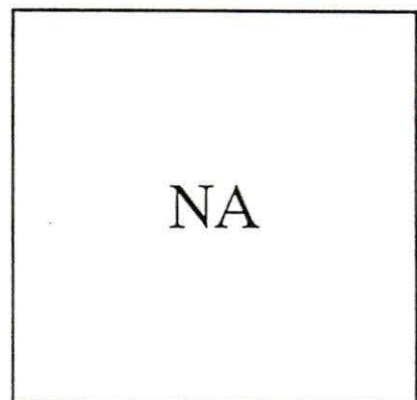


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
37	20	1	8/10/77	30	*GFG	1401

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
37	20	2	4/29/75	35	GFGF	1402

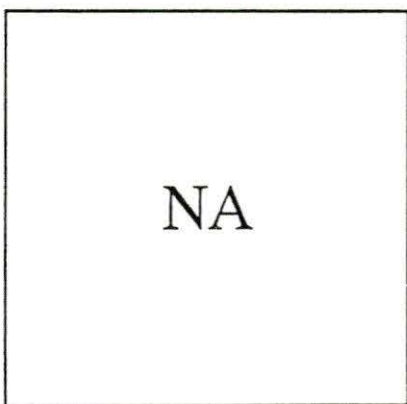


opaque  
transparent

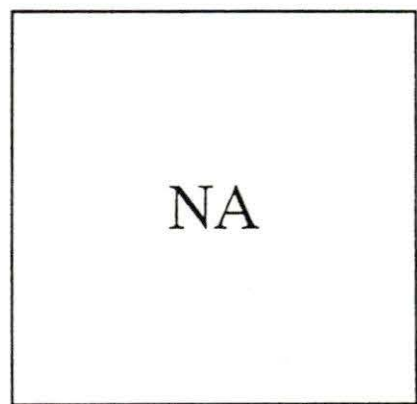


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
37	20	2	6/22/75	40	GGGG	1403

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
37	20	2	7/10/75	2	FFGG	1404



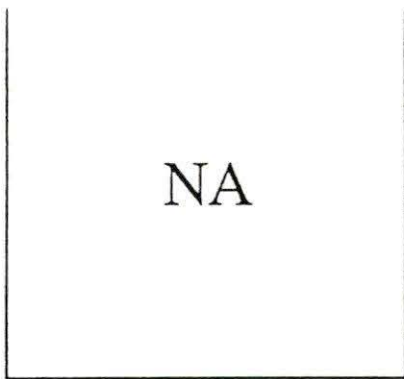
opaque  
transparent



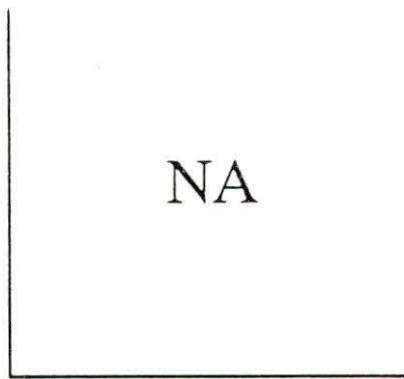
Path	Row	LS	Date	C/C	Qual. of MSS	App.#
37	20	2	9/20/75	30	FFFF	1405

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
37	20	2	12/1/75	35	GGGG	1406



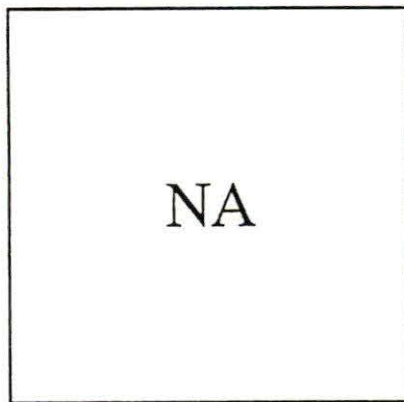


opaque  
transparent

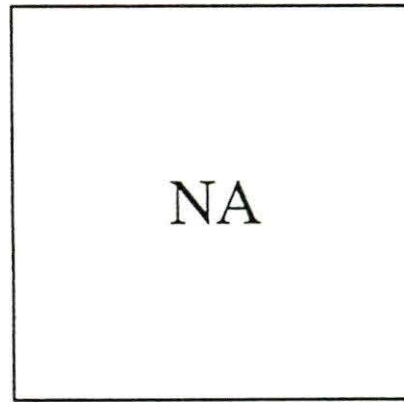


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
37	20	2	2/11/76	0	GGGG	1407

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
37	20	2	2/28/76	0	GGPP	1408

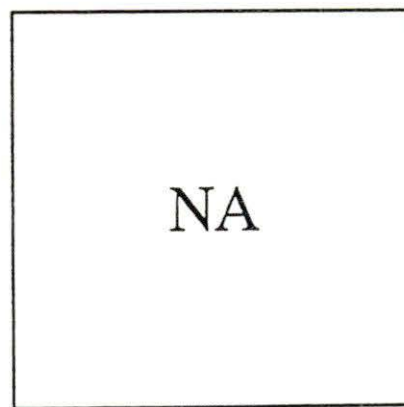


opaque  
transparent

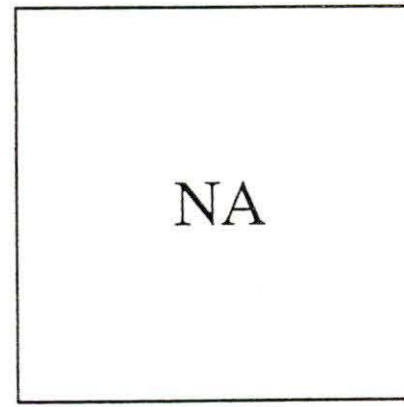


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
37	20	2	4/23/76	25	GGGG	1409

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
37	20	2	5/11/76	5	GGGG	1410

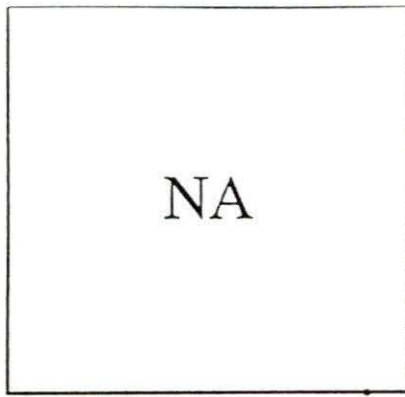




opaque  
transparent



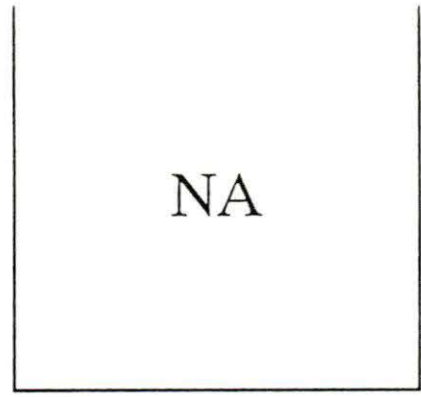
Path	Row	LS	Date	C/C	Qual. of MSS	App.#
37	20	2	5/29/76	40	GGGG	1411

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
37	20	2	7/4/76	10	GGGG	1412

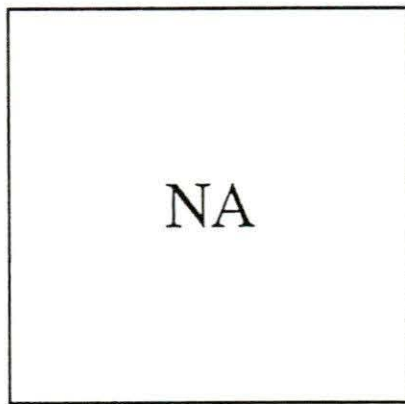




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 transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
37	20	2	8/9/76	45	GGGG	1413

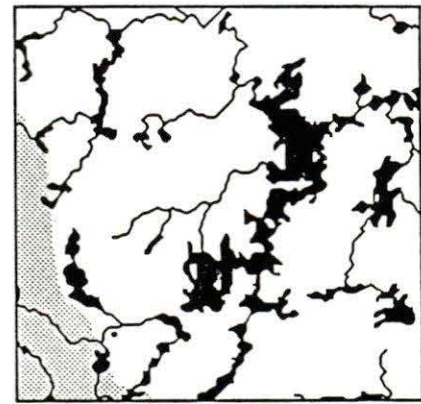


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
37	20	2	9/14/76	5	GGGG	1414

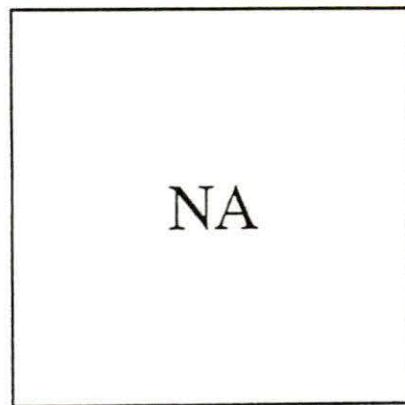




 opaque  
 transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
37	20	2	10/2/76	5	GGGG	1415

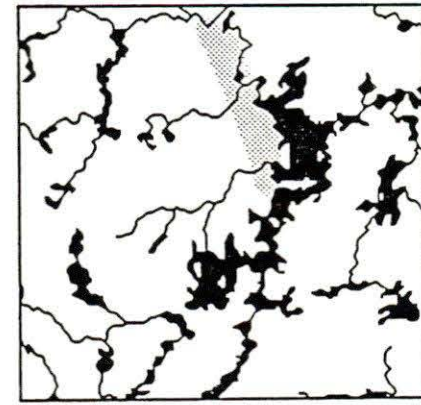


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
37	20	2	2/5/77	0	GGGG	1416

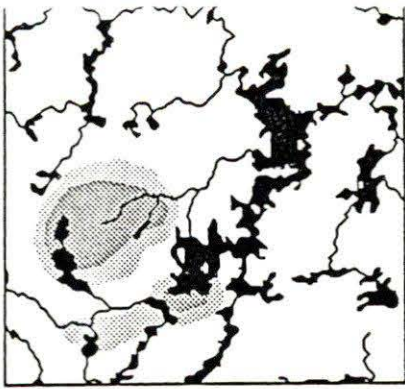




 opaque  
 transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
37	20	2	4/18/77	5	GGGG	1417

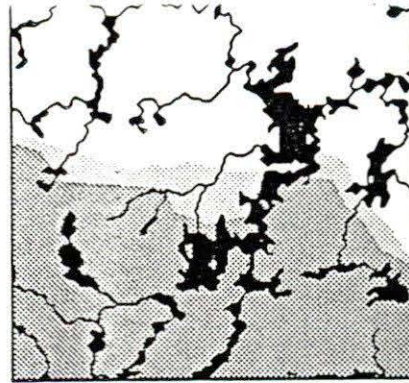


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
37	20	2	5/6/77	5	FGGG	1418

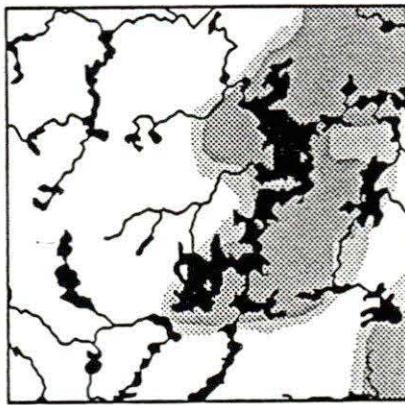




 opaque  
 transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
37	20	2	5/24/77	5	GGGG	1419

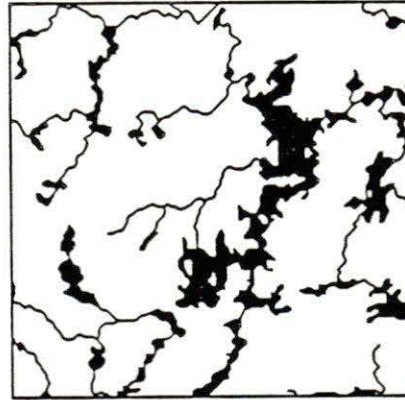


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
37	20	2	7/17/77	50	GGFG	1420

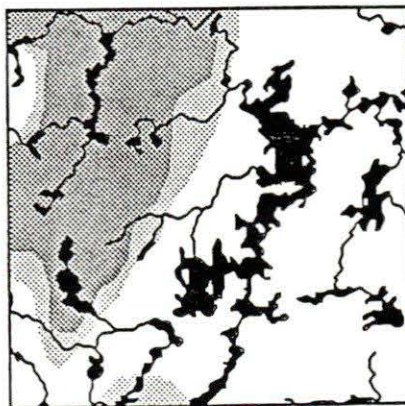




 opaque  
 transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
37	20	2	9/9/77	25	GGGG	1421

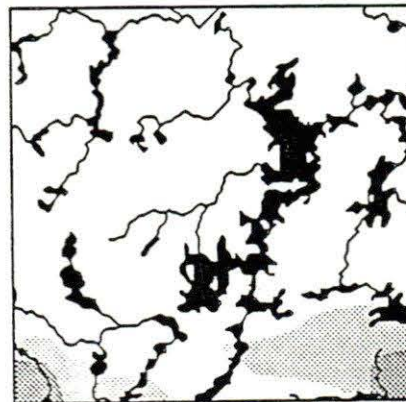


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
37	20	2	1/31/78	0	GGPG	1422

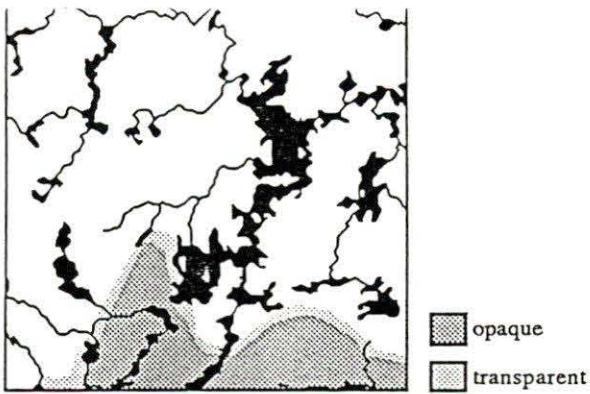


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 transparent

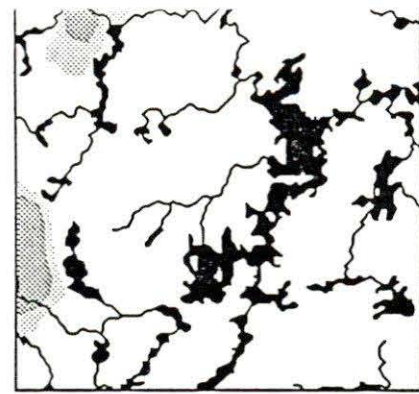
Path	Row	LS	Date	C/C	Qual. of MSS	App.#
37	20	2	2/18/78	15	GGGG	1423



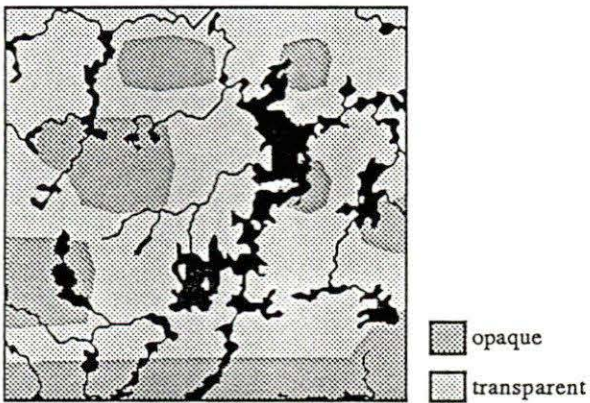
Path	Row	LS	Date	C/C	Qual. of MSS	App.#
37	20	2	6/24/78	2	FFFF	1424



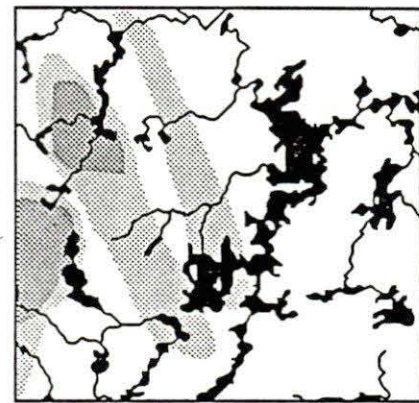
Path	Row	LS	Date	C/C	Qual. of MSS	App.#
37	20	2	11/15/78	10	FFFF	1425



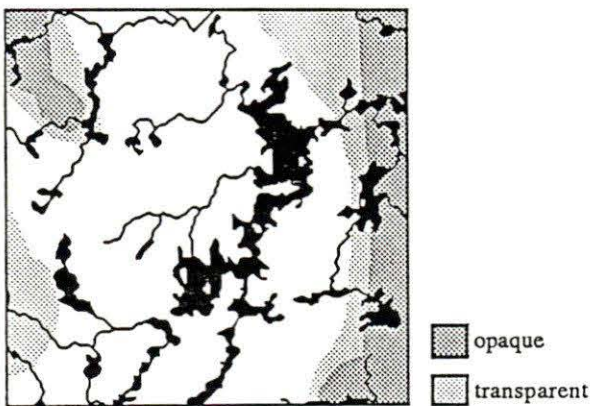
Path	Row	LS	Date	C/C	Qual. of MSS	App.#
37	20	2	1/26/79	5	FFFF	1426



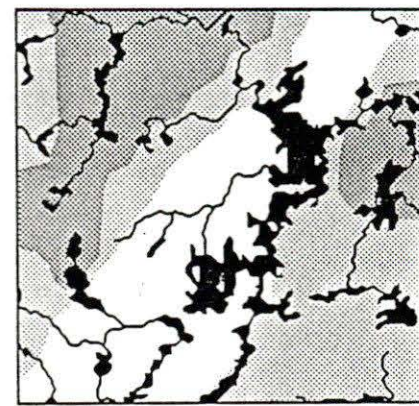
Path	Row	LS	Date	C/C	Qual. of MSS	App.#
37	20	2	2/13/79	50	GGGG	1427



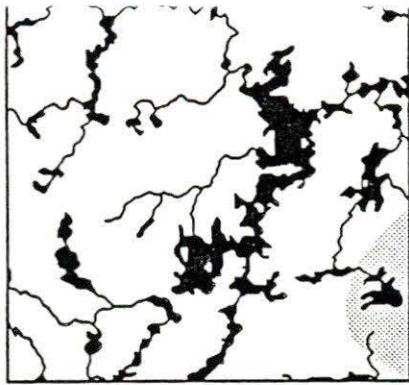
Path	Row	LS	Date	C/C	Qual. of MSS	App.#
37	20	2	3/3/79	20	GGGG	1428





Path	Row	LS	Date	C/C	Qual. of MSS	App.#
37	20	2	4/8/79	15	GGGG	1429

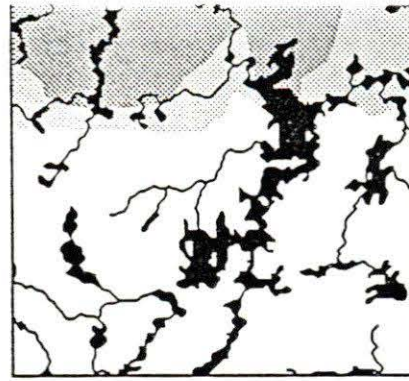


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
37	20	2	4/26/79	20	GGGG	1430

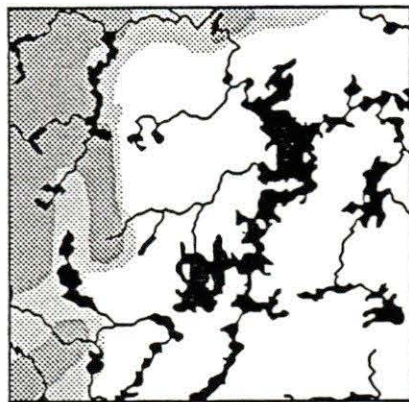




 opaque  
 transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
37	20	2	7/7/79	3	GGGG	1431

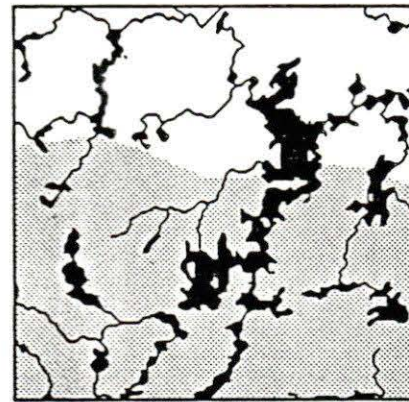


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
37	20	2	8/30/79	10	GGGG	1432

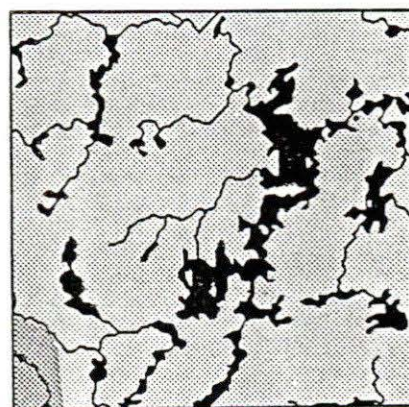


 opaque  
 transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
37	20	2	9/11/80	20	GGGG	1433

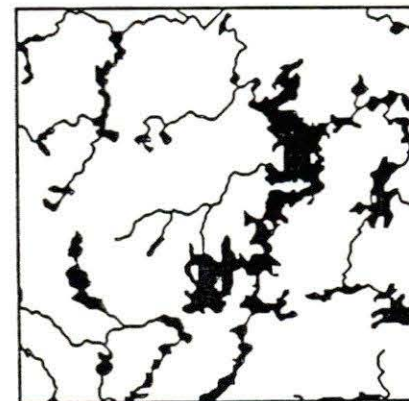


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
37	20	2	11/4/80	0	GGGG	1434

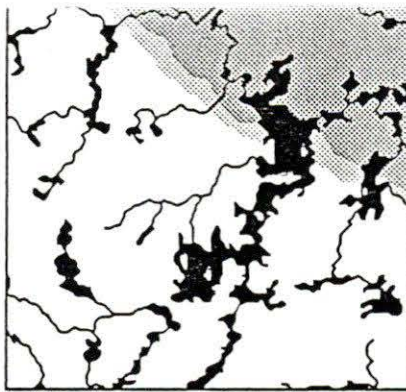


 opaque  
 transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
37	20	2	2/2/81	10	GGGG	1435

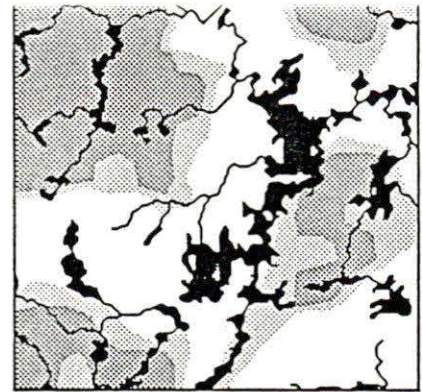


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
37	20	2	3/10/81	5	GGGG	1436

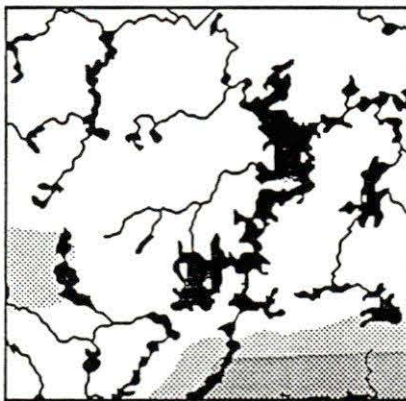


opaque  
transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
37	20	2	6/8/81	10	GGGG	1437

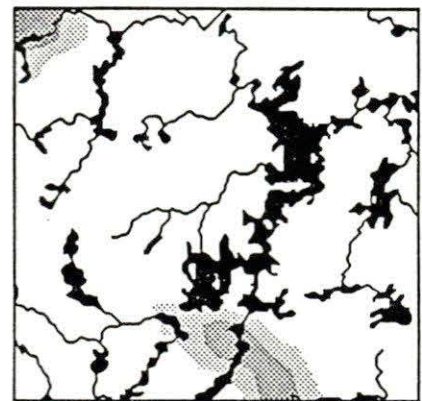


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
37	20	2	6/26/81	20	GGGG	1438

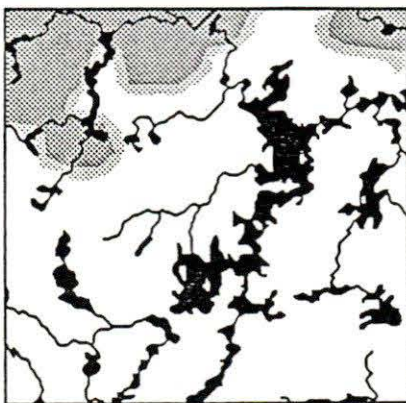


opaque  
transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
37	20	2	7/14/81	5	GGGG	1439

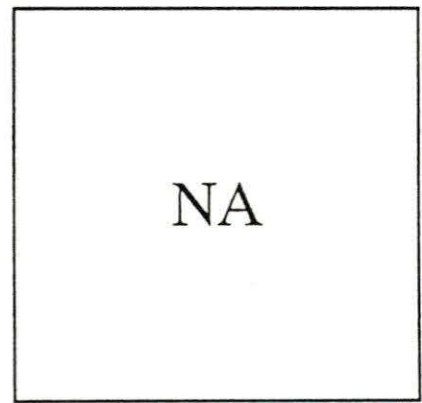


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
37	20	2	8/1/81	2	GGGG	1440





opaque  
transparent

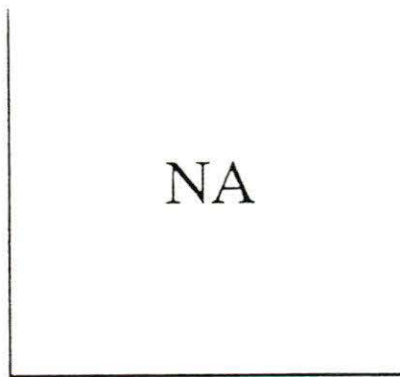
Path	Row	LS	Date	C/C	Qual. of MSS	App.#
37	20	2	8/19/81	15	GGGG	1441



Path	Row	LS	Date	C/C	Qual. of MSS	App.#
37	20	3	9/13/78	25	FFFF	1442

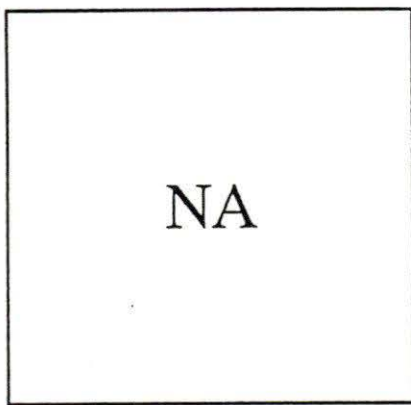




 opaque  
 transparent

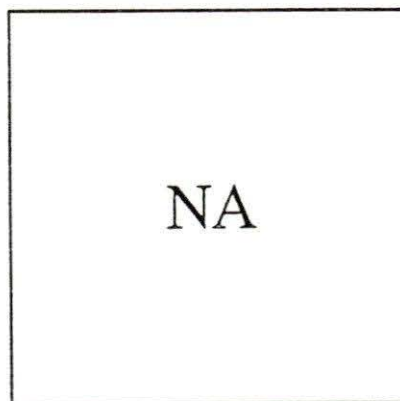


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
37	20	3	1/17/79	1	FFFF	1443

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
37	20	3	2/4/79	0	FFFF	1444

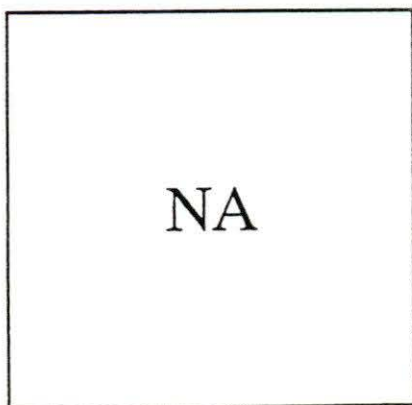




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 transparent

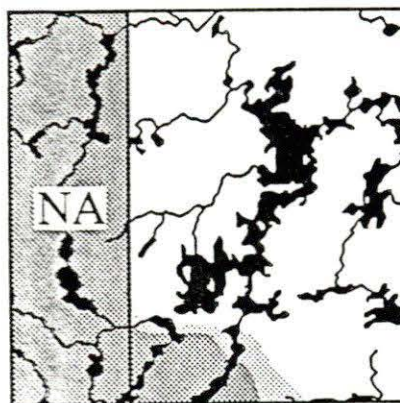


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
37	20	3	2/22/79	20	GGGG	1445

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
37	20	3	3/12/79	0	GGGG	1446

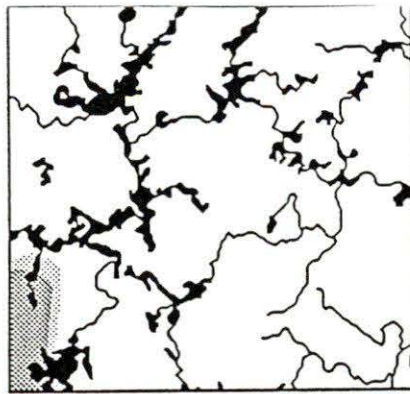


 opaque  
 transparent



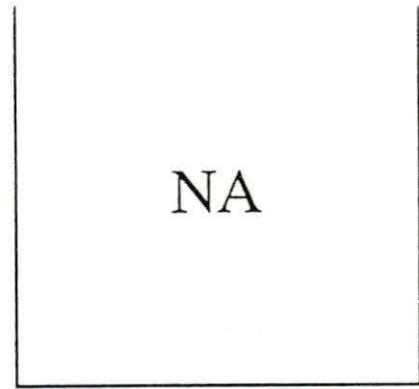
Path	Row	LS	Date	C/C	Qual. of MSS	App.#
37	20	3	6/12/82	5	GGGG	1447

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
37	20	3	6/30/82	5	GGGG	1448

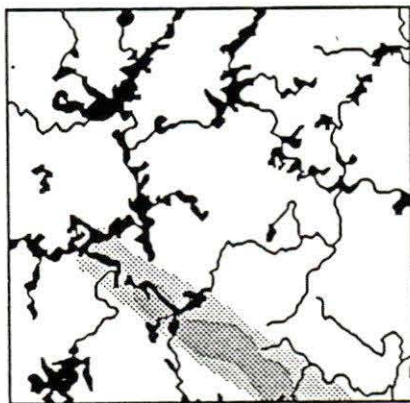


opaque  
transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
37	21	1	8/21/72	2	EEEE	1449

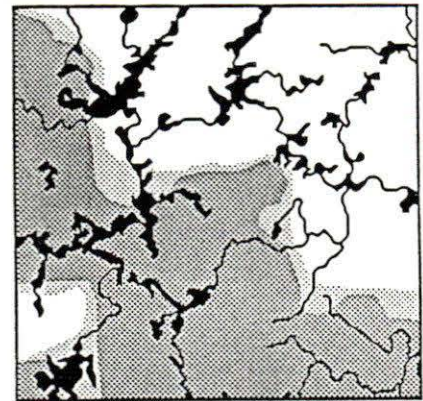


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
37	21	1	9/26/72	40	EEEG	1450

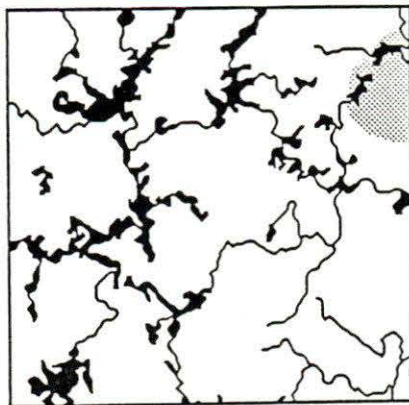


opaque  
transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
37	21	1	1/30/73	1	GGGG	1451

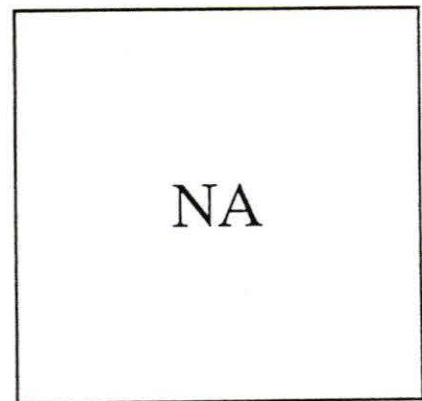


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
37	21	1	3/25/73	50	GGGG	1452



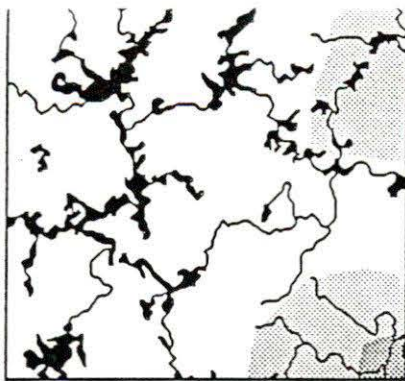
opaque  
transparent



Path	Row	LS	Date	C/C	Qual. of MSS	App.#
37	21	1	4/30/73	0	EEGE	1453



Path	Row	LS	Date	C/C	Qual. of MSS	App.#
37	21	1	5/18/73	20	GGGG	1454



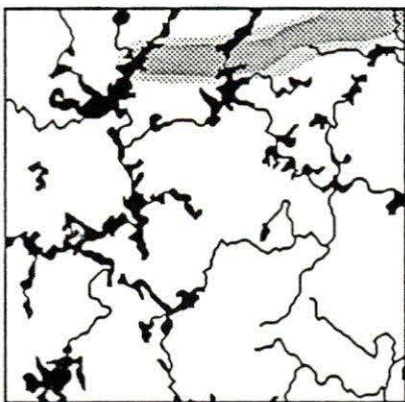




 opaque  
 transparent

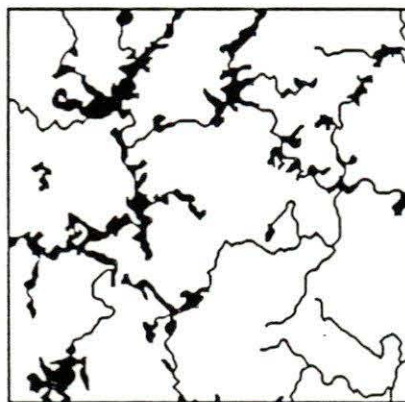


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
37	21	1	6/23/73	5	**FF	1455

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
37	21	1	7/29/73	45	FGFG	1456

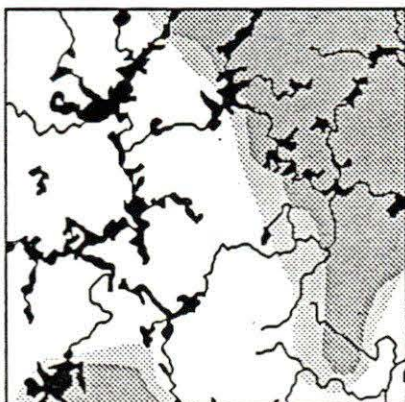




 opaque  
 transparent



Path	Row	LS	Date	C/C	Qual. of MSS	App.#
37	21	1	9/21/73	5	G G G G	1457

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
37	21	1	2/12/74	0	G G E E	1458

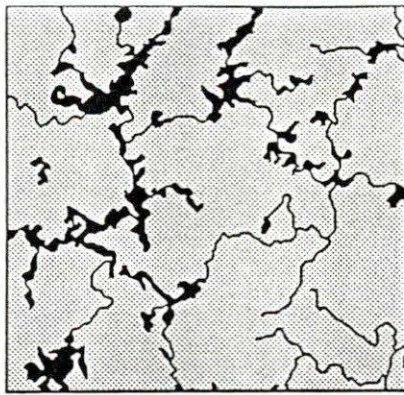




 opaque  
 transparent



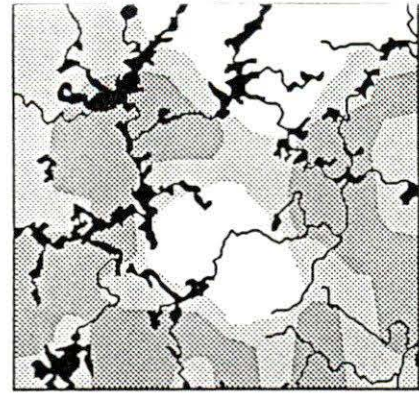
Path	Row	LS	Date	C/C	Qual. of MSS	App.#
37	21	1	3/20/74	40	G F F F	1459

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
37	21	1	4/7/74	10	E F G G	1460

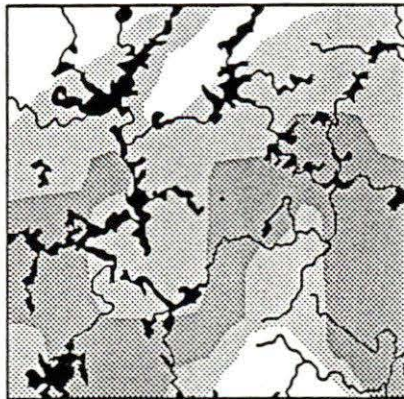




 opaque  
 transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
37	21	1	4/25/74	5	GGGG	1461

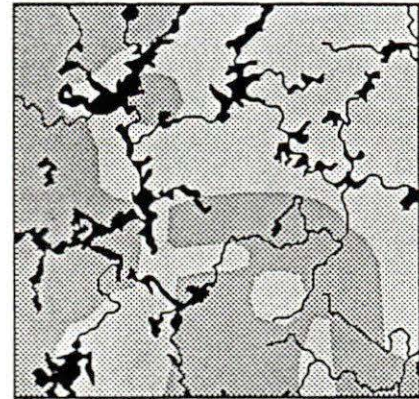


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
37	21	1	6/18/74	50	FFFG	1462

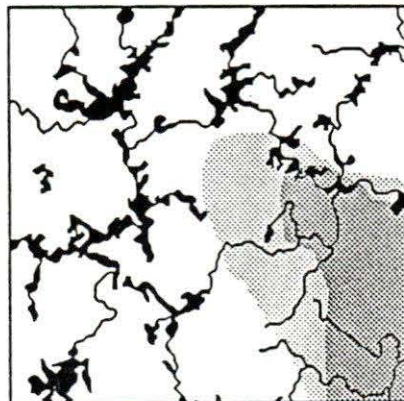




 opaque  
 transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
37	21	1	8/11/74	50	GGGG	1463

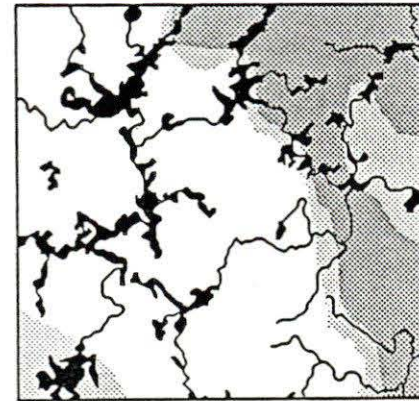


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
37	21	1	8/29/74	50	FGGG	1464

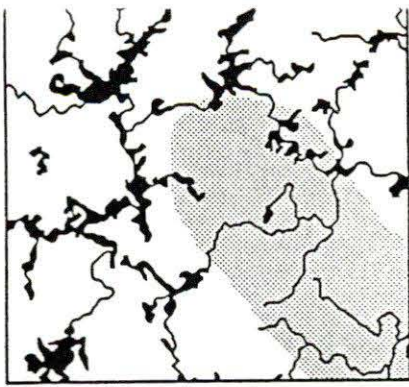




 opaque  
 transparent

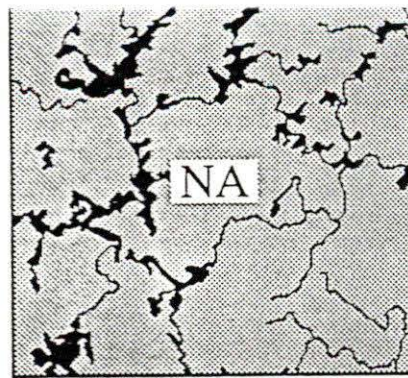
Path	Row	LS	Date	C/C	Qual. of MSS	App.#
37	21	1	2/7/75	20	GGGE	1465



Path	Row	LS	Date	C/C	Qual. of MSS	App.#
37	21	1	4/2/75	25	GGGG	1466

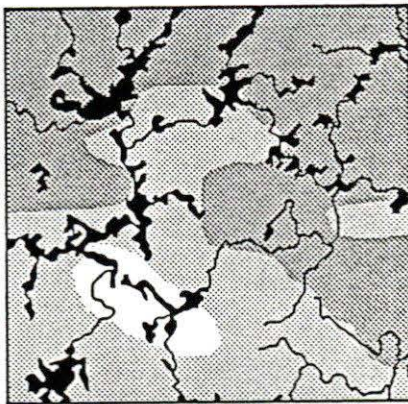




 opaque  
 transparent

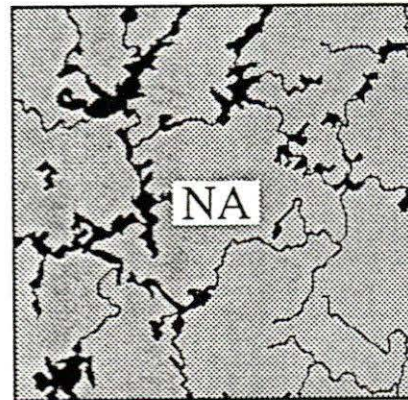


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
37	21	1	4/20/75	0	GGGG	1467

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
37	21	1	5/8/75	0	GGGE	1468

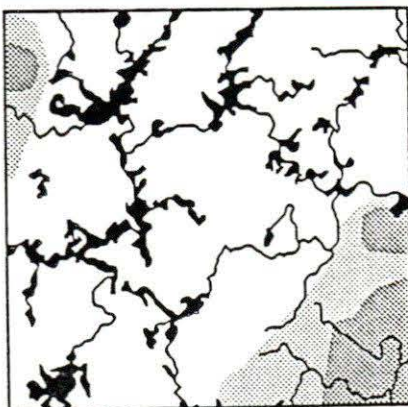




 opaque  
 transparent

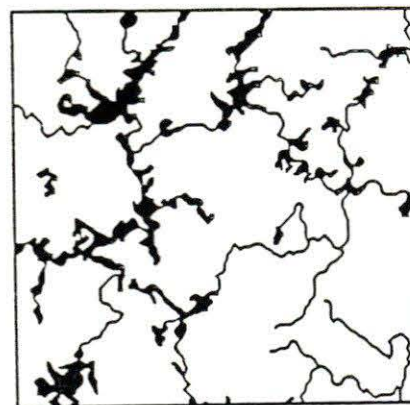


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
37	21	1	7/1/75	40	GGFG	1469

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
37	21	1	11/22/75	15	*GFG	1470

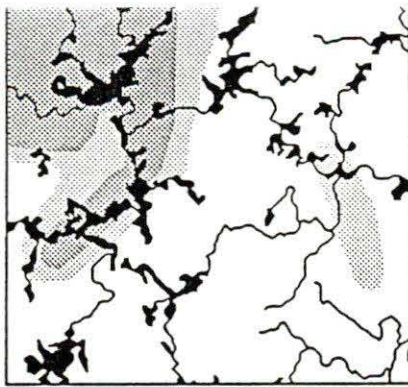




 opaque  
 transparent



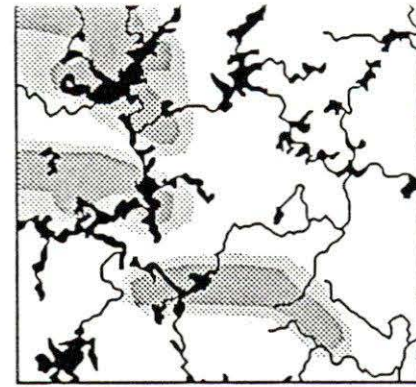
Path	Row	LS	Date	C/C	Qual. of MSS	App.#
37	21	1	3/9/76	5	GGGG	1471

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
37	21	1	5/2/76	0	GGGG	1472

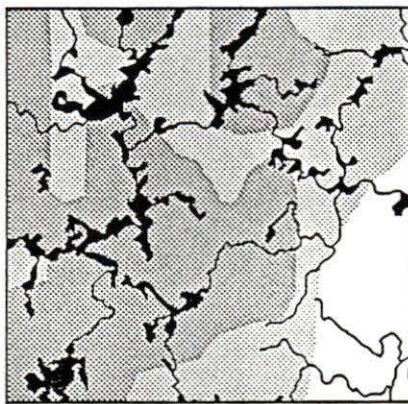




 opaque  
 transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
37	21	1	5/20/76	5	GGGG	1473

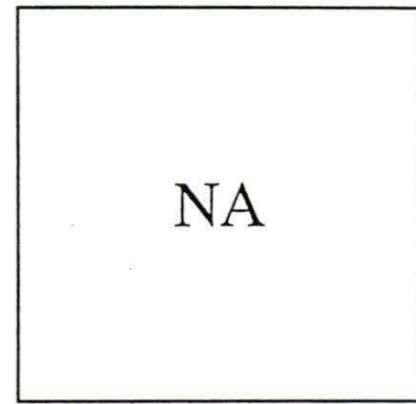


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
37	21	1	7/31/76	25	FFFF	1474

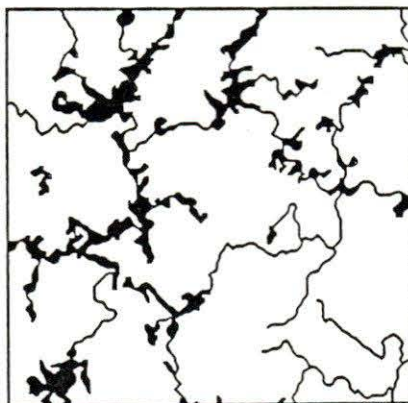




 opaque  
 transparent

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
37	21	1	8/18/76	40	GGGG	1475

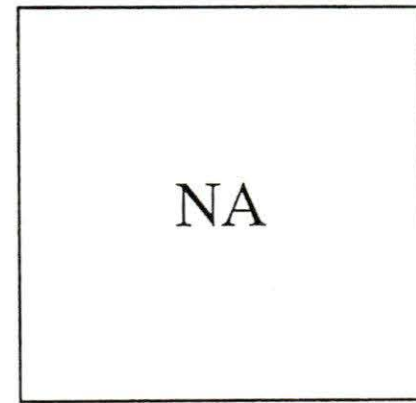


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
37	21	1	9/5/76	25	*GGG	1476

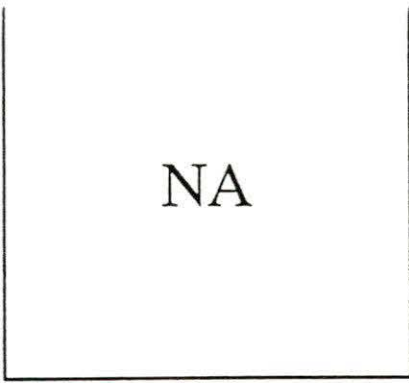


 opaque  
 transparent

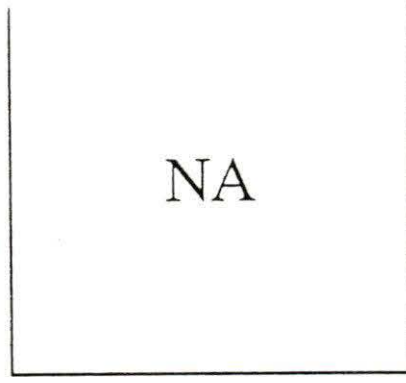
Path	Row	LS	Date	C/C	Qual. of MSS	App.#
37	21	1	10/11/76	0	GGGG	1477



Path	Row	LS	Date	C/C	Qual. of MSS	App.#
37	21	2	7/10/25	5	GGGG	1478

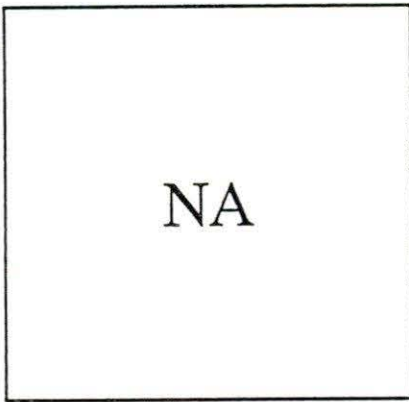


opaque  
transparent

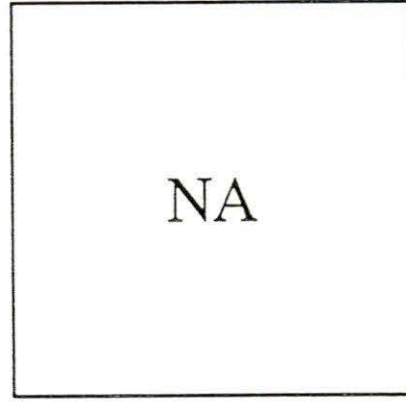


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
37	21	2	9/20/75	5	GGGG	1479

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
37	21	2	12/1/75	35	GGGG	1480

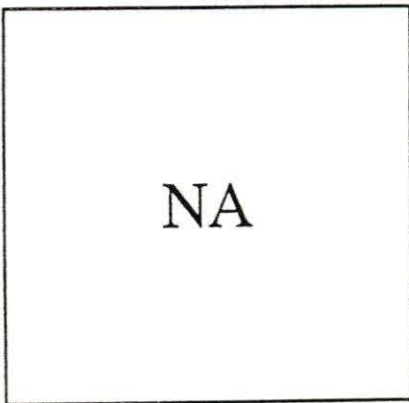


opaque  
transparent

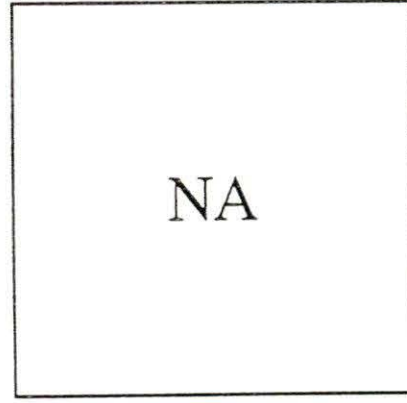


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
37	21	2	2/11/76	10	GGGG	1481

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
37	21	2	2/28/76	0	GGGG	1482

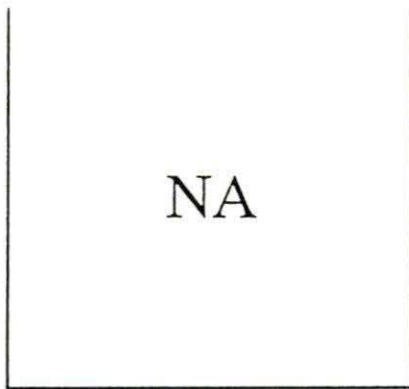


opaque  
transparent

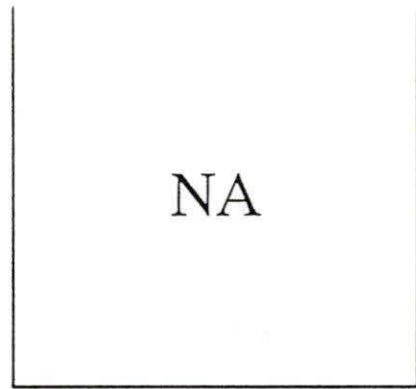


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
37	21	2	3/18/76	50	GGGG	1483

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
37	21	2	4/5/76	15	GGGG	1484

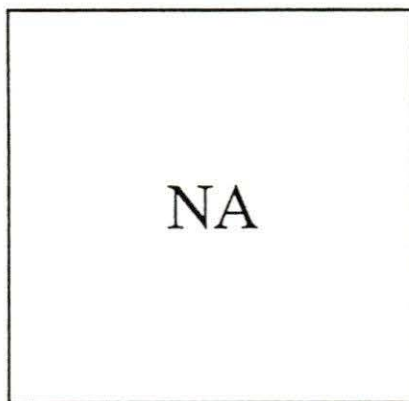


opaque  
transparent

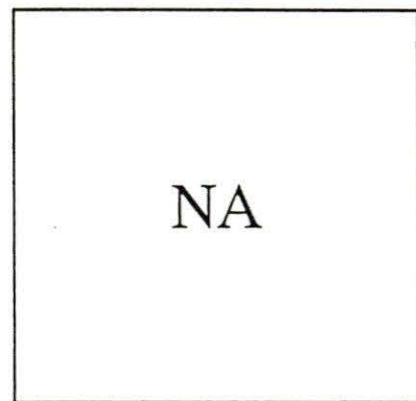


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
37	21	2	4/23/76	0	GGGG	1485

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
37	21	2	5/11/76	0	GGGG	1486

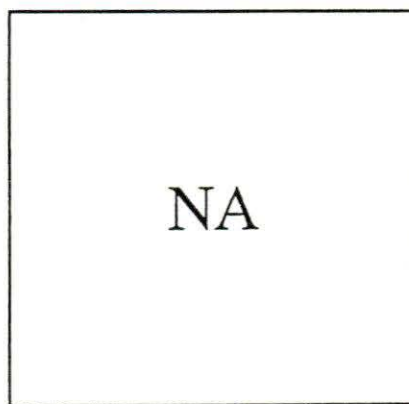


opaque  
transparent

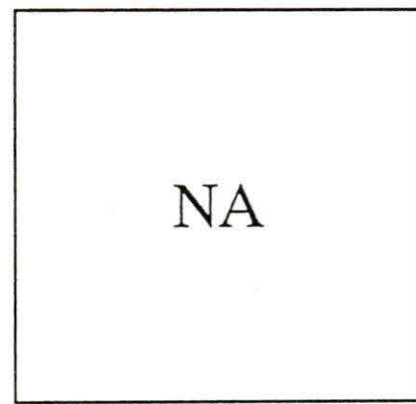


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
37	21	2	5/29/76	35	GFFG	1487

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
37	21	2	7/4/76	20	GGGG	1488

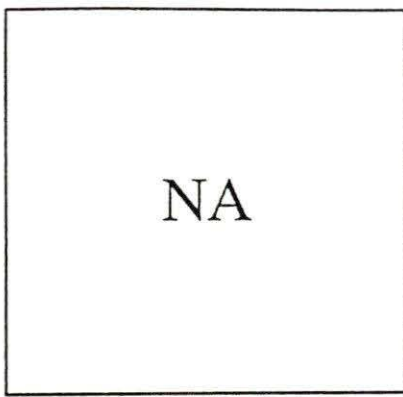



opaque  
transparent

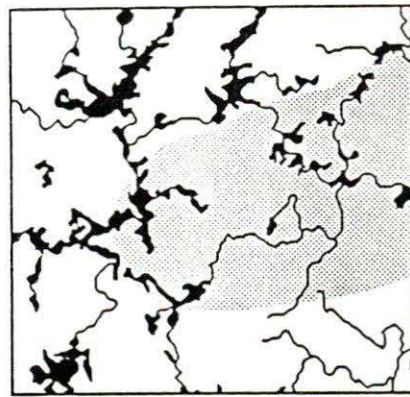


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
37	21	2	8/9/76	20	GGGG	1489

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
37	21	2	9/14/76	10	GGGG	1490

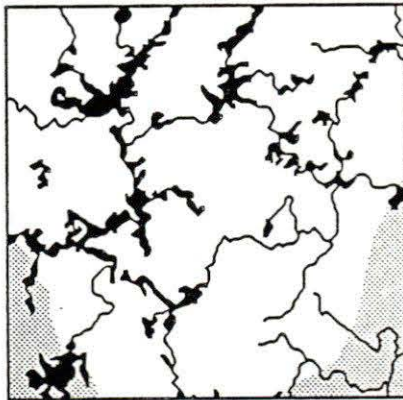




 opaque  
 transparent

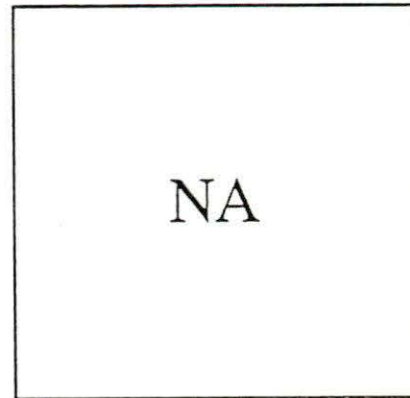


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
37	21	2	10/2/76	5	*GGG	1491

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
37	21	2	12/31/76	10	GGGP	1492

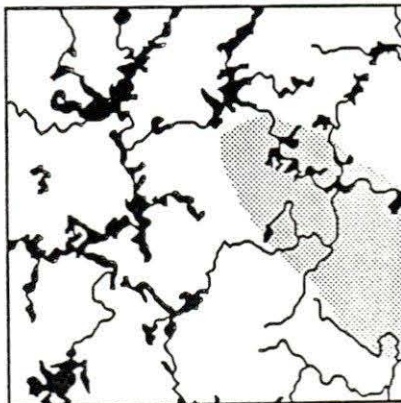




 opaque  
 transparent

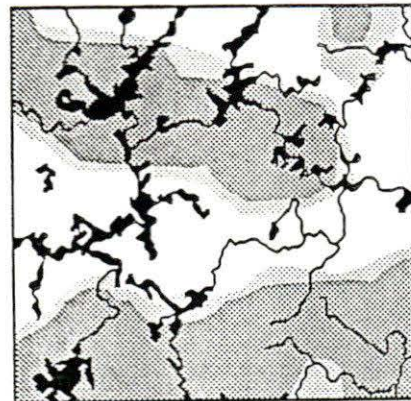


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
37	21	2	2/5/77	0	GGGG	1493

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
37	21	2	4/18/77	0	FGFG	1494

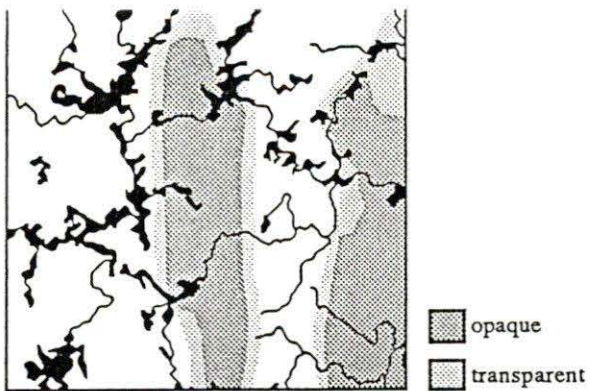


 opaque  
 transparent

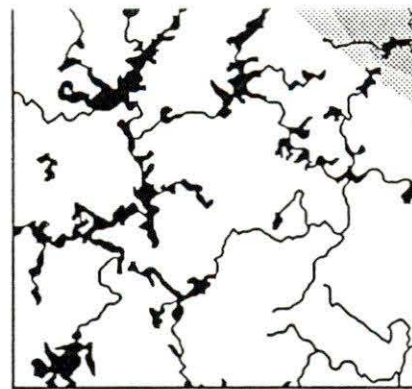


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
37	21	2	5/6/77	0	FGFG	1495

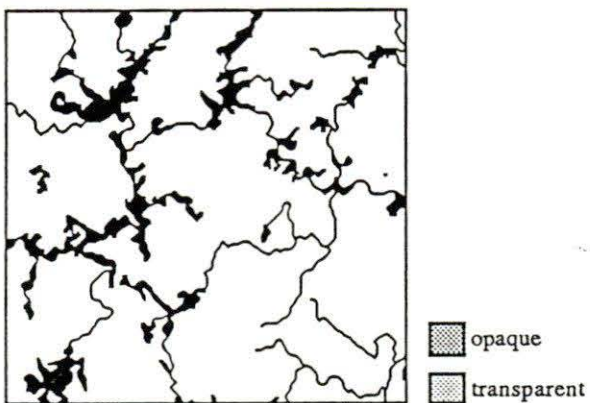
Path	Row	LS	Date	C/C	Qual. of MSS	App.#
37	21	2	5/24/77	20	GGGG	1496



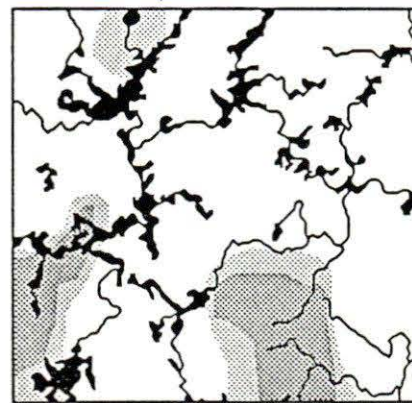
Path	Row	LS	Date	C/C	Qual. of MSS	App.#
37	21	2	9/9/77	5	GGGG	1497



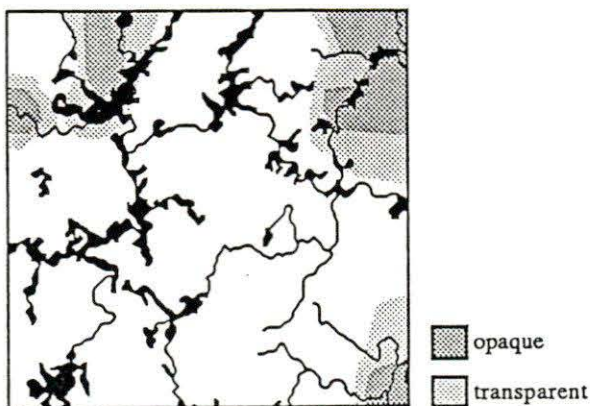
Path	Row	LS	Date	C/C	Qual. of MSS	App.#
37	21	2	10/15/77	5	GGGG	1498



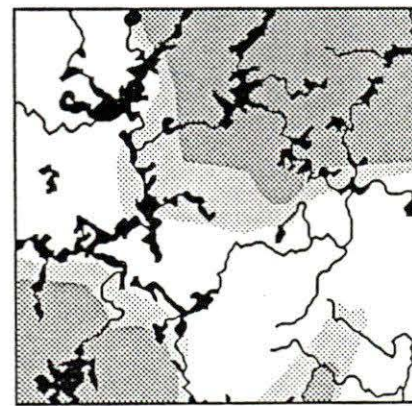
Path	Row	LS	Date	C/C	Qual. of MSS	App.#
37	21	2	1/31/78	0	GGGG	1499



Path	Row	LS	Date	C/C	Qual. of MSS	App.#
37	21	2	2/18/78	15	GGGG	1500

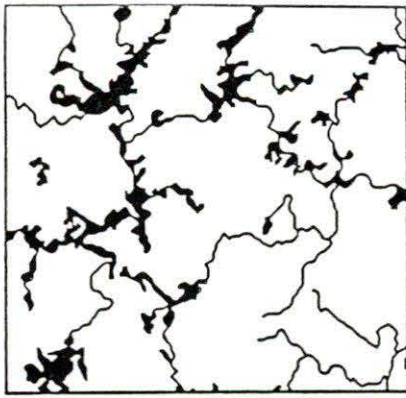




Path	Row	LS	Date	C/C	Qual. of MSS	App.#
37	21	2	5/19/78	7	PPPP	1501

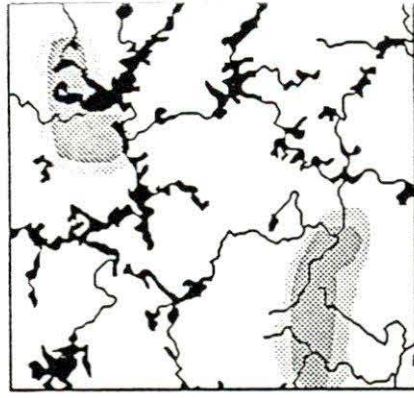


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
37	21	2	11/15/78	40	FFFF	1502



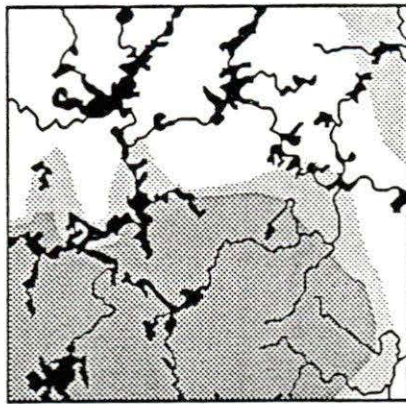




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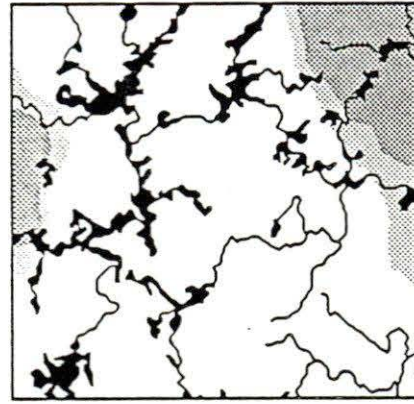


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
37	21	2	1/26/79	0	FFFF	1503

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
37	21	2	3/3/79	5	GGGG	1504

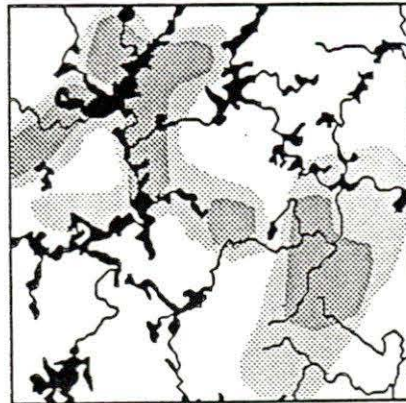




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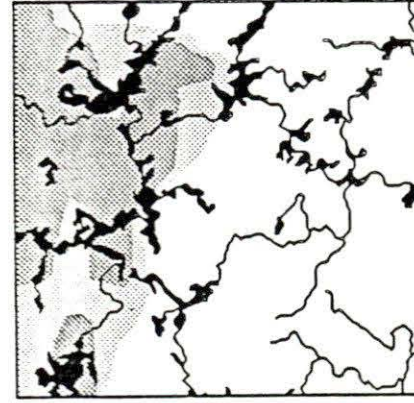


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
37	21	2	4/8/79	50	GGGG	1505

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
37	21	2	4/26/79	10	GGGG	1506

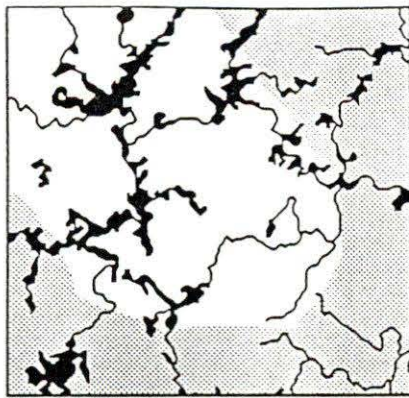




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 transparent



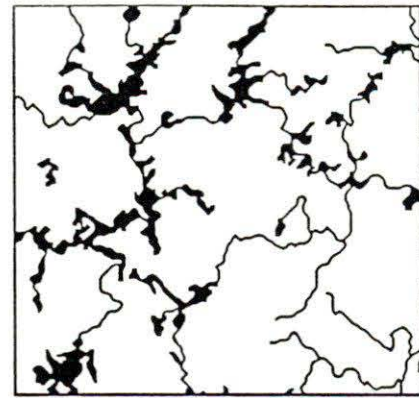
Path	Row	LS	Date	C/C	Qual. of MSS	App.#
37	21	2	7/7/79	20	GGGG	1507

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
37	21	2	9/11/80	30	GGGG	1508

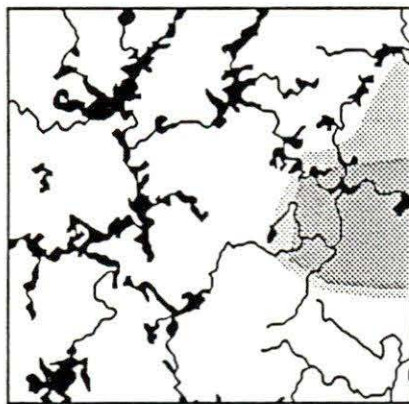




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Path	Row	LS	Date	C/C	Qual. of MSS	App.#
37	21	2	11/4/80	10	GGGG	1509

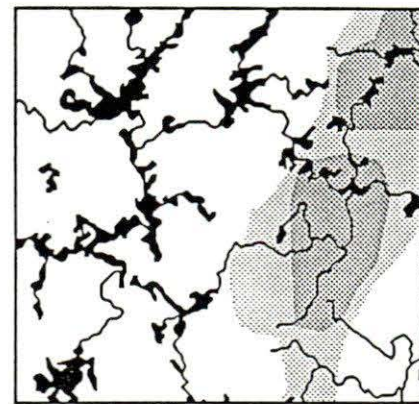


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
37	21	2	12/10/80	0	GGGG	1510

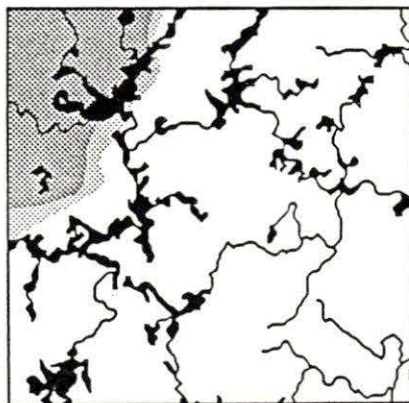




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Path	Row	LS	Date	C/C	Qual. of MSS	App.#
37	21	2	12/28/80	10	GGGG	1511

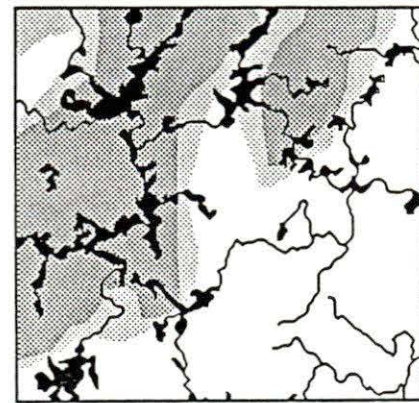


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
37	21	2	2/2/81	10	GGGG	1512

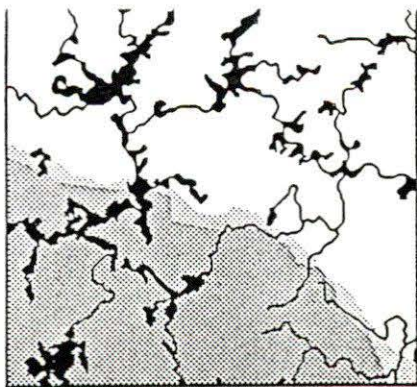




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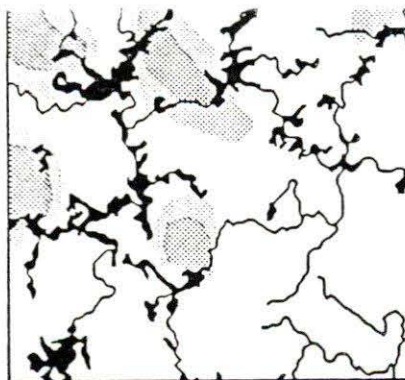
Path	Row	LS	Date	C/C	Qual. of MSS	App.#
37	21	2	3/10/81	10	GGGG	1513



Path	Row	LS	Date	C/C	Qual. of MSS	App.#
37	21	2	5/21/81	25	GGGG	1514

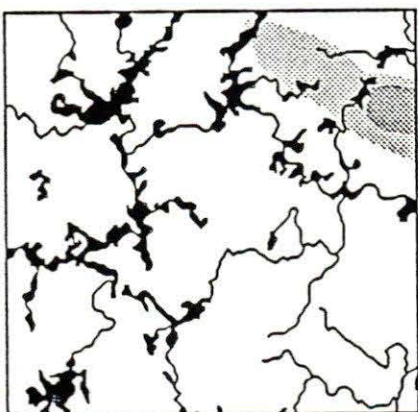




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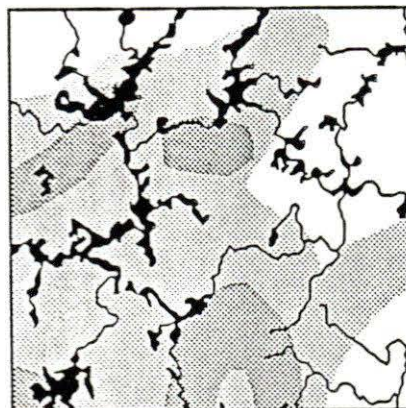


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
37	21	2	6/8/81	40	GGGG	1515

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
37	21	2	6/26/81	0	GGGG	1516

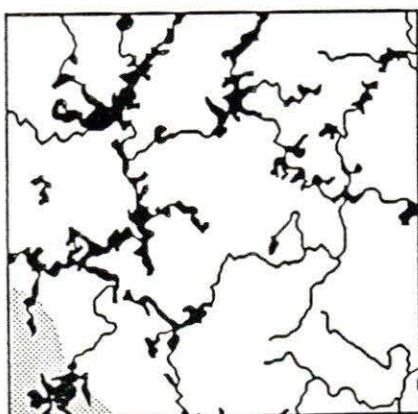




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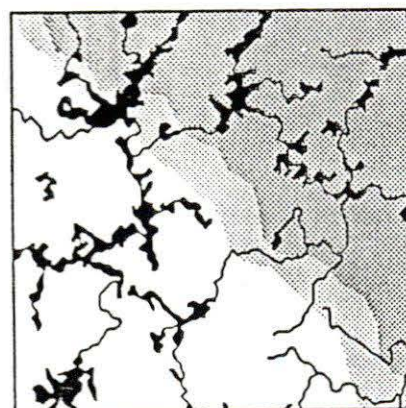


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
37	21	2	8/1/81	0	GGGG	1517

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
37	21	2	8/19/81	40	GGGG	1518



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 transparent

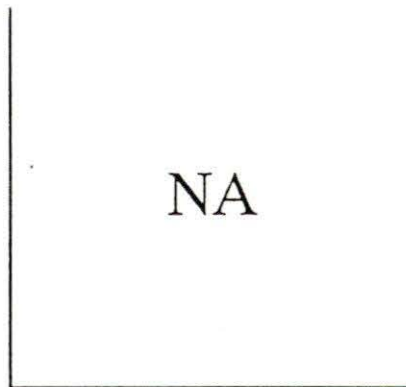


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
37	21	2	1/10/82	0	GGGG	1519

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
37	21	2	1/28/82	40	GGGG	1520

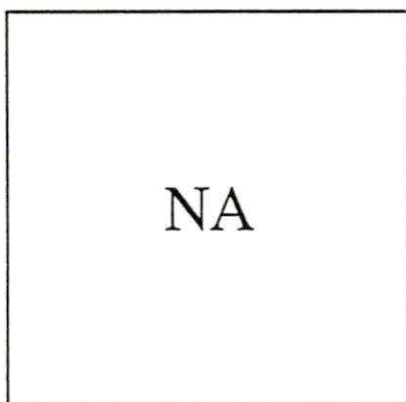


opaque  
transparent

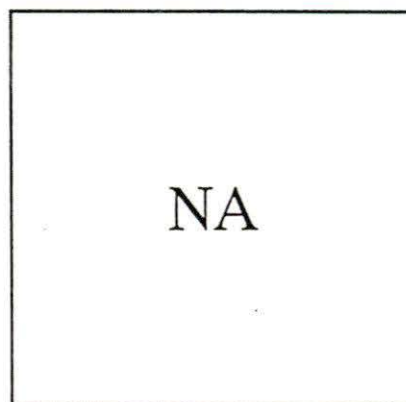


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
37	21	3	7/3/78	50	FFFF	1521

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
37	21	3	7/3/78	26	PPPP	1522

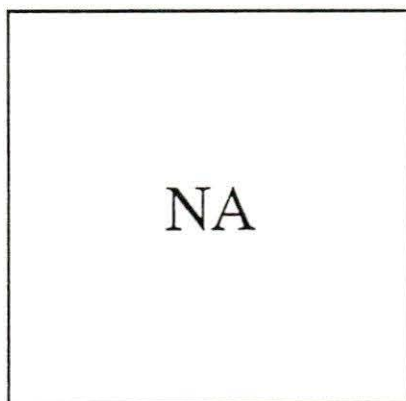


opaque  
transparent

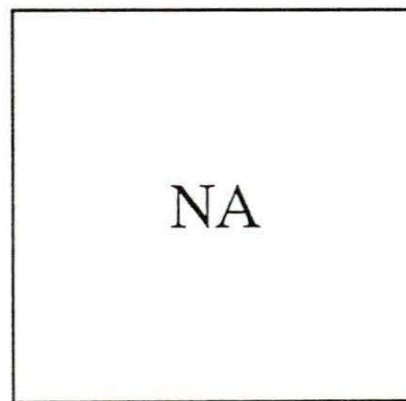


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
37	21	3	1/17/79	5	FFFF	1523

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
37	21	3	2/4/79	10	FFFF	1524

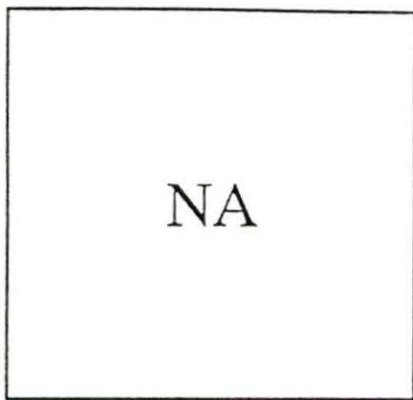




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transparent

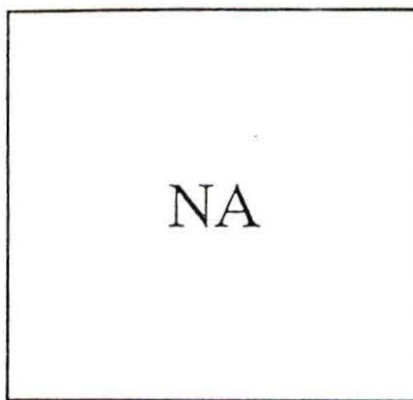


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
37	21	3	2/22/79	10	GGGG	1525

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
37	21	3	3/12/79	0	FGGG	1526

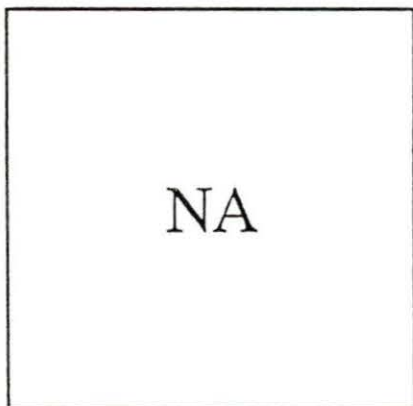




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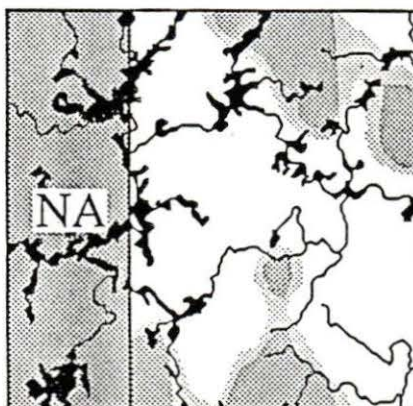


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
37	21	3	11/19/79	45	GGGG	1527

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
37	21	3	12/7/79	15	GGGG	1528

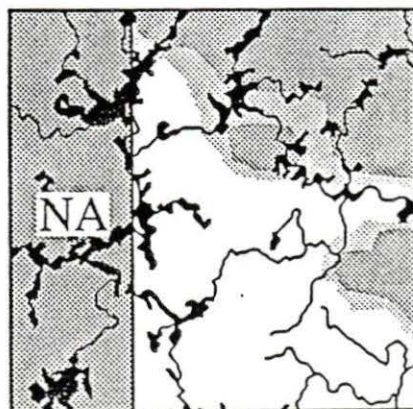




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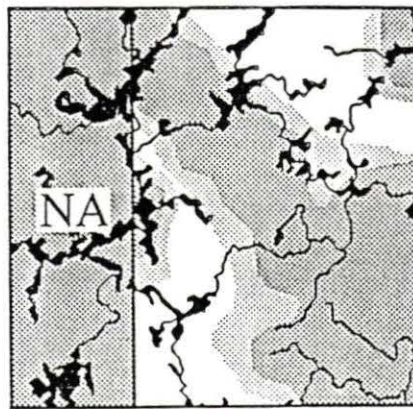


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
37	21	3	6/12/82	0	GGGG	1529

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
37	21	3	6/30/82	10	GGGG	1530



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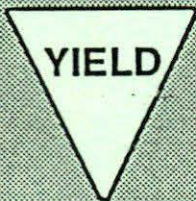
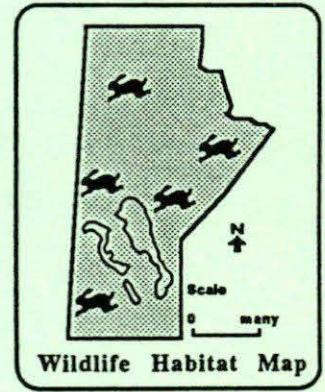
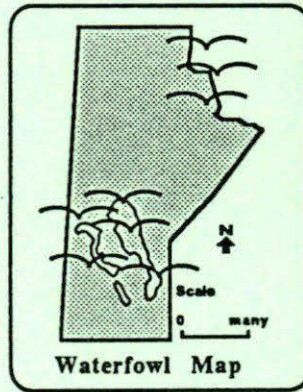
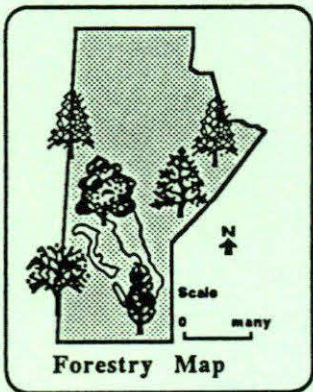
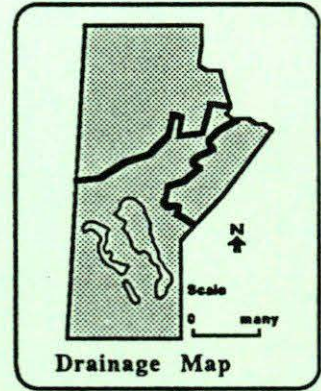
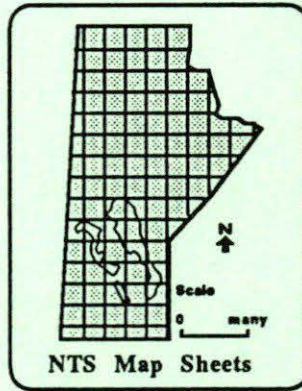
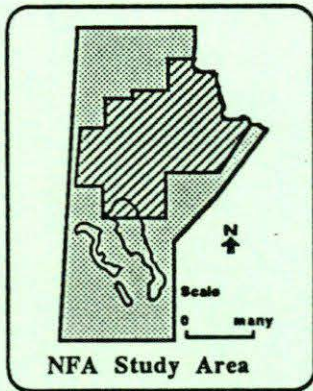


Path	Row	LS	Date	C/C	Qual. of MSS	App.#
37	21	3	9/10/82	20	GGGG	1531

Path	Row	LS	Date	C/C	Qual. of MSS	App.#
37	21	3	11/3/82	50	GGGG	1532

# Section 3

## Maps: A Supplementary Data Source



If you haven't already done so, now would be a good time to read "Using the Catalogue", pp. 1-3.

## Introduction

In this section we intend to provide a source of some useful map collections. Maps can be a valuable source of information when using remote sensing techniques to quantify environmental change. Many of the maps presented have been developed through photo interpretation, satellite analysis, or a combination of the two. Knowledge of the existence of these maps can save researchers considerable time and effort. Some index maps are detailed and display a grid annotated with 'block numbers'. Each block number identifies a published map by name, map sheet number, scale, date of publication, and other pertinent information. Other maps are more general and only outline areas for which maps are available. Annotation for each map is located below, or on the page following each particular map. Due to complexity of the original index maps, you should contact source agencies for more details.







Table follows.

Source: Index 2, Maps of the National Topographic System of Canada, Surveys and Mapping Branch, Department of Energy, Mines and Resources, Ottawa, April 1986.

Table 11. NTS map sheets (1:1,000,000).

Block	NTS Ref No.	Map Sheet Name	Date *
1	Churchill	NO-15	1977
2	Southern Indian Lake	NO-14	1975
3	The Pas	NN-14	1972
4	Gods Lake	NN-15	1970

\* Publication date.

All NTS map sheets can be purchased at: Manitoba Natural Resources, Surveys and Mapping Branch, Map Sales, 1007 Century St., Winnipeg, Manitoba, R3H 0W4. Maps are also available from private dealers throughout the province.

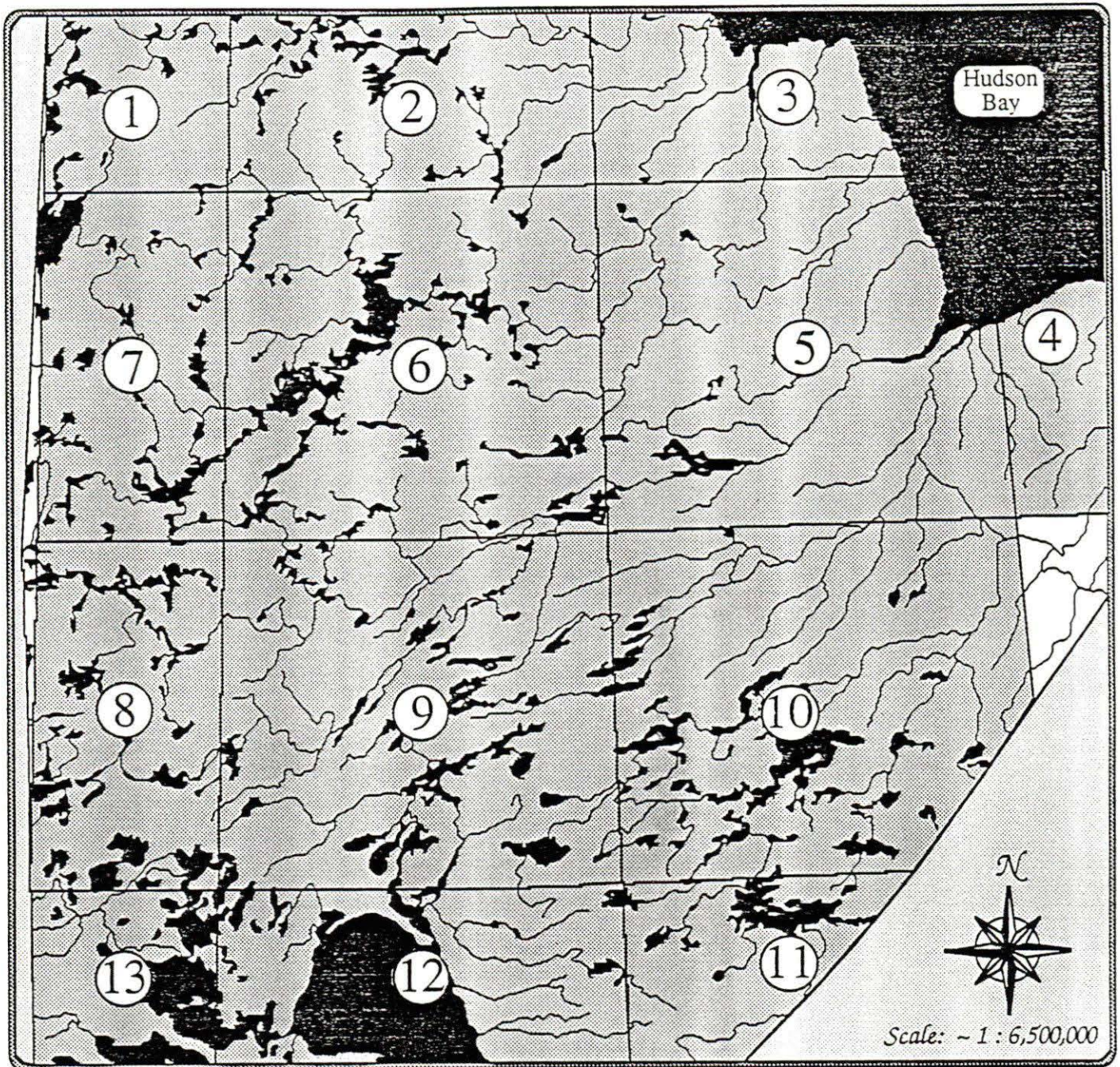


Table follows.

Source: Index 2, Maps of the National Topographic System of Canada, Surveys and Mapping Branch, Department of Energy, Mines and Resources, Ottawa, April 1986.

Table 12. NTS map sheets (1: 500,000).

Block	NTS Ref. No.	Map Sheet Name	Date
1	64 N.W.	Wollaston Lake	1980
2	64 N.E.	Seal River	1975
3	54 N.W.	Churchill	1975
4	54 S.E.	Cape Tamam	1967
5	54 S.W.	York Factory	1977
6	64 S.E.	Southern Indian Lake	1974
7	64 S.W.	Reindeer Lake	1974
8	63 N.W.	Flin Flon	1979
10	63 N.E.	Upper Nelson River	1974
11	53 N.W.	Gods Lake	1977
12	63 S.E.	Lake Winnipeg	1979
13	63 S.W.	Pasquia Falls	1977

\* Publication date.

All NTS map sheets can be purchased at: Manitoba Natural Resources, Surveys and Mapping Branch, Map Sales, 1007 Century St., Winnipeg, Manitoba, R3H 0W4. Maps are also available from private dealers throughout the province.

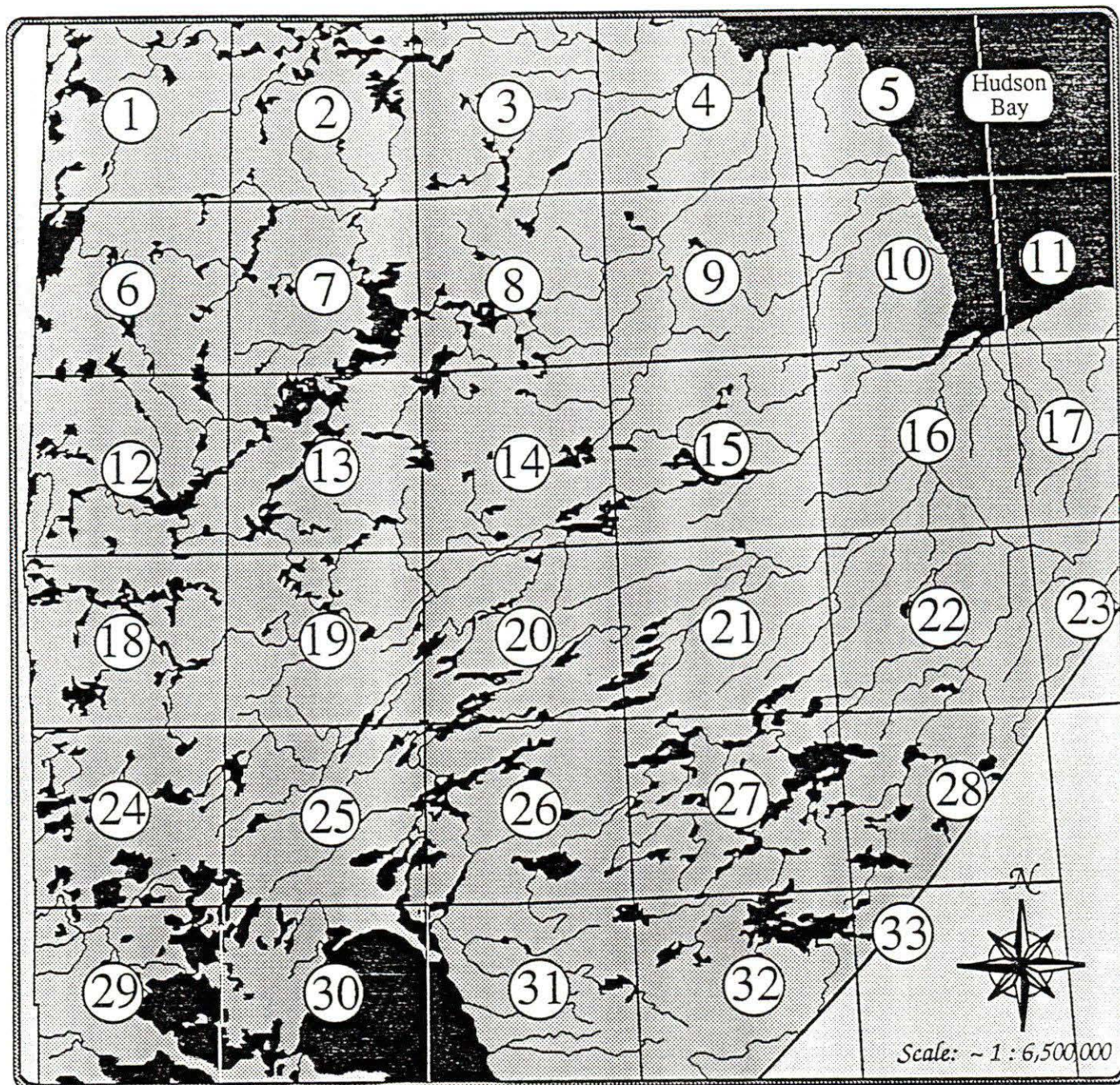


Table follows.

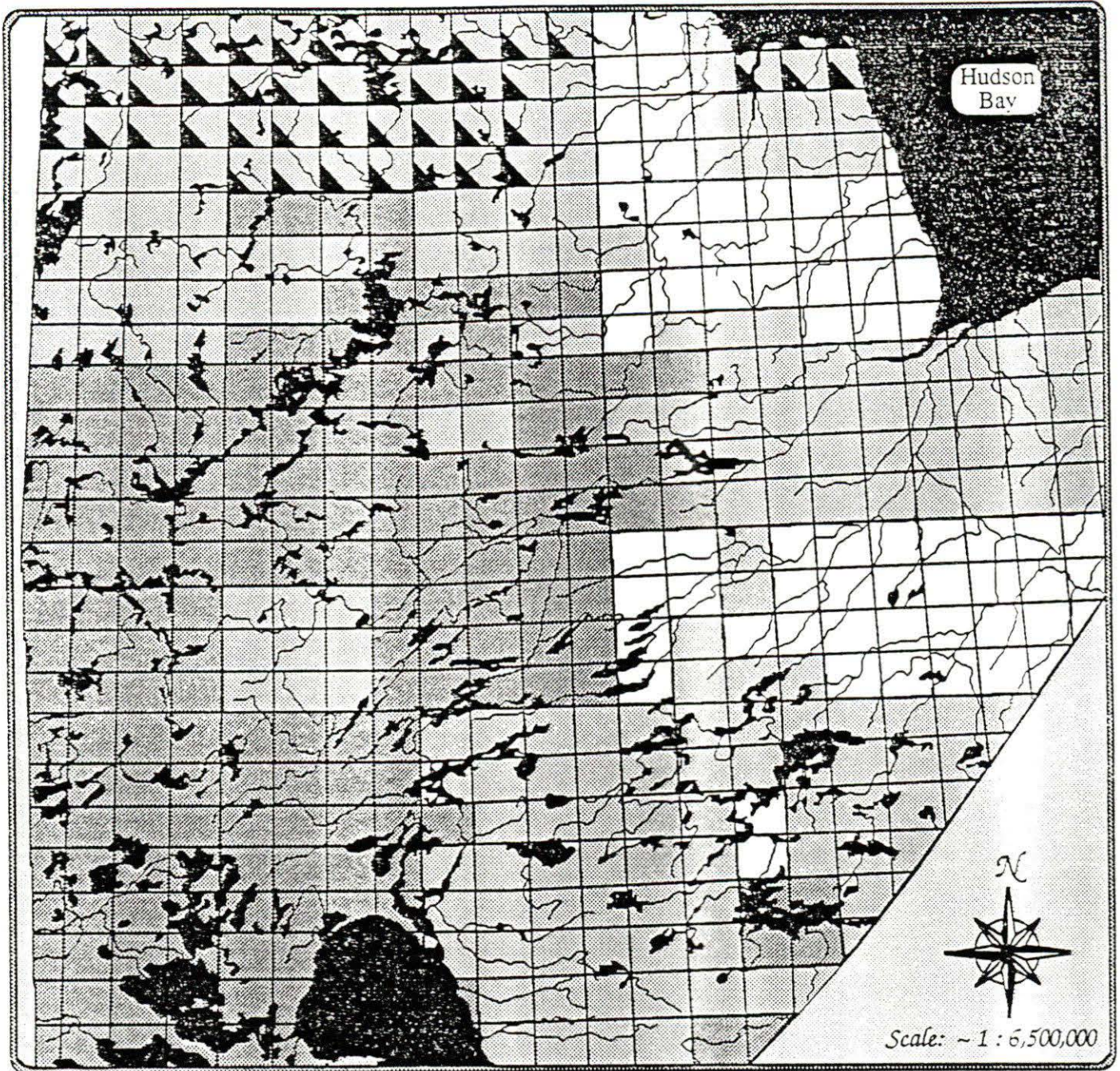
Source: Index 2, Maps of the National Topographic System of Canada, Surveys and Mapping Branch, Department of Energy, Mines and Resources, Ottawa, April 1986.

Table 13. NTS map sheets (1: 250,000).

Block	NTS Ref No.	Map Sheet Name	Date *
1	64K	Whiskey Jack Lake	1977
2	64J	Tadoules Lake	1963
3	64I	Shethane Lake	1963
4	54L	Churchill	1966
5	54K	Cape Churchill	1966
6	64F	Brochet	1977
7	64G	Big Sand Lake	1963
8	64H	Northern Indian Lake	1962
9	54E	Herchmer	1964
10	54F	York Factory	1963
11	54G	Cape Tamam	1963
12	64C	Granville Lake	1963
13	64B	Uhlman Lake	1973
14	64A	Split Lake	1963
15	54D	Kettle Rapids	1977
16	54C	Hayes River	1964
17	54B	Kaskattama River	1964
18	63N	Kississing Lake	1965
19	63O	Nelson House	1985
20	63P	Sipiwesk	1981
21	53M	Knee Lake	1977
22	53N	Gods River	1965
23	53-O	Sturgeon Lake	1965
24	63K	Cormorant Lake	1965
25	63J	Wekusko Lake	1965
26	63-I	Cross Lake	1977
27	53L	Oxford House	1977
28	53K	Stull Lake	1965
29	63F	The Pas	1985
30	63G	Grand Rapids	1969
31	63H	Norway House	1965
32	53E	Island Lake	1965
33	53F	Opasquia Lake	1980

\* Publication date

All NTS map sheets can be purchased at: Manitoba Natural Resources, Surveys and Mapping Branch, Map Sales, 1007 Century St., Winnipeg, Manitoba, R3H 0W4. Maps are also available from private dealers throughout the province.



Photomap



Multicolored



Monochrome



Not Published

Source: Index 2, Maps of the National Topographic System of Canada, Surveys and Mapping Branch, Department of Energy, Mines and Resources, Ottawa, April 1986.

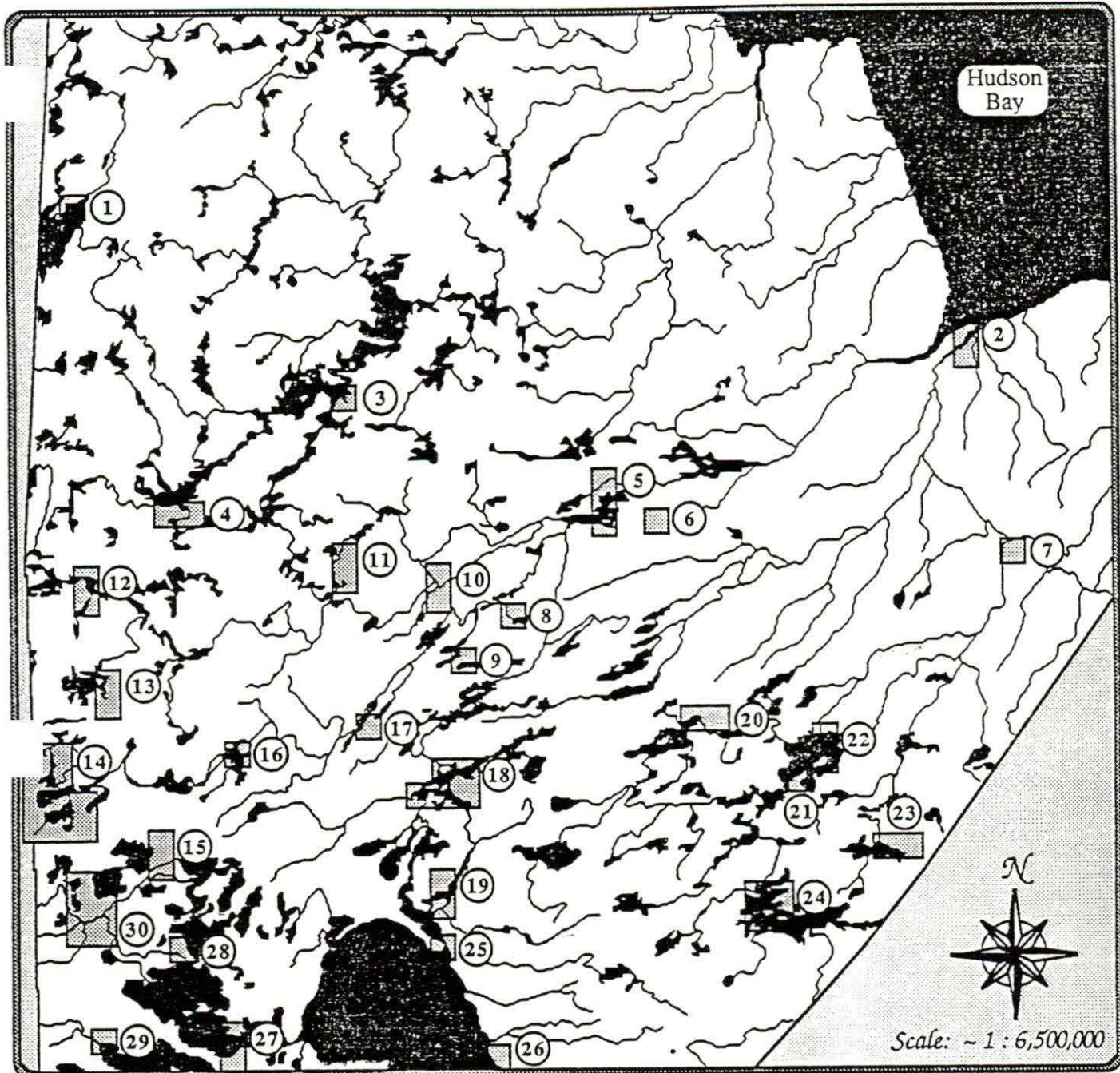


Table follows.

Source: Department of Natural Resources, Surveys and Mapping Branch,  
Winnipeg, Manitoba.



Table 14. NTS map sheets (1: 20,000).

BLK	NTS Ref. No.	Map Sheet Name	Map Type	Date *
1	64F/13NE	Brochet	Photo and Line maps	1979-80
2	54C/16NW, 54F/1SW	Fishing Island, York Factory	Photo and Line maps	1974
3	64B/15SW	South Indian Lake	Photo and Line maps	MAY 78
4	64C/2NE, 64C /1NW	Granville Lake, Granville Falls	Photo and Line maps	MAY 76
5	64A/8SE	Fox Lake	Photo and Line maps	MAY 76
6	64A/1NE; /1SE	Split Lake, York Landing	Photo and Line maps	MAY 76
7	54D/4SE	Ilford	Photo and Line maps	MAY 76
8	53N/16SE	Shamattawa	Photo and Line maps	MAY 76
9	63P/11SE	Pikwitonei	Photo and Line maps	MAY 76
10	63P/5SE	Thicket Portage	Photo and Line maps	AUG 76
11	63P/12NW; /13SW	Thompson, Thompson Airport	Line Map	AUG 76
12	63O/15NW, -SW	Hume Lake, Nelson House	Photo and Line maps	1978
13	63N/14SW; /11NW	Mooswukaw Bay, Pukatawagan	Photo and Line maps	1977
14	63N/3NE, -SE	Sherridon, Bess Lake	Photo and Line maps	JUL 77
14	63K/13SW, -SE	Flin Flon, Mikinagan Lake	Photo and Line maps	JUN 77
14	63K/12NE, -NW	Bakers Narrows, Schist Lake	Photo and Line maps	1976-79
14	63K/12SE, -SW	Millwater, West Arm	Photo and Line maps	MAY 76
14	63K/5NW, -NE	Saskoba, Niska	Photo and Line maps	MAY 76
15	63K/6NW, 63K/11SW	Simonhouse, Cranberry Portage	Photo and Line maps	MAY 76
16	63K/7SE, 63K/2NE	Dering, Cormorant	Photo and Line maps	MAY 76
17	63J/13SW	Herb Lake	Photo and Line maps	1978-79
18	63J/15NE	Wabowden	Photo and Line maps	1978-79
18	63I/12NE, -NW	Nakow, Eves Rapids	Photo and Line maps	1976
18	63I/12SE, -SW	Wawe Lake, Cross Lake	Photo and Line maps	1976, 1979
19	63J/9SE	Jenpeg	Photo and Line maps	1979
20	63I/4SW, 63H/13NW	Meridian Island, Norway House	Photo and Line maps	1978-79, 1976
21	53L/14NW, -NE	Oxford House, Sandy Lake	Photo and Line maps	MAY 76
22	53L/9SW	Gods Lake Narrows	Photo and Line maps	1974-75
23	53L/9NE, 53L/16SE	Gods Lake, Gods River	Photo and Line maps	JUL 75
24	53K/4NE, 53K/3NW	Red Sucker L., Kamineetokowak L.	Photo and Line maps	MAY 76
24	53E/15NE, -NW	Garden Hill, Waasagomach	Photo and Line maps	MAY 76
25	53E/15SE, -SW	Island Lake, ST. Theresa Point	Photo and Line maps	MAY 76
26	63H/12NW	Warren Landing	Photo and Line map	MAY 76
27	63H/3SW, 63A/14NW	Crane Creek, Negginan	Photo and Line map	MAY 76
28	63G/4NW, -SW	Collins Island, Easterville	Photo and Line map	MAY 76
29	63F/9NW	Moose Lake	Photo and Line map	MAY 76
30	63F/3NE	Overflowing R.	Photo and Line map	1976-77
30	63F/14NE, -NW	The Pas Airport, Reader Lake	Line Maps	1976-77
30	63F/14SE, -SW	Grace Lake, Big Eddy Settlement	Line Maps	1976-77

\* Date of Photography

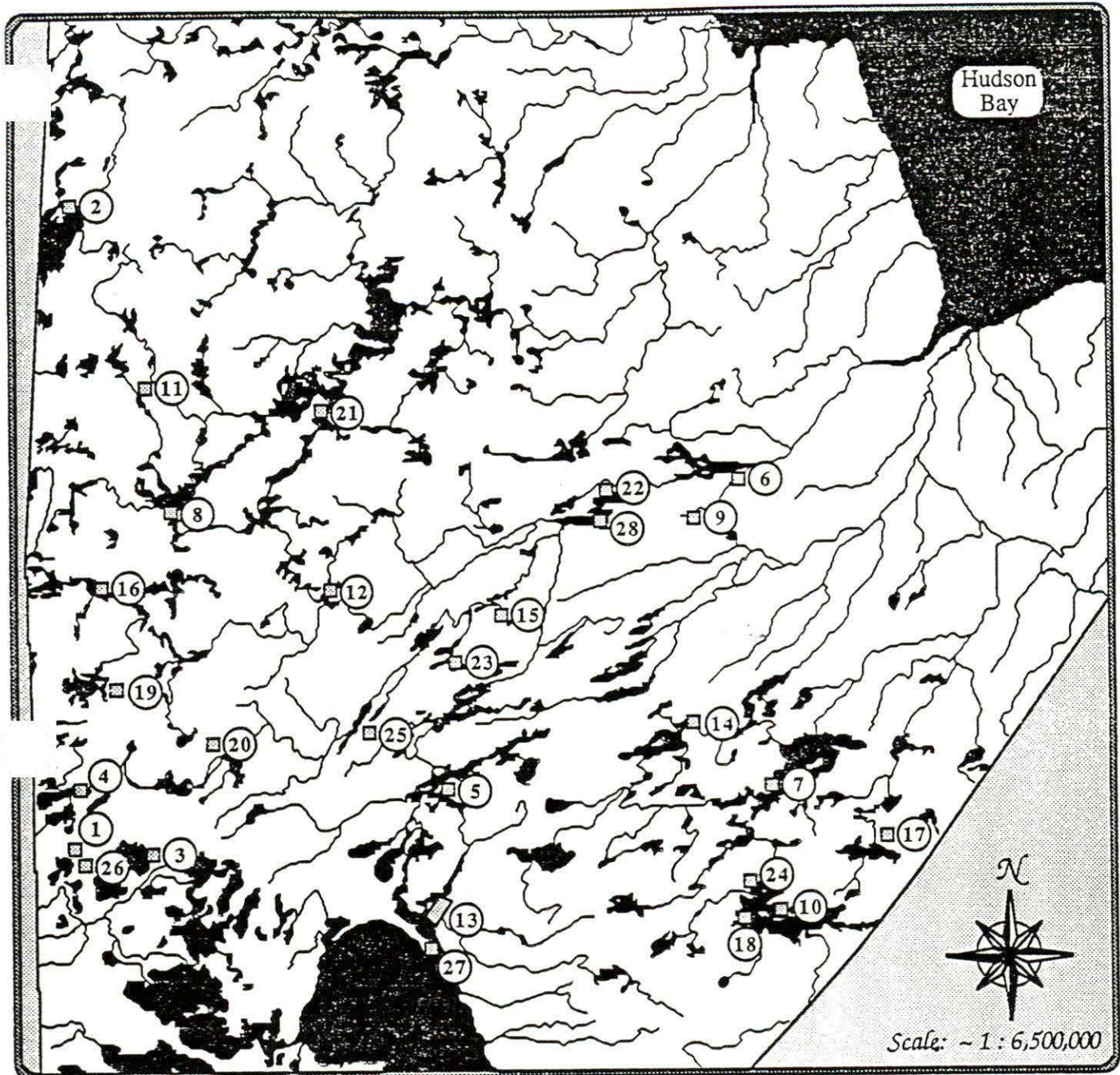


Table follows.

Source: Department of Natural Resources, Surveys and Mapping Branch,  
Winnipeg, Manitoba.

Table 15. Community Base Maps.

Block	Community	NTS Ref.(1:50000)	1:2000 No. of Sheets	1:4000 No. of Sheets	Date *
1	Atik	63K/3	1	1	1976
2	Brochet	64F/13	3	3	1974
3	Cormorant	63K/2	9	7	1974, 1976
4	Cranberry Portage	63K/11	6	6	1974
5	Cross Lake	63I/12	5	4	1974
6	Gillam	54D/7	6	6	1976
7	Gods Lake Narrows	53L/9	2	2	1975
8	Granville Lake	64C/2	3	3	1975
9	Ilford	54/D4	4	4	1974
10	Island Lake	53E/15	4	4	1976, 1978
11	Lynn Lake	64C/14	6	6	1976
12	Nelson House	63O/15	11	11	1976
13	Norway House	63H/13	15	15	1974
14	Oxford House	53L/14	5	5	1976
15	Pikwitonei	63P/11	3	3	1975
16	Pukatawagan	63N/11	1	1	1976
17	Red Sucker Lake	53K/4	5	5	1976
18	St. Theresa Point	53E/15	2	2	1975
19	Sherridon-Cold Lake	63N/3	5	5	1974, 1976, 1978
20	Snow Lake	63K/16	4	4	1976
21	South Indian Lake	64B/15	12	9	1975
22	Split Lake	64A/1	3	3	1975
23	Thicket Portage	63P/5	5	5	1975
24	Waasagomach	53E/15	1	1	1975
25	Wabowden	63J/15	7	7	1974
26	Wanless	53L/10	3	3	1976
27	Warren Landing	63H/12	4	4	1975
28	York Landing	64A/1	2	2	1975

\* Date of photography

The Community Mapping series are photo base maps (not line maps). The maps were produced by the Department of Renewable Resources and Transportation Services, Surveys and Mapping Branch. The maps have 1 m. contour lines (and 0.5 m. auxiliary contours). The original maps are on a mylar base, blue line copies can be made available on request at:

Department of Natural Resources  
 Surveys and Mapping Branch  
 Map Sales  
 1007 Century Street  
 Winnipeg, Manitoba  
 R3H 0W4



Table follows.

Source: Department of Natural Resources, Surveys and Mapping Branch,  
Winnipeg, Manitoba.

Table 16. Flood risk maps (1: 2,000).

Block	Communities	No. of Map Sheets	Date *
1	Norway House	59	May 1978
2	Cross Lake	39	May 1978
3	York Landing	16	May 1978
4	Split Lake	40	May 1978
5	Nelson House	36	May 1978

\* Date of photography

The above flood risk maps are photo base maps with superimposed contour lines (contour interval, 1m). The maps are on a mylar base, blue line copies can be produced on request. To obtain these maps (as well as a detailed index map for each community) contact:

Department of Natural Resources  
 Surveys and Mapping Branch  
 Map Sales  
 1007 Century Street  
 Winnipeg, Manitoba  
 R3H 0W4

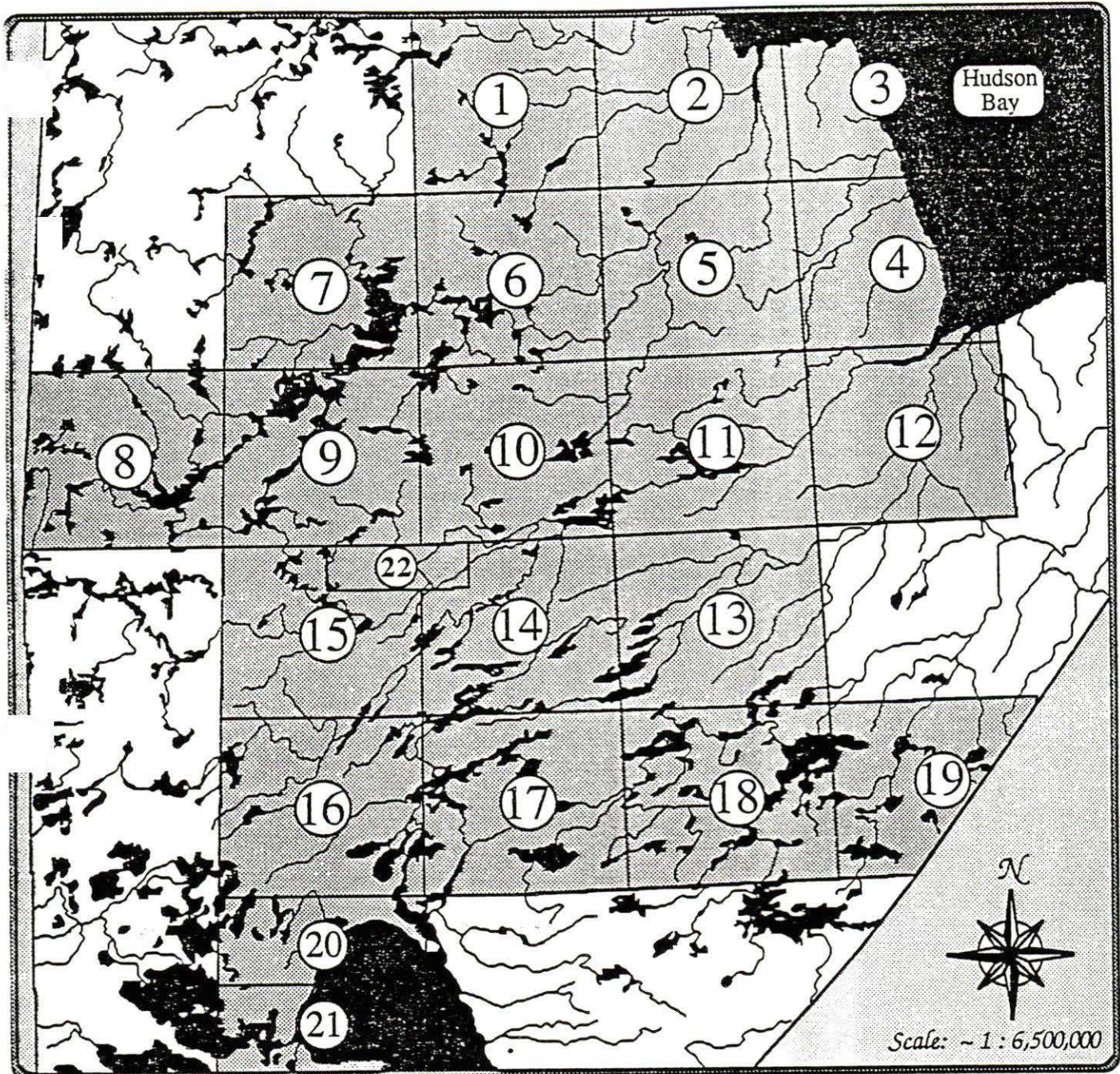


Table follows.

Source: Index Map 14B, Northern Manitoba Aggregate Reports and Regional Surficial Geology Reports of Manitoba, Manitoba Energy and Mines, February 1987.

Table 17. Surficial Geology, Geological Survey of Canada (1: 250,000).

Block	Map/Report No.	Area	Date *
1	6-1980	Shethanei Lake (64I)	1981
2	4-1980	Churchill (54L)	1981
3	3-1980	Cape Churchill (54K)	1981
4	2-1980	York Factory (54F)	1981
5	1-1980	Herchmer (54E)	1981
6	3-1979	Northern Indian Lake (64H)	1980
7	19-1978	Big Sand Lake (64G)	1980
8	1258	Granville Lake (64C)	1985
9	12-1978	Uhlman Lake (64B)	1980
10	20-1978	Split Lake (64A)	1980
11	1481A	Kettle Rapids (54D)	1973
12	2-1978	Hayes River (54C)	1973
13	11-1978	Knee Lake (53M)	1980
14	18-1978	Sipiwesk (63P)	1980
15	17-1978	Nelson House (63O)	1980
16	4-1974	Wekusko Lake (63J)	1980
17	5-1979	Cross Lake (63I)	1980
18	1227	Oxford House (53L)	1986
19	1226	Stull Lake (53K)	1986
20	6-1979	Grand Rapids (63G)	1980
21	13-1966	Waterhen/Grand Rapids (63B and S 1/2 of 63G)	1967
22	Pap. 75-19	Parts of 63O and 63P	1976

\* Publication date

For further information on price and availability of maps/reports  
(including index map 14B) contact:

Geoscience Publications  
Exploration Services  
Manitoba Energy and Mines  
555 - 330 Graham Ave.  
R3C 4E3

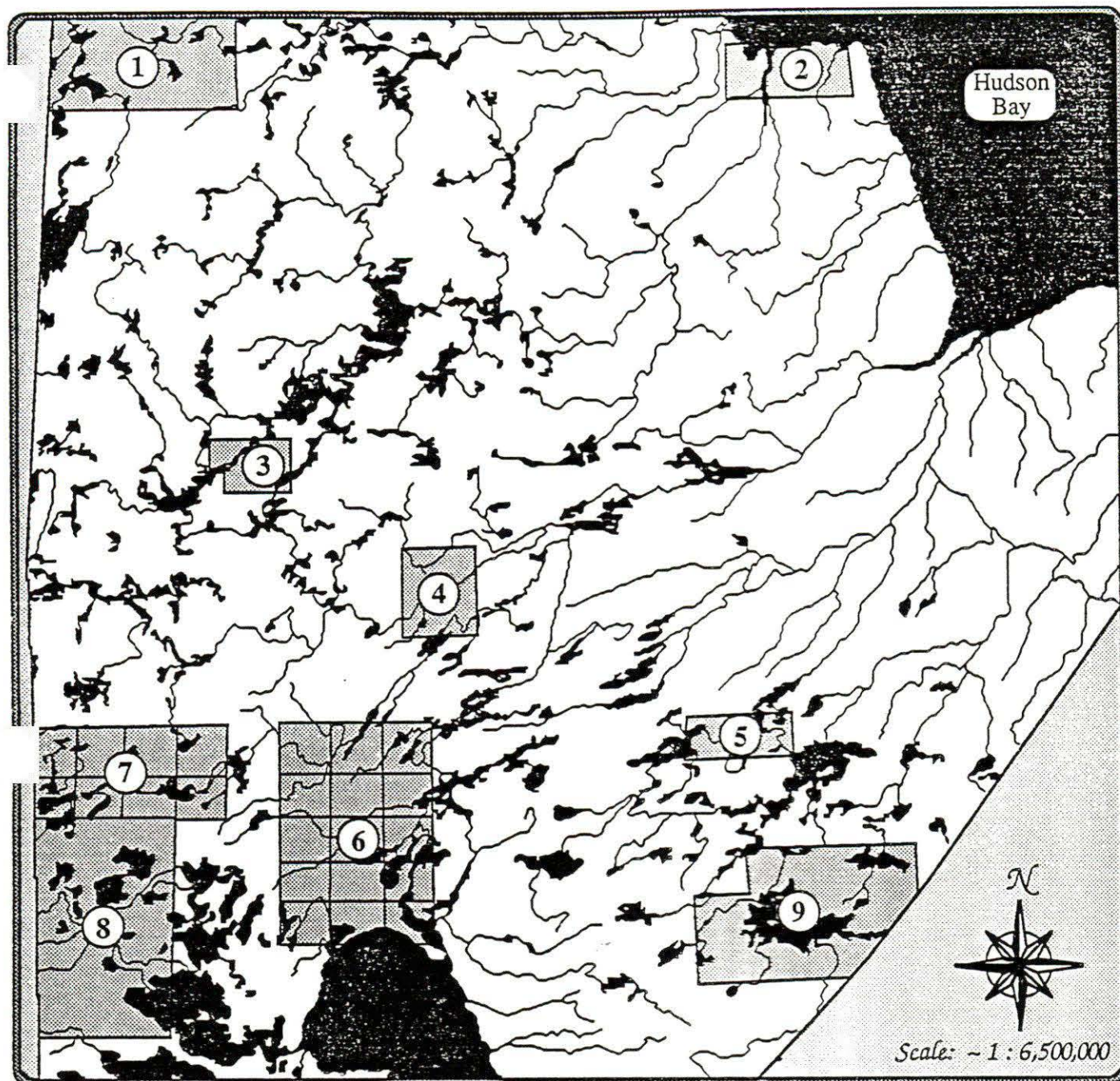


Table follows.

Source: Index Map 14B, Northern Manitoba Aggregate Reports and Regional Surficial Geology Reports of Manitoba.



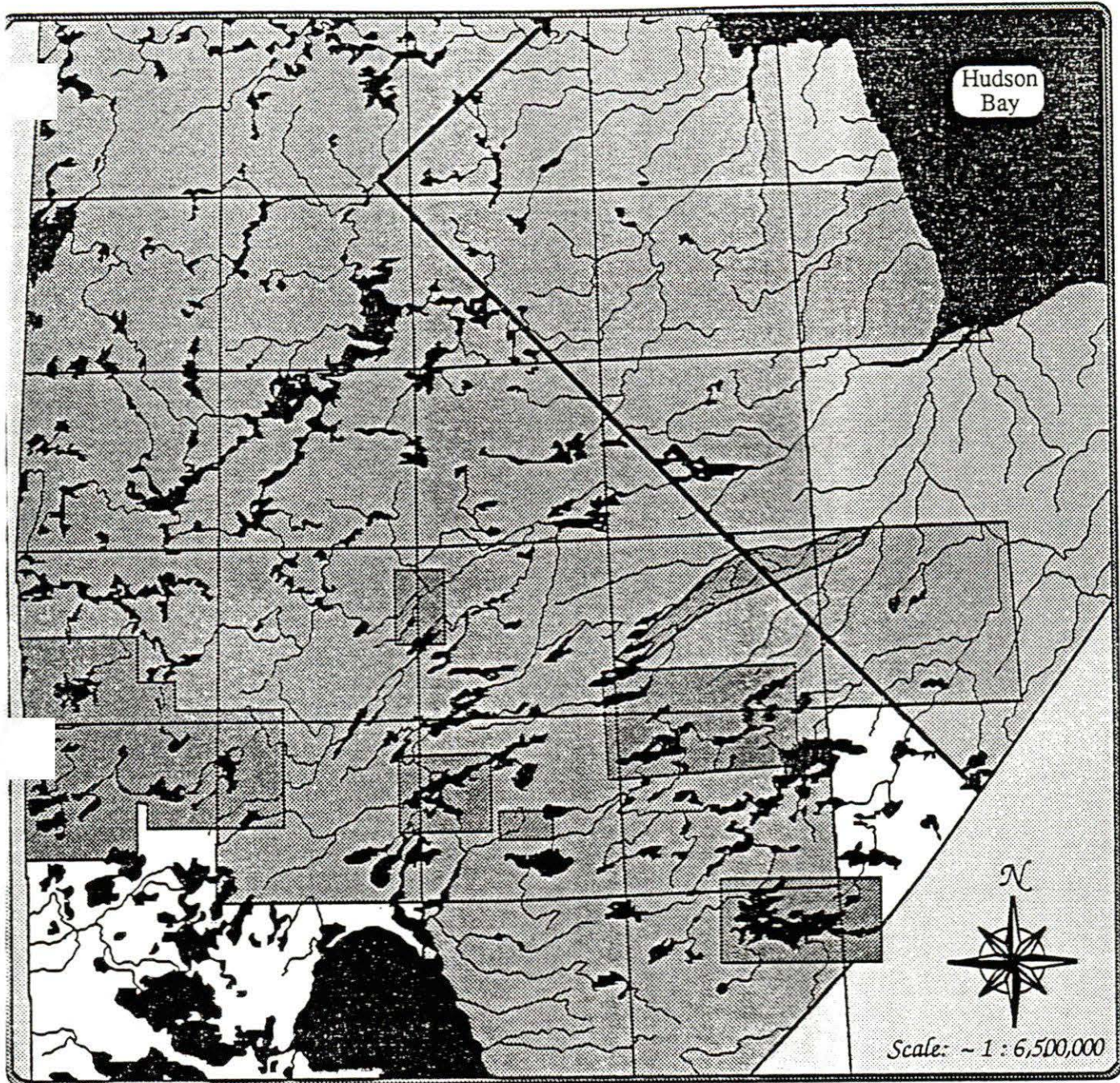
Table 18. Surficial Geology, Manitoba Department of Energy and Mines.

Block	Map/Report No.	Area	Scale	Date *
1	GR74-2	Lake-Whiskey Jack 64N and N 1/2 of 64K	1:250000	1975
2	GR82-5	Churchill (parts of 54L and 54K)	1:50000	1982
3	GR77-2	Leaf Rapids (parts of 64B and 64C)	1:50000	1977
4	GR82-4	Thompson (parts of 63P and 63O)	1:50000	1982
5	GR58-3	Oxford House-Knee Lake (part of 53L)	1:63360	1958
6	KH-1977	Kiski-Hill Lakes (15 map sheets, 63J,63G)	1:50000	1977
7	CP 1977	Cranberry-Portage (8 map sheets,63K)	1:50000	1977
8	GR80-2	The Pas (parts of 63F, 63K)	1:50000	1980
9	GR80-3	Island-Red Sucker Lake	1:100000	1980

\* Publication date

For further information on price and availability of maps/reports  
(including index map 14B) contact:

Geoscience Publications  
Exploration Services  
Manitoba Energy and Mines  
555 - 330 Graham Ave.  
R3C 4E3

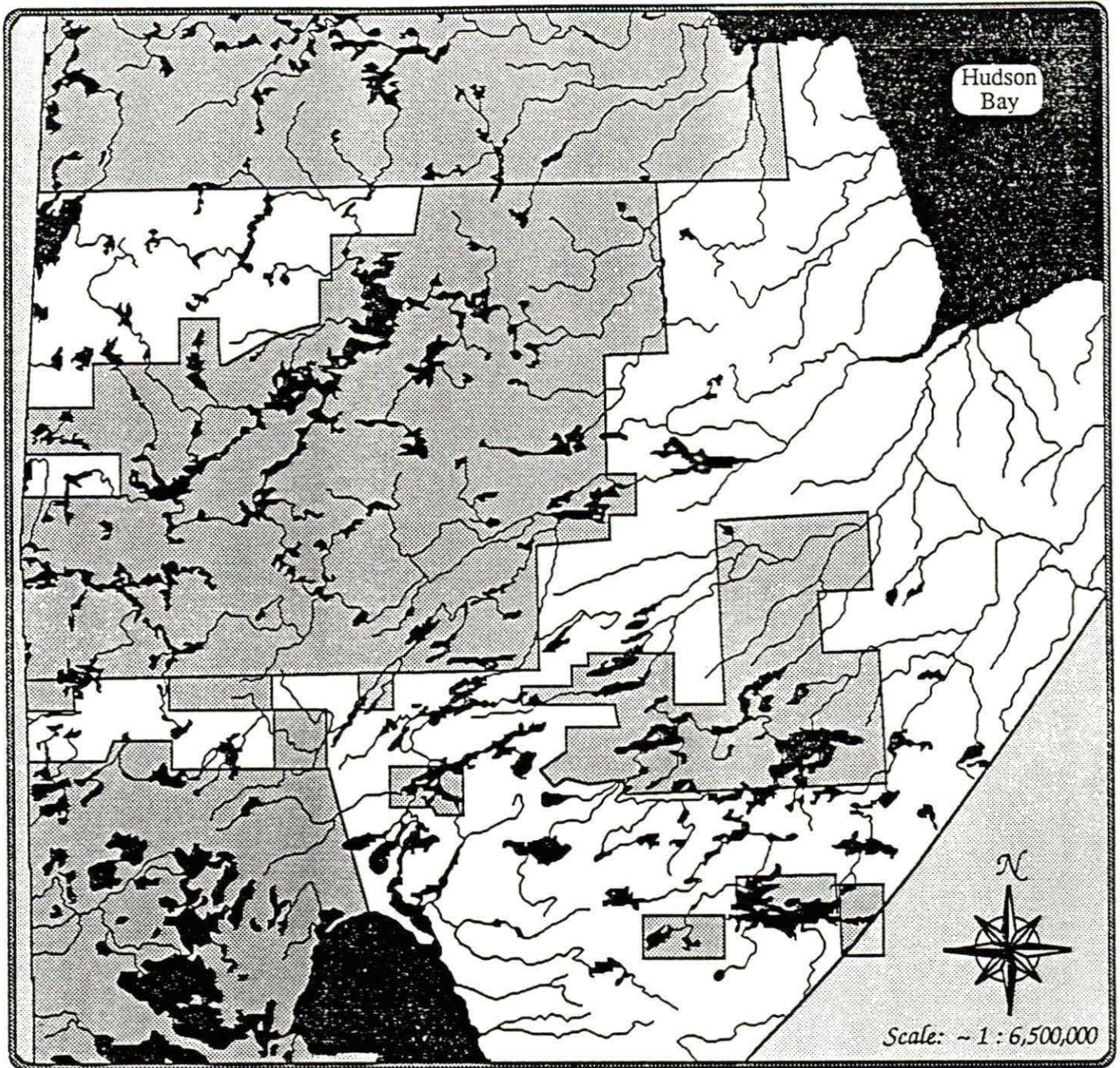


Source: Index Map 8, Manitoba, Geological Index Map of Manitoba showing Geological Maps issued by Geological Survey of Canada.

 } Small scale maps       Large scale maps

The above sketch map outlines geographic areas surveyed at various scales by the Geological Survey of Canada. To obtain Index Map 8 as well as further information regarding mapped areas, contact:

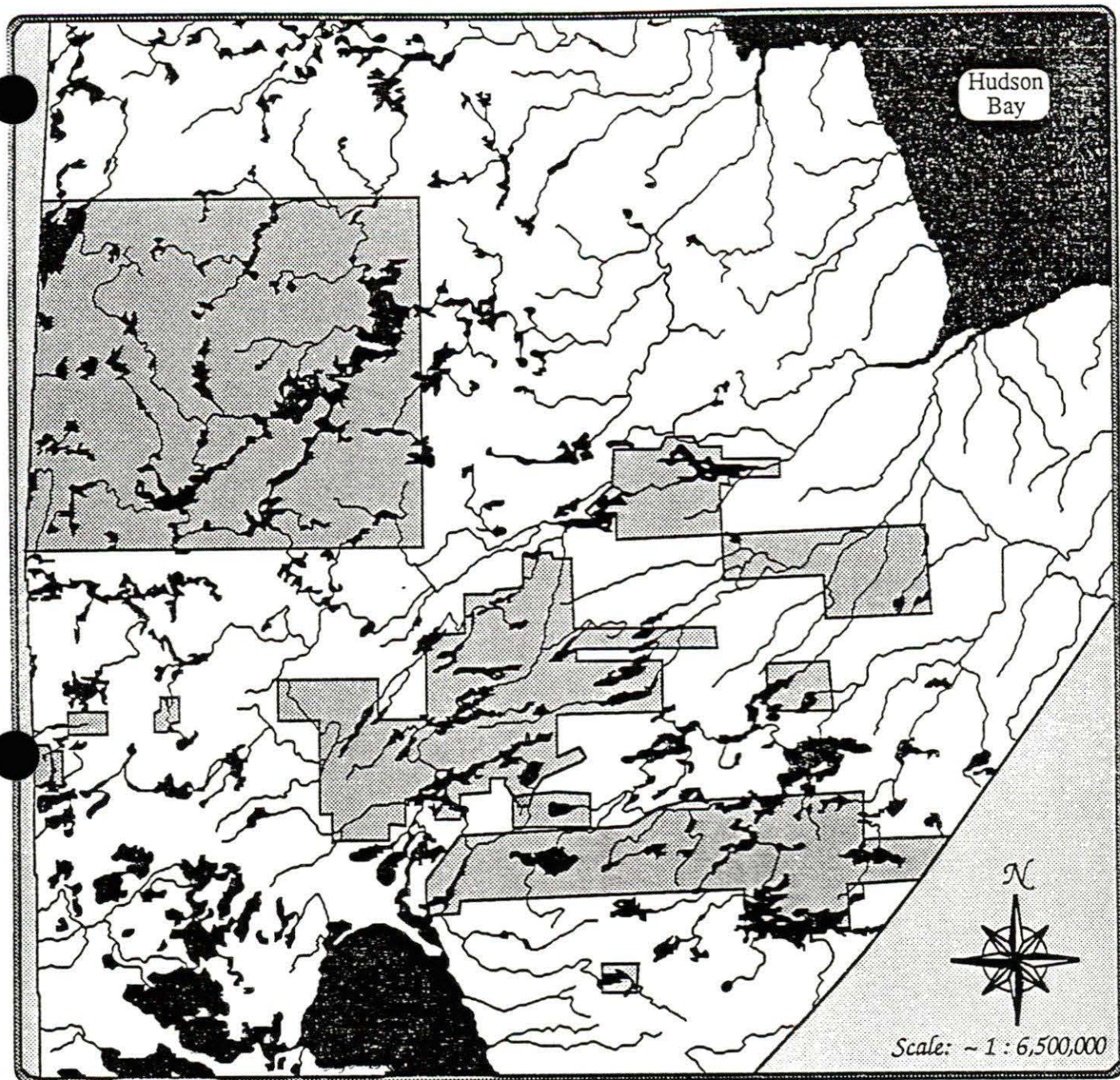
Geoscience Publications  
Exploration Services  
Manitoba Energy and Mines  
555 - 330 Graham Ave., R3C 4E3



Source: Index Map 7. Geological maps and reports issued by Geological Services Branch, Manitoba Energy and Mines.

The above sketch map outlines general areas for which geological maps are available. To obtain Index Map 7 as well as further information regarding mapped areas, contact:

Geoscience Publications  
Exploration Services  
Manitoba Energy and Mines  
555 - 330 Graham Ave., R3C 4E3



■ Area of overlap

Source: Index Map 7A. Geological Index Map of Manitoba showing Preliminary Geological Maps, Manitoba Energy and Mines.

The above sketch map outlines general areas for which geological maps are available. To obtain Index Map 7A as well as further information regarding mapped areas, contact:

Geoscience Publications  
Exploration Services  
Manitoba Energy and Mines  
555 - 330 Graham Ave., R3C 4E3

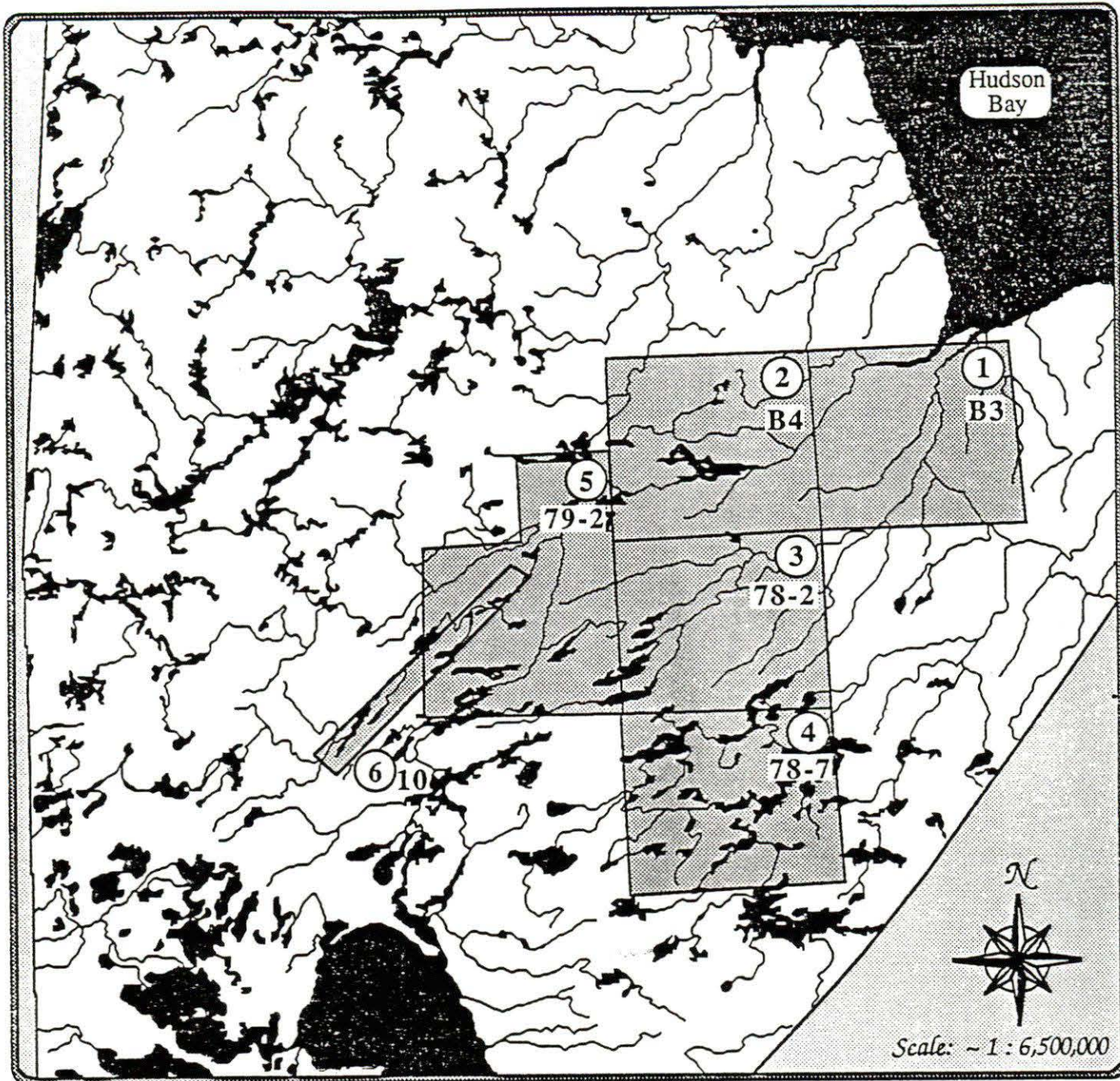


Table follows.

Source: Canada - Manitoba Soil Survey, Soil Survey Index, Manitoba Report of Agriculture Agdex No. 500/506, January 1987.

Table 19. Canada - Manitoba Soil Surveys, Northern Manitoba.

Block	Report No.	Project Name	Scale	Date	Survey Type
1	B3	Hayes River, 54C	1:125,000	1976	Biophysical and Exploratory Surveys *
2	B4	Kettle Rapids, 54D	1:125,000	1976	Biophysical and Exploratory Surveys *
3	78-2	Knee Lake, 53M	1:125,000	1978	Biophysical and Exploratory Surveys *
4	78-7	Oxford House, 53L	1:125,000	1978	Biophysical and Exploratory Surveys *
5	79-2	Sipiwesk Lake, 63P-Split Lake, SE1/4 64A	1:125,000	1979	Biophysical and Exploratory Surveys *
6	10	Nelson River Basin	1:100,000	1973	Reconnaissance Soil Surveys **

Order published reports and surveys by report number and title.

\* Biophysical Land Classification Maps and Reports available from:

Surveys and Mapping Branch, Map Sales  
1007 Century Street  
Winnipeg, Manitoba  
R3H 0V4

\*\* Soil Survey Maps and Reports are available by contacting:

Office of Queen's Printer, Statutory Publications  
200 Vaughan Street  
Winnipeg, Manitoba  
R3C 0V8

Forest Resource Inventory: Forest Sections and Forest Management Units 1980

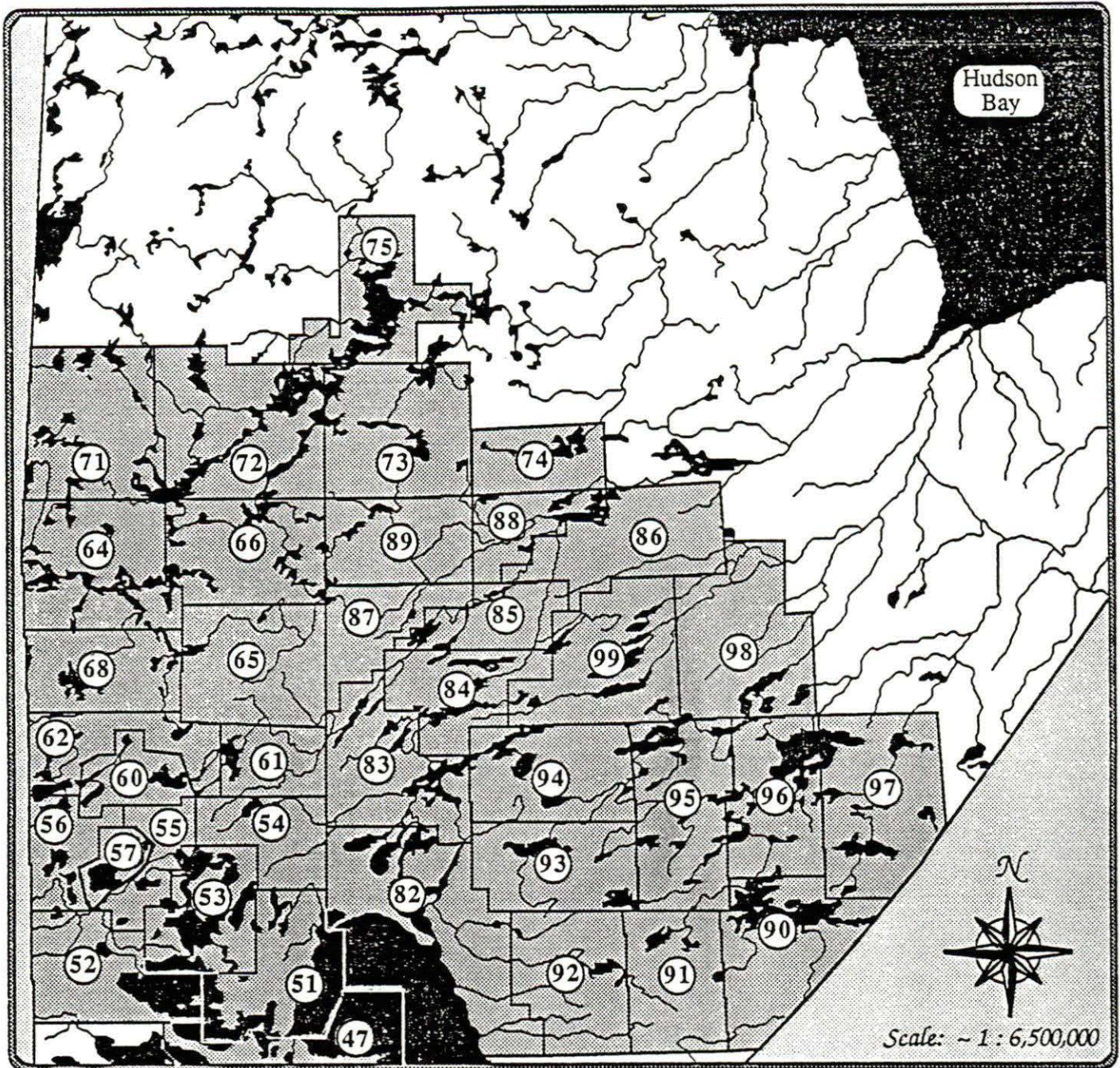


Table follows.

Source: Manitoba Forest Resource Inventory Forest Sections and Forest Management Units 1980, Department of Natural Resources.

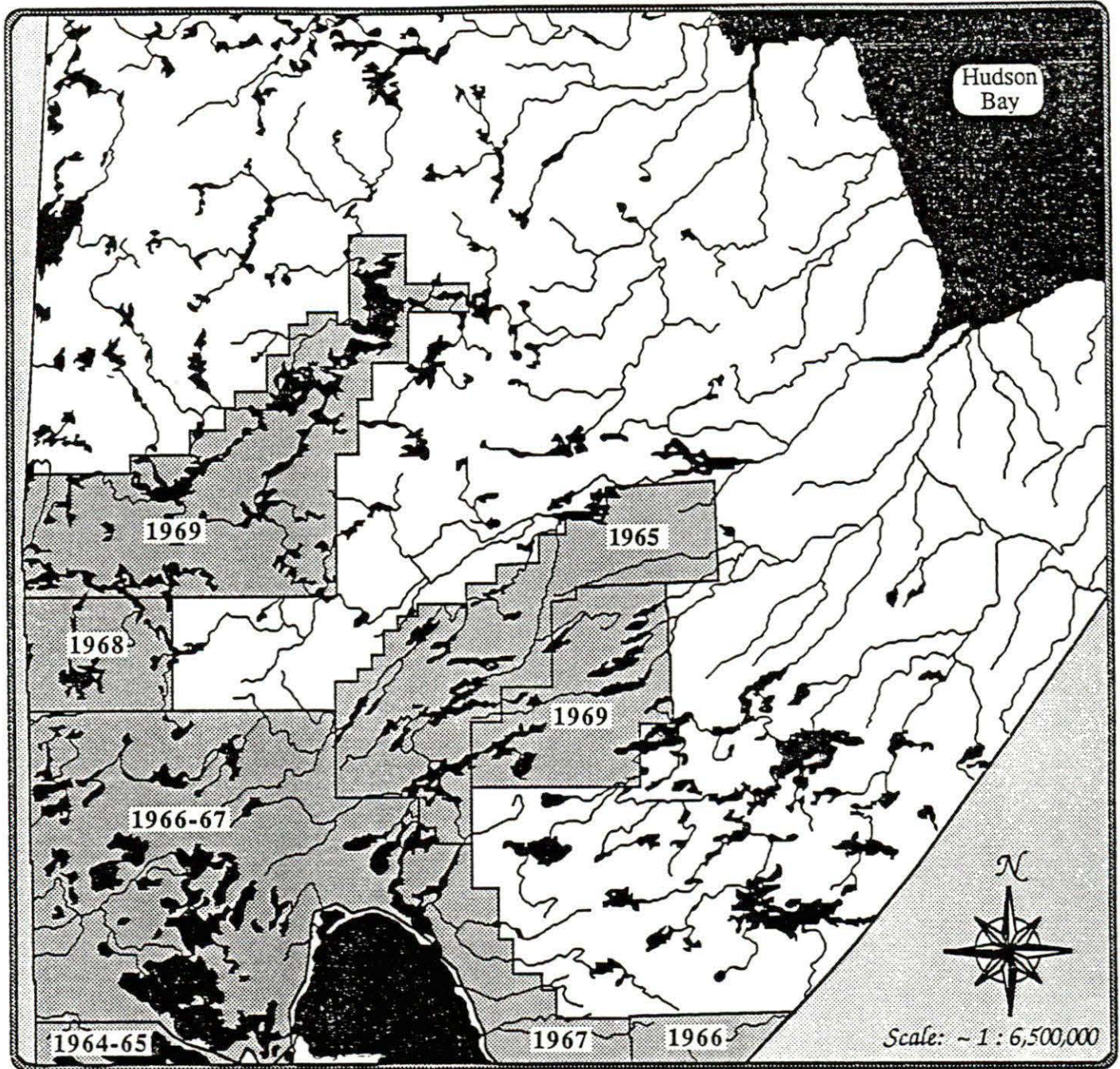
Table 20. Forest sections and management units.

Section No.	Section Name	Management Units
5	Saskatchewan River Section	51 - 57
6	Highrock Section	60 - 66
7	Churchill River Section	71 - 75
8	Nelson River Section	82 - 89
9	Hayes River Section	90 - 99

Forest resource inventory maps can be obtained at scales of 1: 15,840 and 1: 63,360. The maps describe in detail vegetation cover types as well as terrain characteristics and are a valuable secondary data source. Maps should be ordered according to township and range. For further information concerning availability and cost of maps contact:

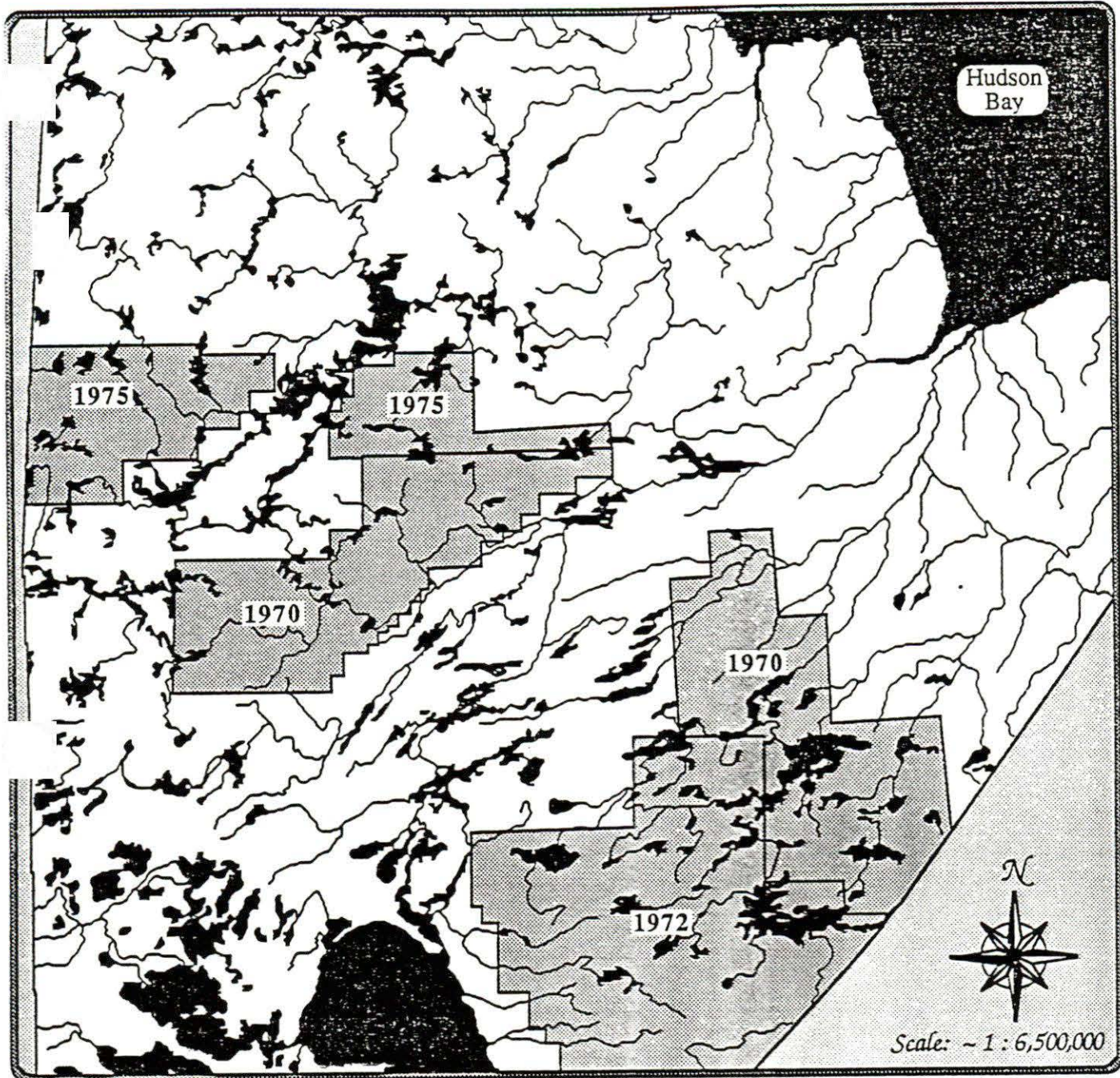
Eileen Bodener  
Manitoba Forestry Branch  
300 - 530 Kenaston Blvd.  
Winnipeg Manitoba  
R3N 1Z4





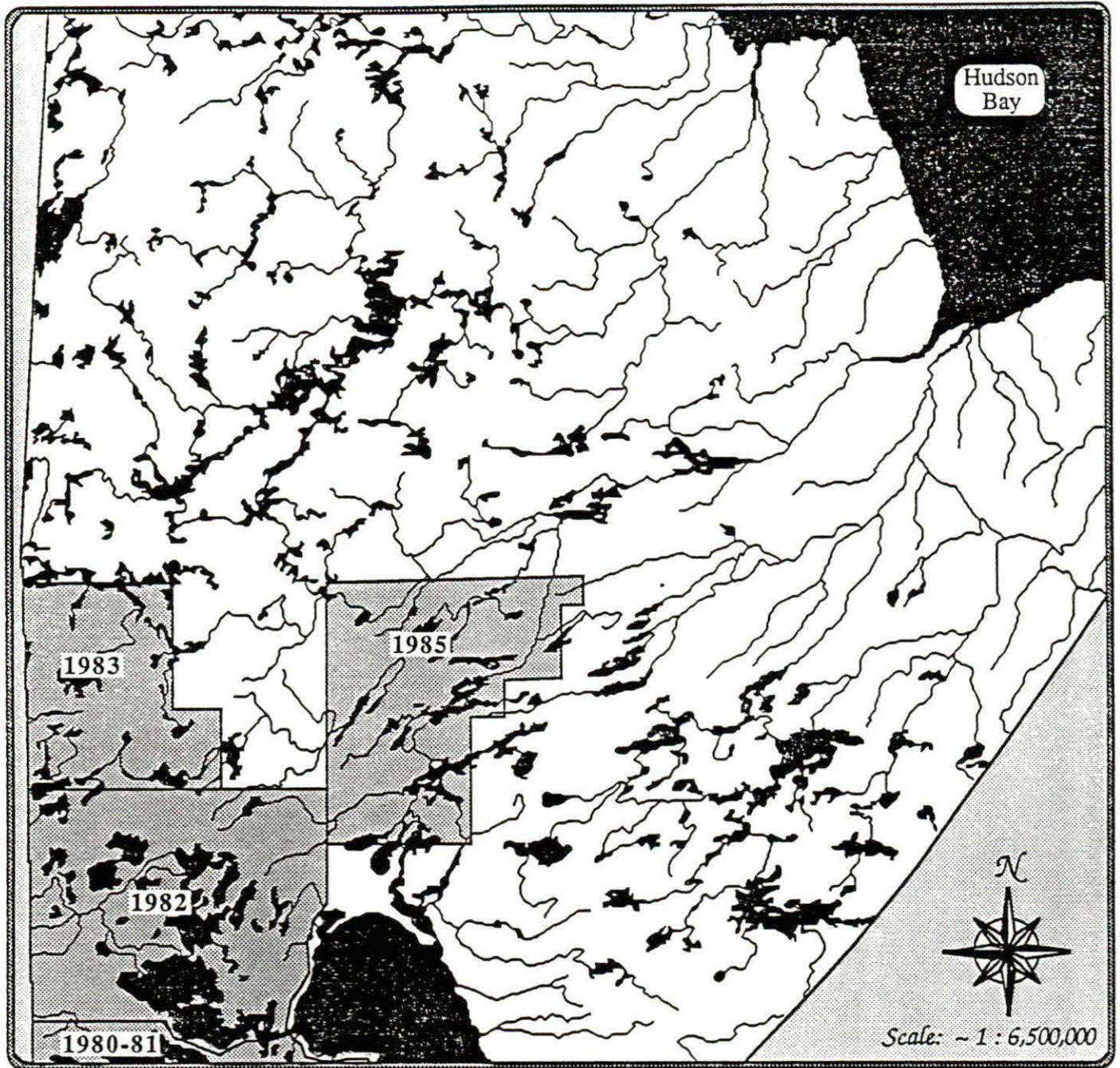
Source: Manitoba Forestry Branch, Winnipeg, Manitoba.

This index map shows areas surveyed photographically for forest inventory purposes. Dates refer to the year during which aerial photographic data was acquired.



Source: Manitoba Forestry Branch, Winnipeg, Manitoba.

This index map shows areas surveyed photographically for forest inventory purposes. Dates refer to the year during which aerial photographic data was acquired.



Source: Manitoba Forestry Branch, Winnipeg, Manitoba.

This index map shows areas surveyed photographically for forest inventory purposes. Dates refer to the year during which aerial photographic data was acquired. 1985 data was in the process of being mapped at the time of production of this catalogue.

Canada Land Inventory Maps

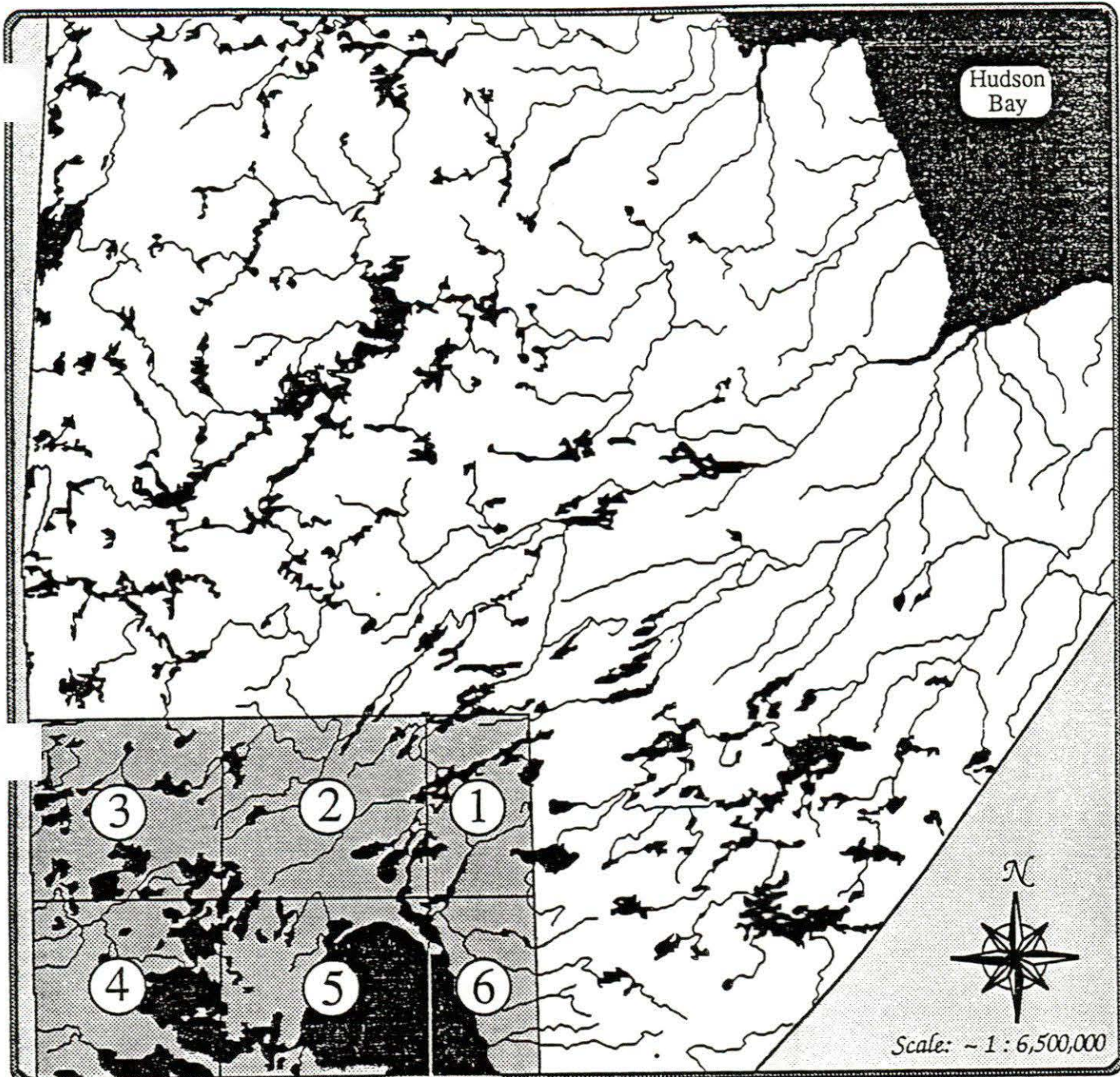


Table follows.

Source: Canada Land Inventory Map Index, Environment  
Canada, Lands Directorate

Table 21. Canada Land Inventory Maps.

Block	NTS Reference No.	Map Sheet Name
1	63I	Cross Lake
2	63J	Wekusko Lake
3	63K	Cormorant Lake
4	63F	The Pas
5	63G	Grand Rapids
6	63H	Norway House

Canada Land Inventory (CLI) maps are available at a scales of 1: 250,000 and 1: 1,000,000 for Agriculture, Forestry, Wildlife - Ungulates, Wildlife - Waterfowl, and Recreation. Copies of CLI maps can be obtained at :

Department of Natural Resources  
 Surveys and Mapping Branch, Map Sales  
 1007 Century Street  
 Winnipeg, Manitoba  
 R3H 0W4

To compliment the maps produced by the CLI program, a report series based on CLI data interpretations is available. These provide detailed descriptions of the sector capability classifications. Further information on the CLI or requests for reports should be directed to:

Land Resources and Data Systems Branch  
 Lands Direcotate, Environment Canada  
 Ottawa, Ontario  
 K1A 0E7

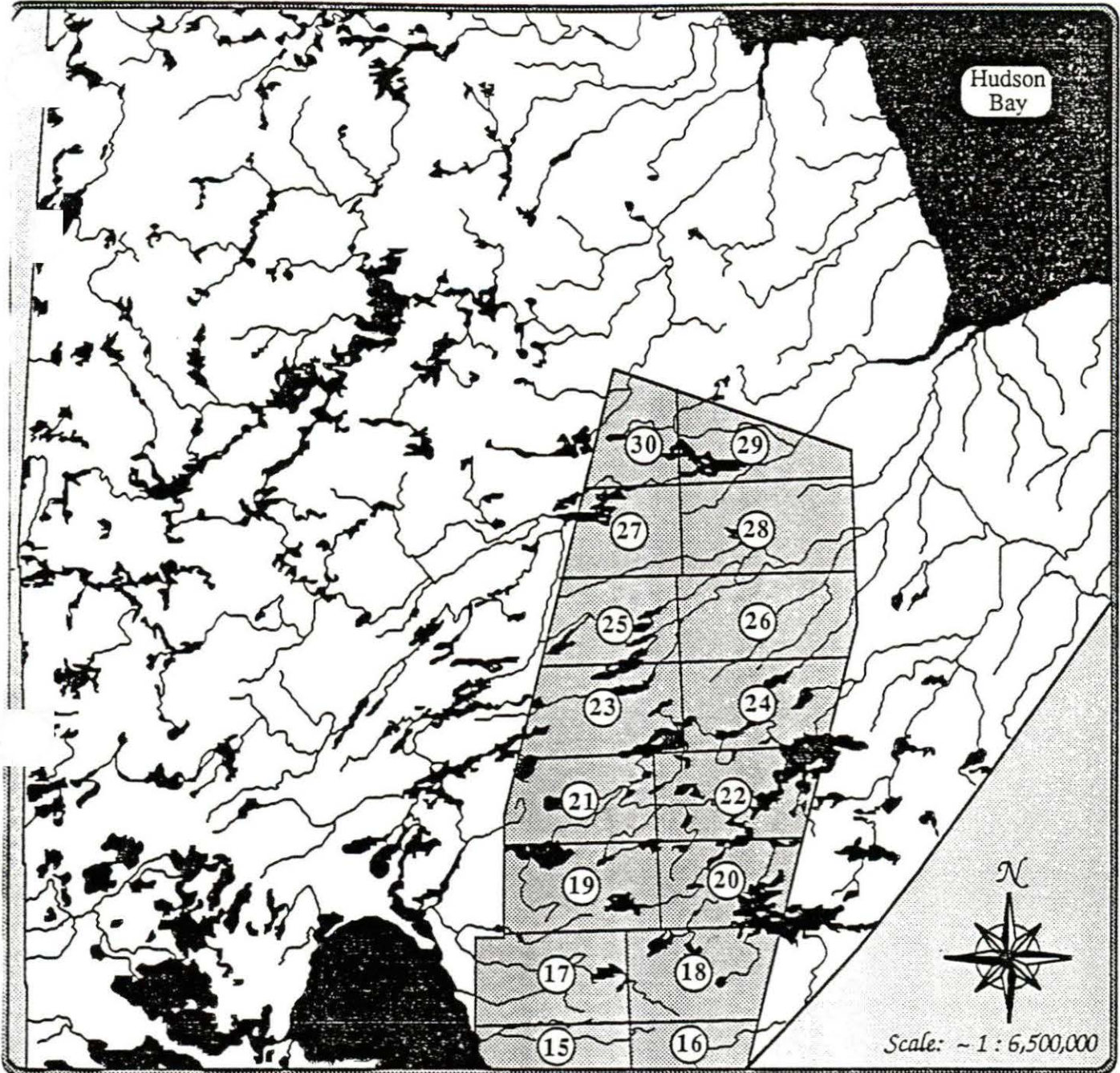


Table follows.

⑮ - ⑳ Land Cover map numbers

Source: Manitoba Remote Sensing Centre, Surveys and Mapping Branch,  
Winnipeg, Manitoba.

Table 22. Landsat MSS data used to generate Land Cover Maps.

Landsat No.	Path	Row	Date (d-m-y)
5	31	21	1 - 10 - 85
5	31	22	1 - 10 - 85
5	31	23	11 - 6 - 85

The above series of maps are applicon plots generated from Landsat 5 Multispectral scanner (MSS) imagery to map cover types along a corridor from the Stephens Lake area south, east of Lake Winnipeg to the Manitoba - Minnesota border. The cover types mapped include the following classes: treed rock/open conifer, dense conifer, deciduous, marsh and fen, treed bog, old burns, new burns, water, exposed rock, and hummocky land/shrub some conifer and bog.

For further information on the nature, cost, and availability of the maps, contact:

Department of Natural Resources  
 Surveys and Mapping Branch  
 Manitoba Remote Sensing Centre  
 1007 Century Street  
 Winnipeg, Manitoba  
 R3H 0W4

Landsat Generated Wildlife Habitat Maps. 1:150,000

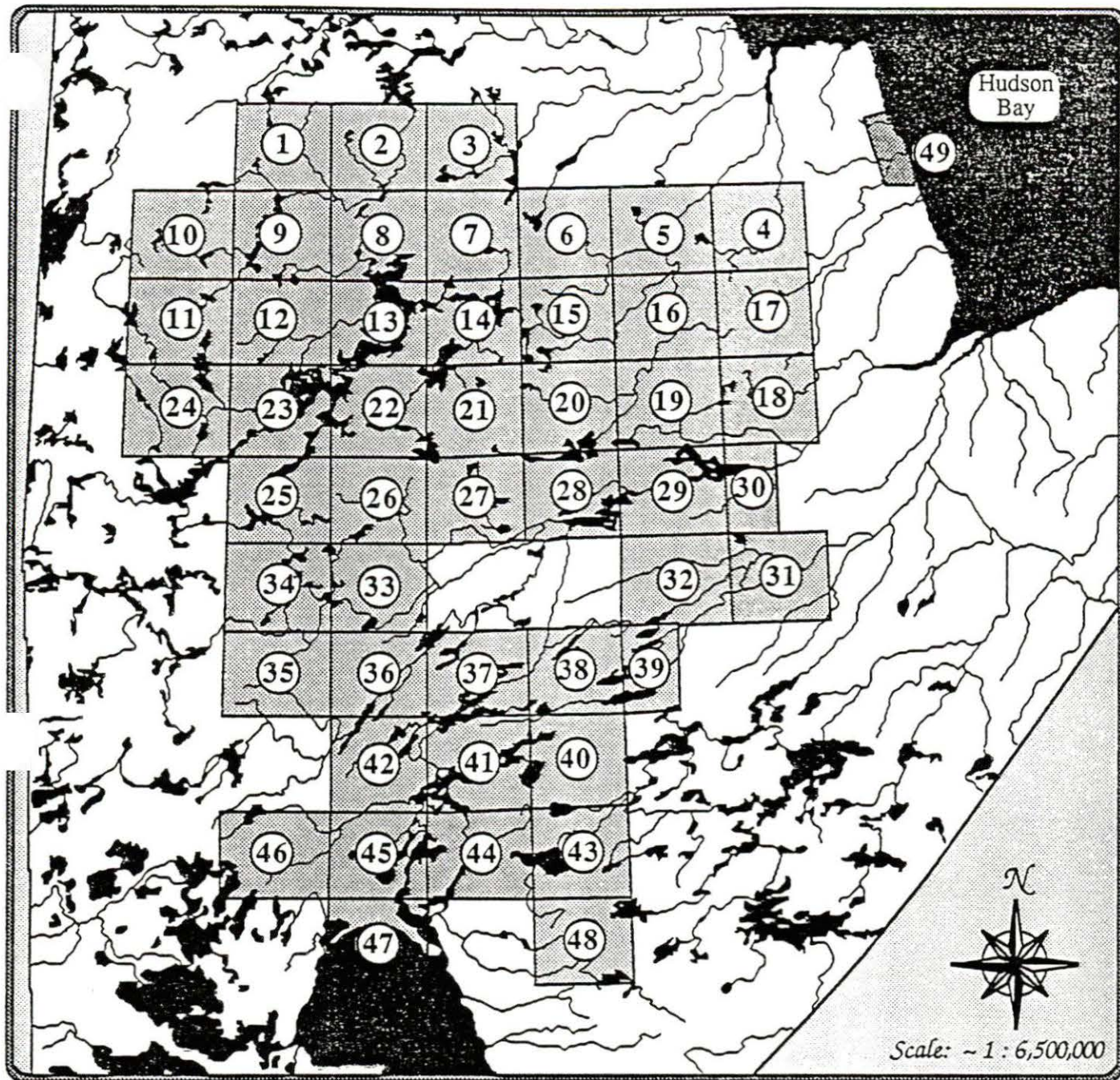


Table follows.



moose habitat maps



muskox habitat maps

Source: Manitoba Remote Sensing Centre, Survey and Mapping Branch.  
Compiled by L. Bowles, Provincial Wildlife Branch.



Table 23. Landsat generated wildlife habitat maps (1: 150,000).

Block	Map Identifier	Tape No.	Block	Map Identifier	Tape No.
1	M50	OA526	25	M21	OA513
2	M49	OA526	26	M22	OA513
3	M48	OA526	27	M16	OA508
4	M37	OA522	28	M15	OA515
5	M38	OA523	29	M23	OA514
6	M39	OA524	30	M30	-
7	M47	OA525	31	M29	OA517
8	M46	-	32	M24	OA516
9	M45	OA525	33	M17	OA516
10	M44	-	34	M20	OA515
11	M43	OA524	35	M19	OA521
12	M41	OA524	36	M18	OA512
13	M40	-	37	LAN	OA509
14	M30	-	38	TAK	OA504
15	M36	OA520	39	BO1	OA506
16	M35	OA521	40	WAL	OA504
17	M34	OA520	41	CRO	OA501
18	M31	OA518	42	DUK	OA506
19	M25	OA514	43	FOR	OA507
20	M26	OA517	44	PLY	OA504
21	M27	OA519	45	WEK	OA510
22	M28	OA516	46	JSW	OA506
23	M32	OA518	47	WP1	OA510
24	M42	OA524	48	GUN	OA507
			49*	NA	NA

\* Scale 1:125,000

#### Wildlife Habitat Map

These maps are applicon plots generated from DICS Landsat MSS data acquired between 1976 to 1981. One map (49) was produced to delineate muskox habitat, the remaining maps were produced to delineate winter moose habitat. Associated with each block number is a three character map identifier to be used when ordering a map. Cover types mapped for the moose habitat series include: water bodies, marsh, bog, conifer, mixed wood, deciduous, rock outcrops, recent forest burns, and cultural features. Cover types mapped for muskox habitat include: water bodies, wet fen, dry fen, willow, open conifer, closed conifer, and beach ridges.

To obtain further information concerning the nature and availability of these maps contact:

Mr. L. Bowles  
 Provincial Wildlife Branch  
 Room 100 - 1495 St. James Street  
 Winnipeg, Manitoba  
 R3H 0W9

Vegetation Change Maps of the Thompson Area (1973-1983)

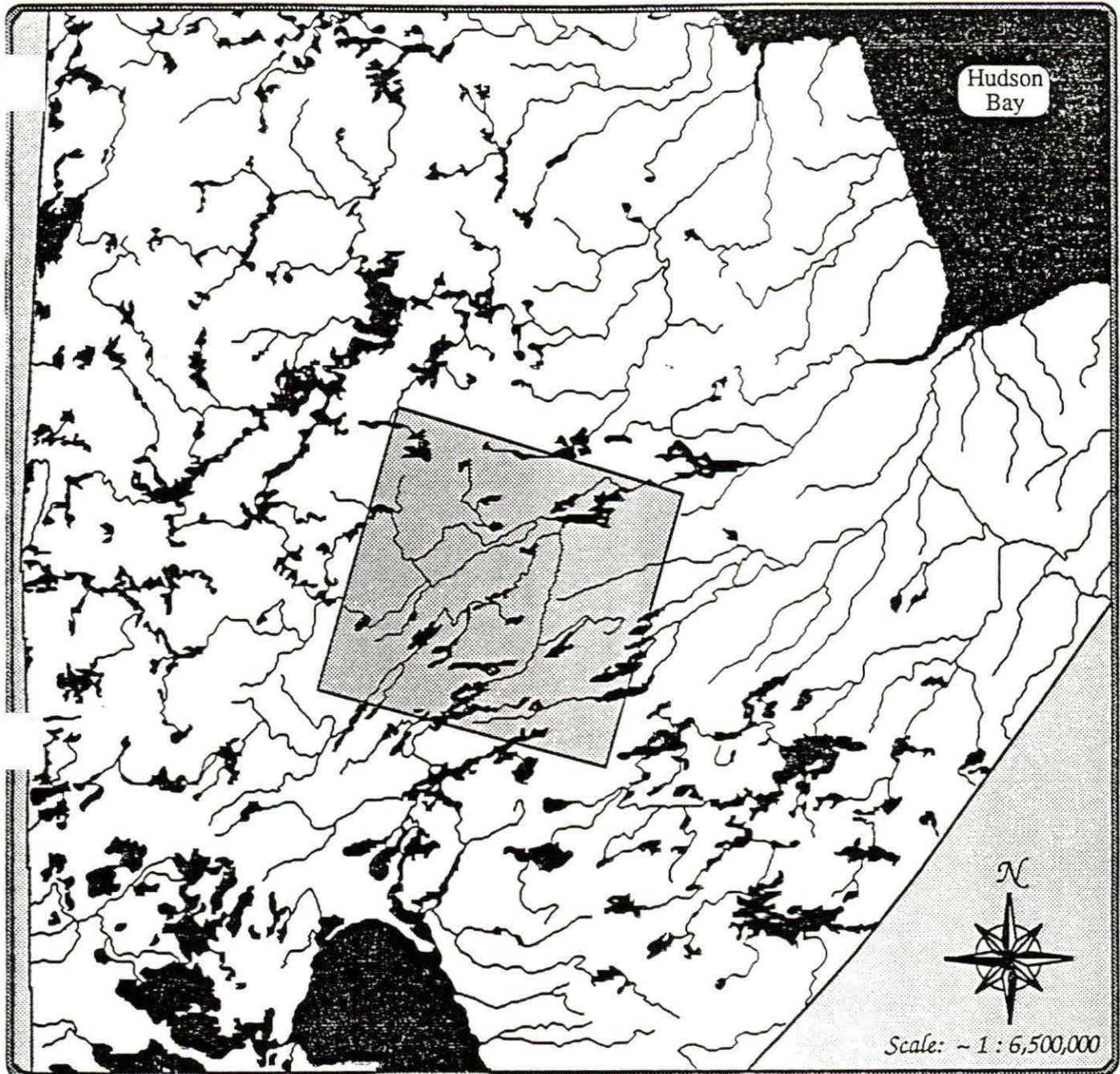


Table follows.

Source: Dr. J.A.E. Allum, INCO. Ltd. J. Roy Gordon Research Laboratory, Sheridan Park, Mississauga, Ontario.

Table 24. Landsat MSS data used to generate vegetation change maps.

Landsat No.	Path	Row	Date (d-m-y)
1	35	21	27 - 7 - 73
2	35	21	28 - 7 - 78
4	32	21	23 - 7 - 83
4	32	21	6 - 8 - 83

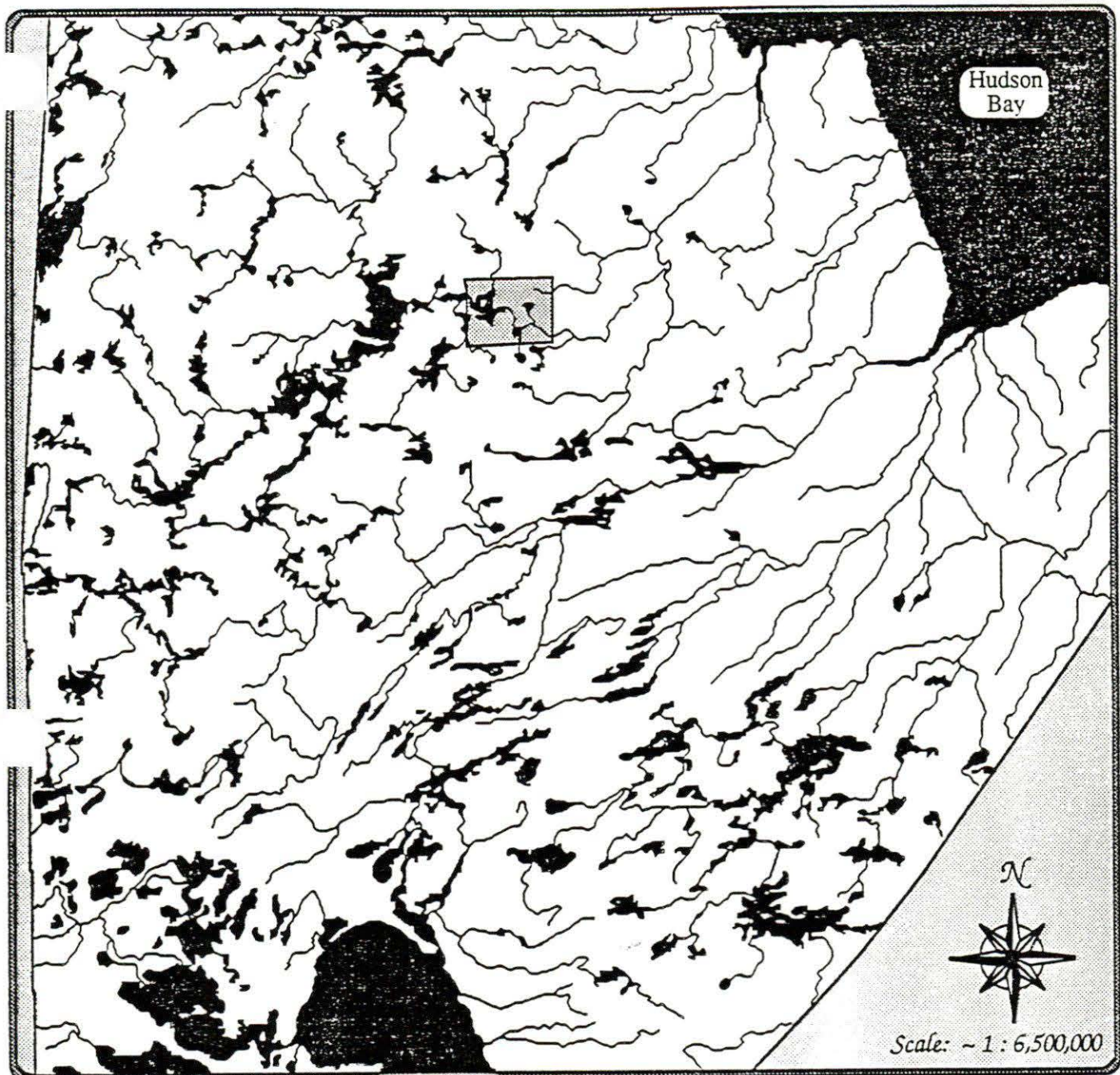
Vegetation change maps within the area specified on the preceding page were prepared during a joint study between INCO and the Ontario Centre for Remote Sensing (OCRS) to map vegetation changes in the Thompson area from 1973 to 1983. The change maps also revealed significant changes in water level in the Burntwood River.

The 1983 Landsat scenes were merged in order to generate the same study area as the Landsat 1 and 2 imagery. Change maps were created for 1973 to 1978, 1978 to 1983, and 1973 to 1983. To obtain copies of these maps permission should first be obtained from INCO. Maps (Applicon plots) can be generated at OCRS. For further information contact:

Dr. J. A. E. Allum  
INCO Limited  
J. Roy Gordan Research Laboratory  
Sheridan Park  
Mississauga, Ontario  
L5K 1Z9

Richard Mussakowski  
Ontario Centre for Remote Sensing  
Surveys and Mapping Branch  
Ministry of Natural Resources  
880 Bay St. 3rd Fl.  
Toronto, Ontario  
M5S 1Z8

Waterfowl Habitat Maps, Northern Indian and Fidler Lakes



Text follows.

Source: Canadian Wildlife Service, Winnipeg, Manitoba.

A series of reports were submitted to the the Canadian Wildlife Service by Ecosat Geobotanical Surveys Inc. monitoring (waterfowl) habitat changes brought about by the diversion of the Churchill River in 1976. Satellite imagery was used to map changes in habitat. Reports relevant to this study are listed below:

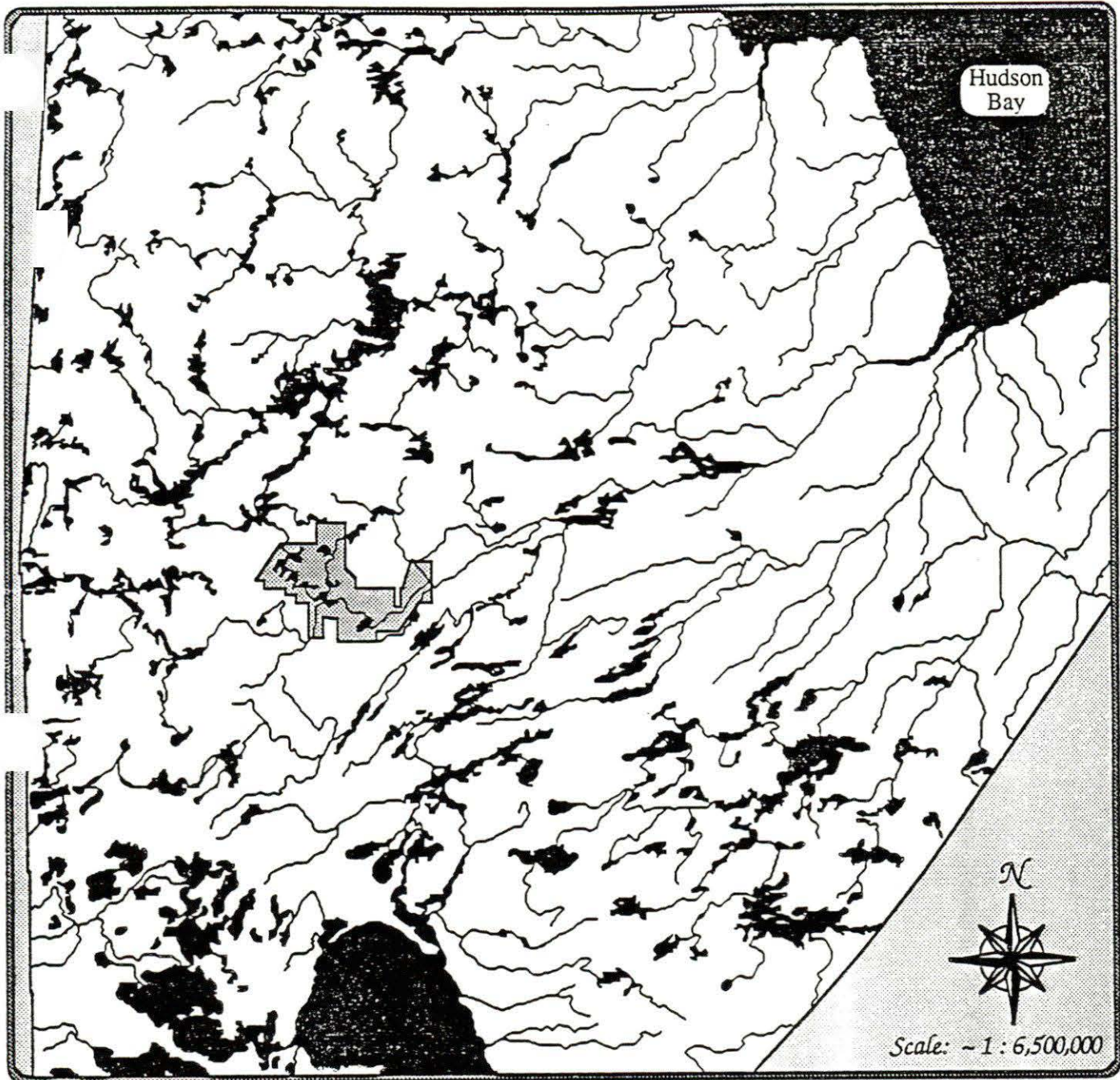
- Jaques, D.,\* 1986. Landsat analysis of habitat changes on the Churchill River, Manitoba, from 1981 to 1984, 40 p.
- Jaques, D., 1986. Effects of water diversion on vegetation and waterfowl habitat in Northern Indian and Fidler Lakes, Manitoba, 60 p.
- Jaques, D., 1983. Evaluation of Landsat imagery for use in monitoring habitat change brought about alterations of water regimes on the Churchill River, Manitoba, 63 p.

The reports can be viewed by contacting:

Peter Boothroyd  
Canadian Wildlife Service  
Department of Fisheries and Oceans  
Central and Arctic Region  
501 University Cres.  
Winnipeg, Manitoba  
R3T 2N6 .

\* Ecosat Geobotanical Surveys Inc.  
858 Handsworth Rd.  
North Vancouver, B.C.  
V7R 2A2

Burntwood River (1972)

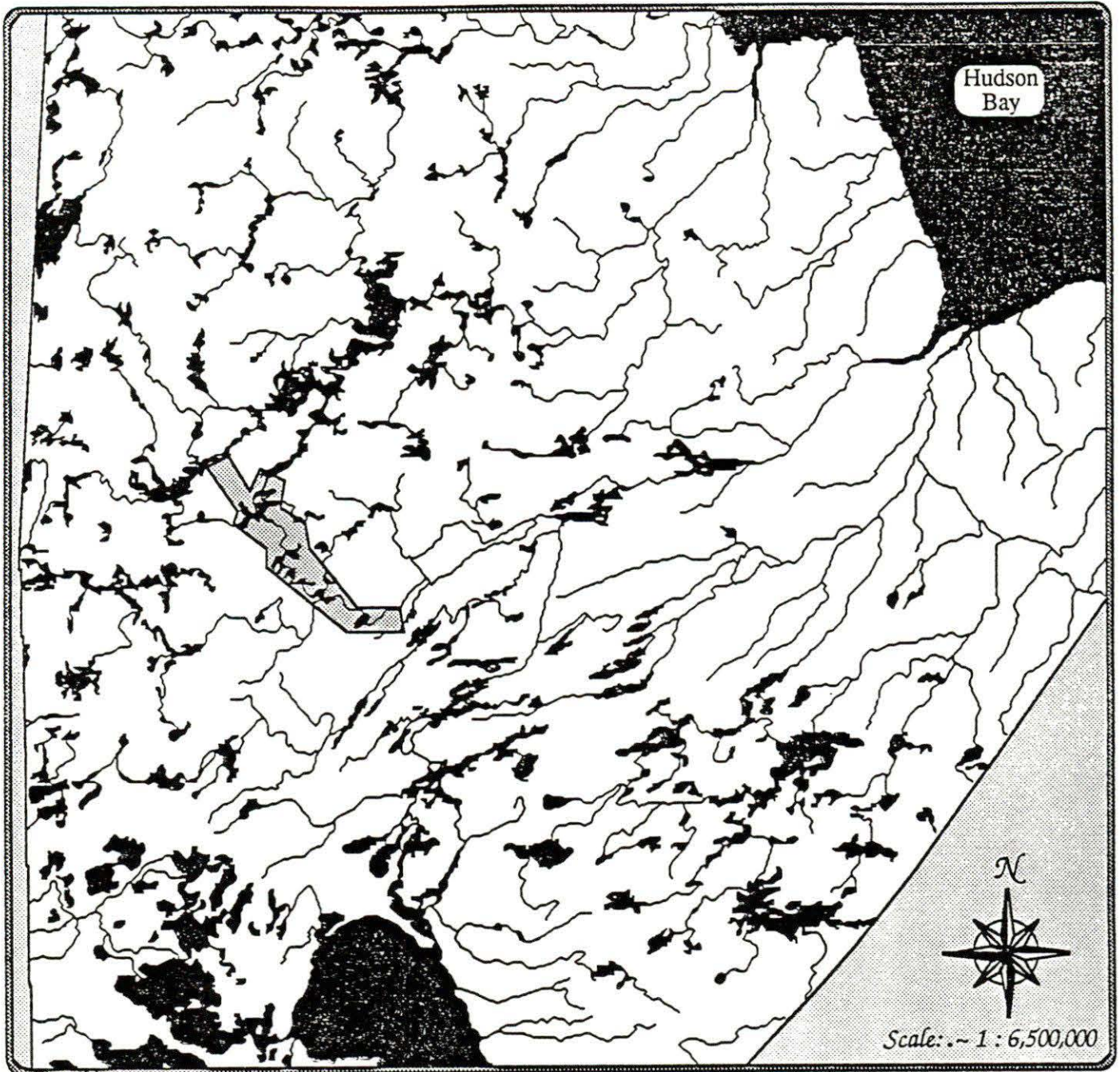


Source: Manitoba Mapping and Surveys Branch.

Approximately 60 photobase maps (1: 12,000) were produced for this area based on 1972 aerial photography. The photo maps were compiled by the Surveys and Mapping Branch for the Lake Winnipeg, Churchill, Nelson Rivers Study Board, June 1973. Copies of this mapping series (as well as index map) can be obtained at :

Department of Natural Resources  
Surveys and Mapping Branch  
Map Sales  
1007 Century Street  
Winnipeg Man., R3H 0W4

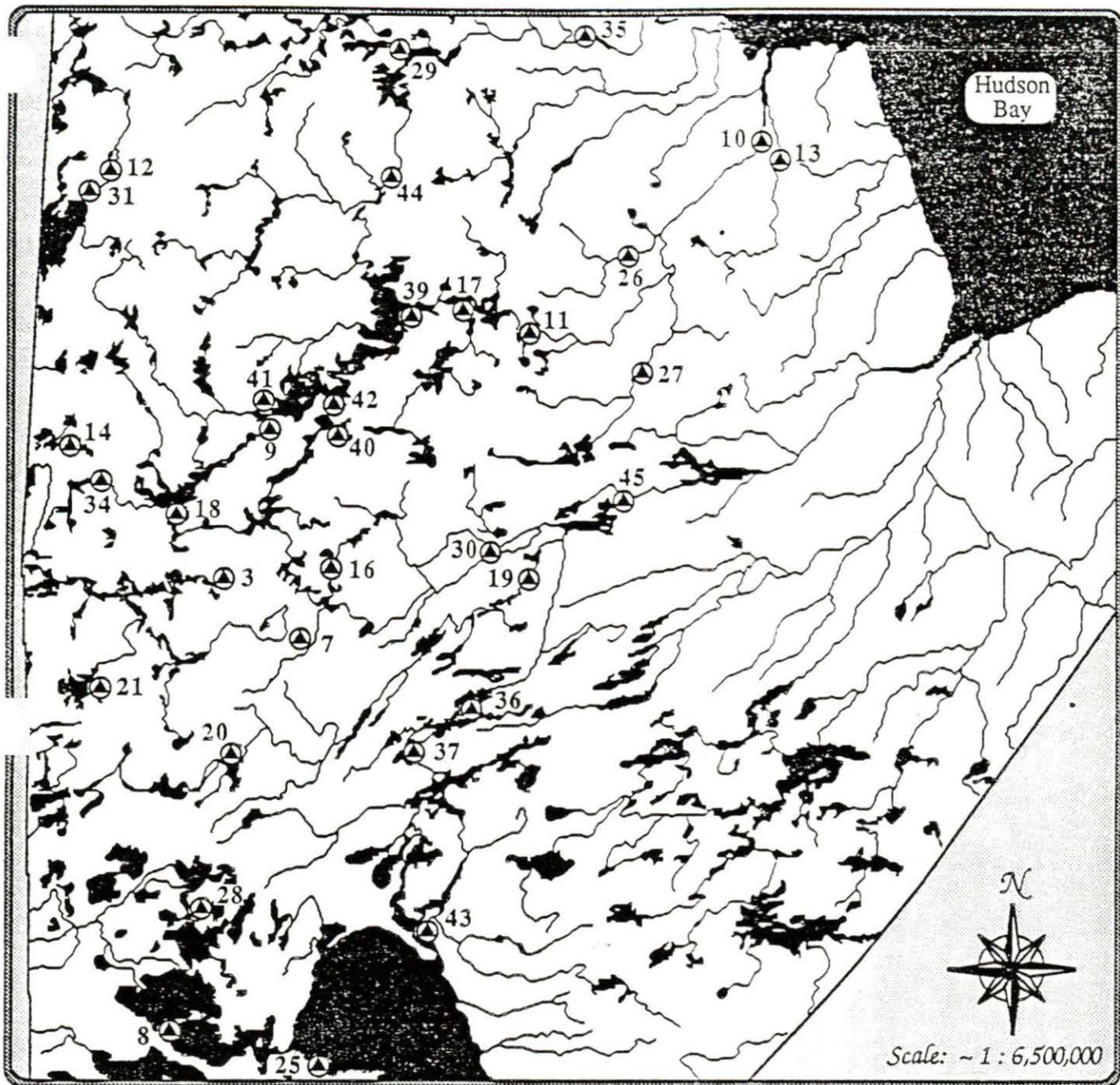
Extent of Flooding within the Nelson House Trapping Block, Churchill River Diversion, 1:50000



Source: Symbion Consultants (1986). Determination of the extent of flooding within the Nelson House trapping block resulting from the operation of the Churchill River Diversion.

This map was compiled using multirate aerial photography and other published data to map flooded areas along the Rat River by habitat type within the Nelson House trapping block. For further information contact:

Symbion Consultants  
2nd Flr - 1666 Dublin Ave.  
Winnipeg, Manitoba  
R3H 0H1



▲ satellite data collection platforms (DCP's)

DCP's are data collection platforms that relay a variety of meteorological and hydrographic information from remote locations in northern Manitoba. The platforms provide real time data. For further information regarding data collected from these platforms contact:

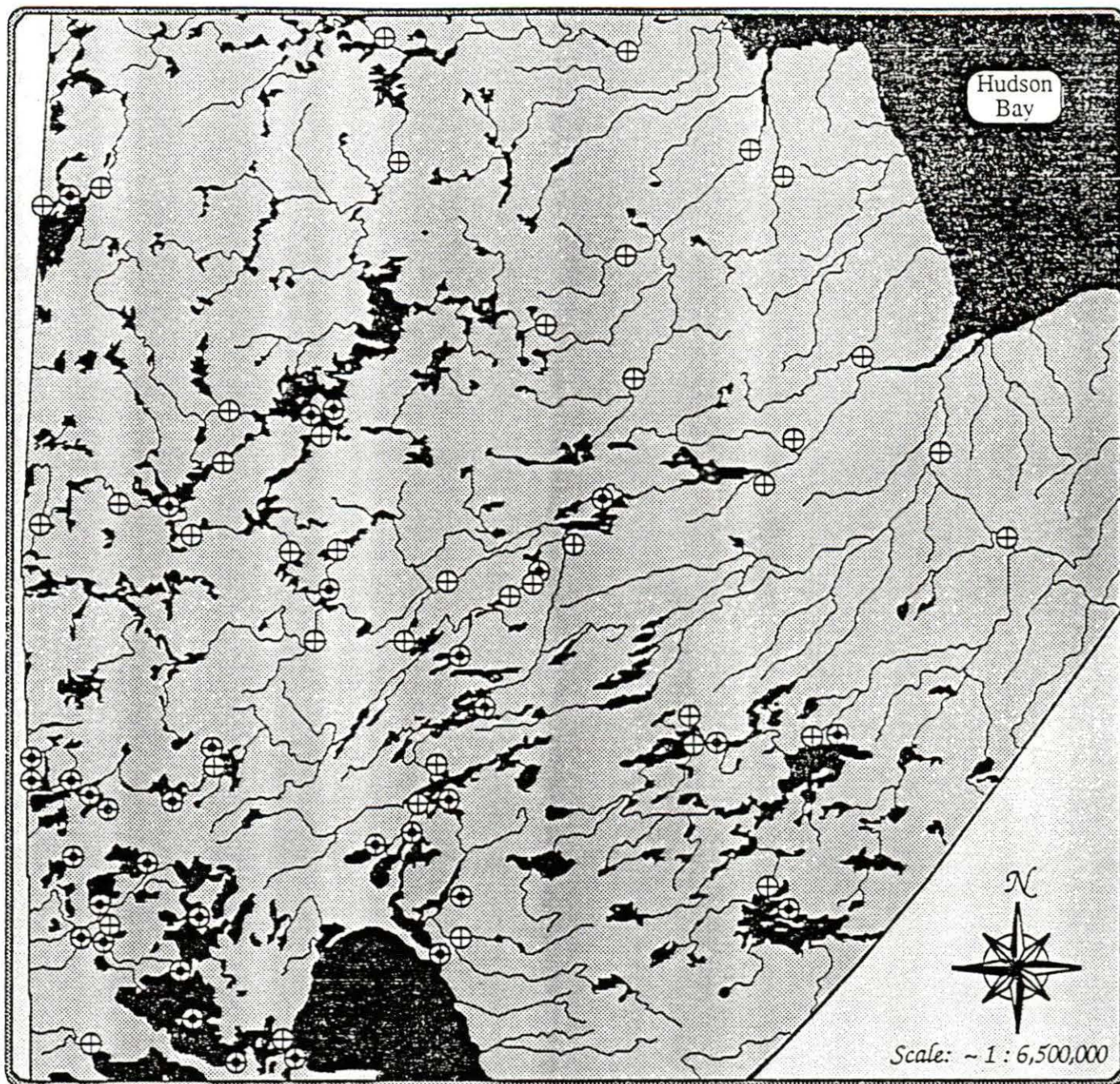
Mr. Mark Drouin  
Manitoba Hydro  
P.O. Box 815  
Winnipeg, Manitoba  
R3C 2P4

or

Mr. V. Austford  
Dept. of Natural Resources  
Water Resources Branch  
1577 Dublin Ave.  
Winnipeg, Manitoba  
R3E 3J5



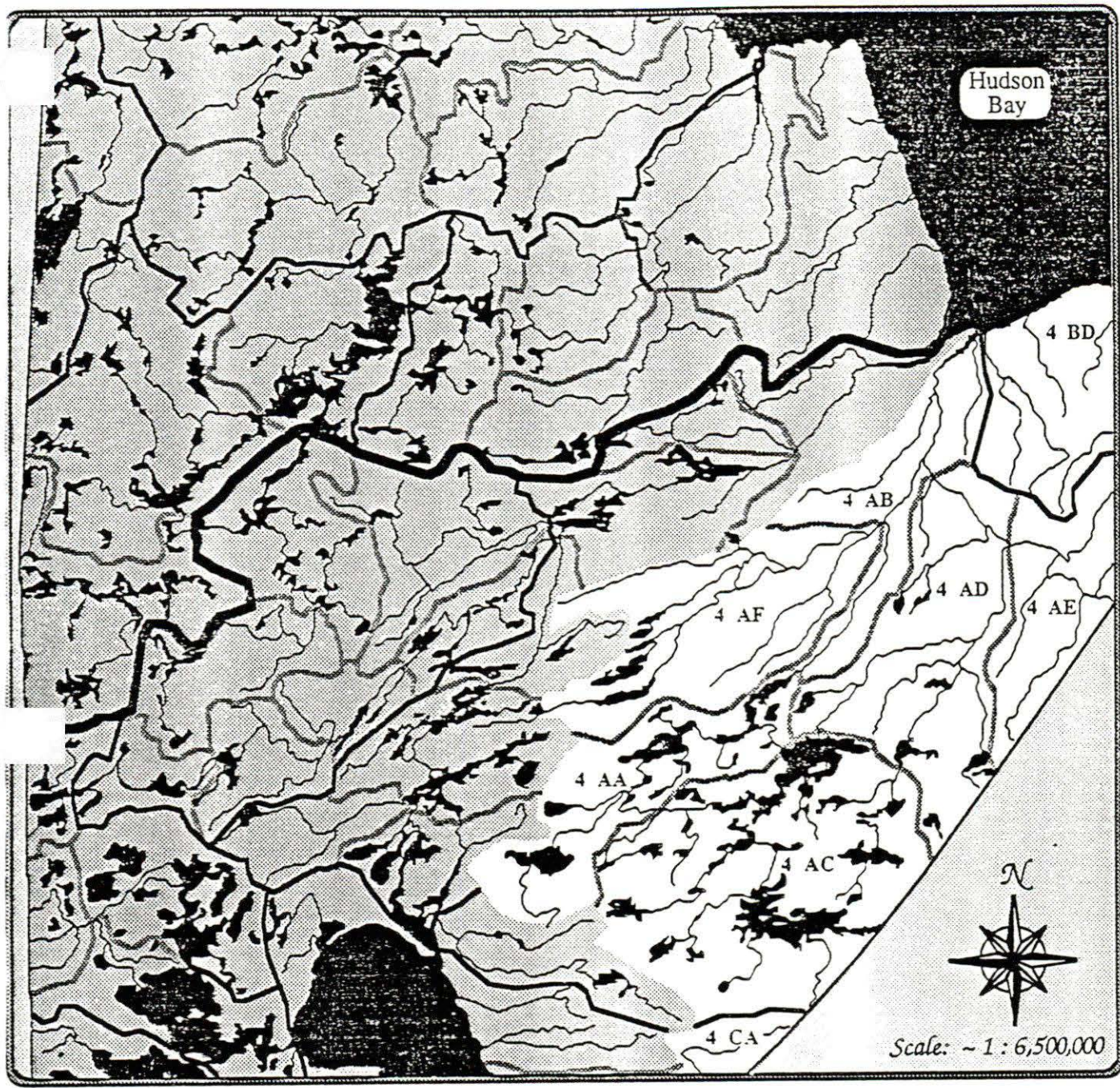
# Active Hydrometric Stations



- ⊕ stream flow hydrometric stations
- ⊙ water level only

Source: Inland Waters Directorate, Water Resources Branch, Water Survey of Canada, Ottawa, Canada, 1987.

# Drainage Index Map, Basin 04 : James Bay - Hudson Bay



main division     
  sub division     
  sub-sub division

Source: Province of Manitoba, Department of Mines and Energy and Natural Resources, Canada Land Inventory Project: Water Divisions (Map).

The Drainage Index Map consists of the delineation of the main watershed divisions and their relative sub and sub-sub divisions. Water Surveys of Canada assigns each main watershed division with a numerical value. Each main division is further sub divided and assigned an alphabetical value. These sub divisions are further sub-sub divided and also assigned a alphabetical value.

eg. main division = 4, sub-divisions = 4E, sub-sub divisions = 4EA

Additional information on the quantitative and qualitative characteristics of water within these basins may be found in the publications available from;

Inland Waters/Lands Directorate  
 Water Resources Branch  
 Water Survey of Canada  
 Ottawa, Canada

Drainage Index Map, Basin 05 : Interior Plains - Saskatchewan, Nelson



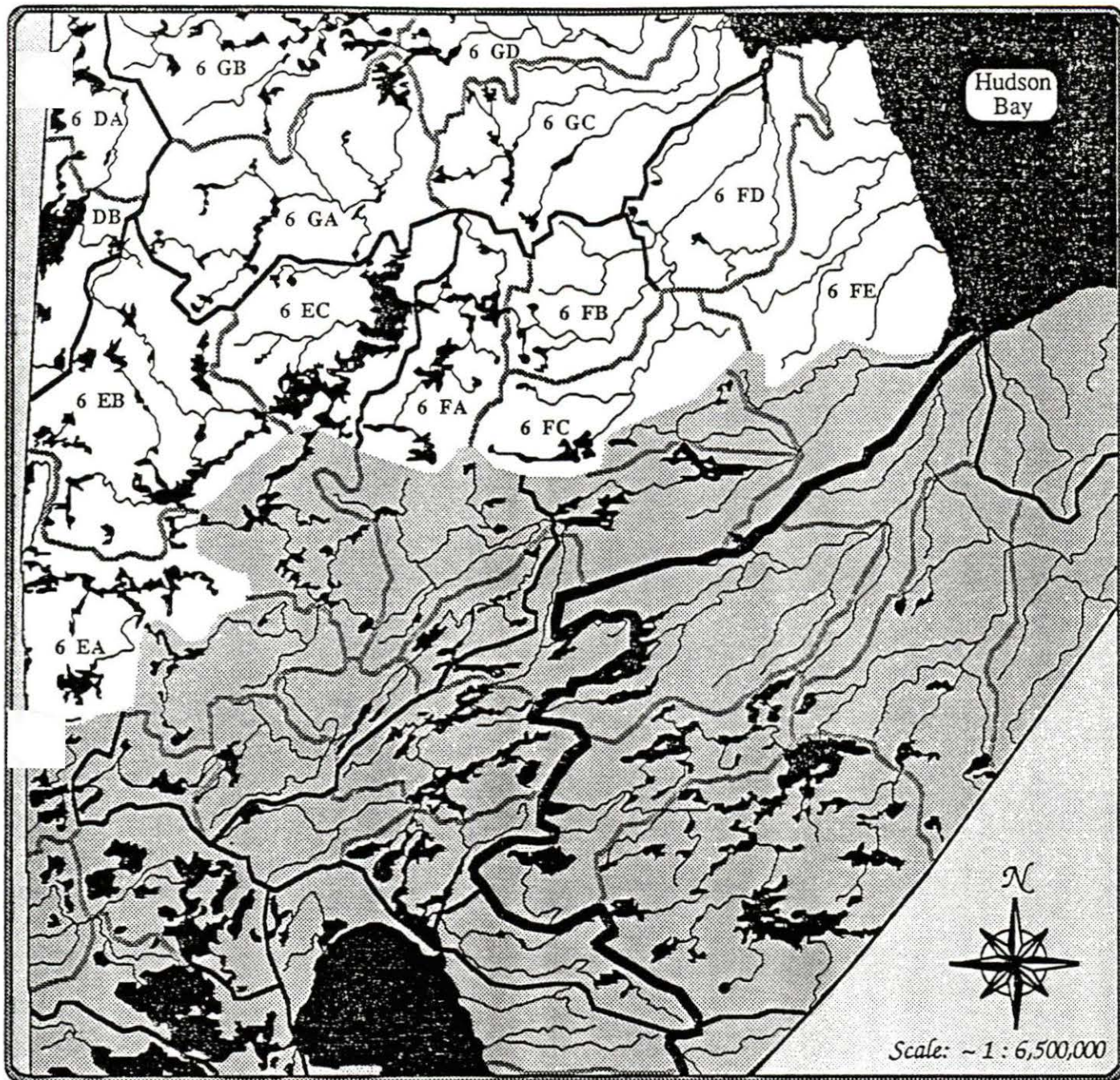
main division     
  sub division     
  sub-sub division

Source: Province of Manitoba, Department of Mines and Energy and Natural Resources, Canada Land Inventory Project: Water Divisions (Map).

Additional information on the quantitative and qualitative characteristics of water within these basins may be found in the publications available from;

Inland Waters/Lands Directorate  
 Water Resources Branch  
 Water Survey of Canada  
 Ottawa, Canada

Drainage Index Map, Basin 06 : Churchill - Hudson Bay



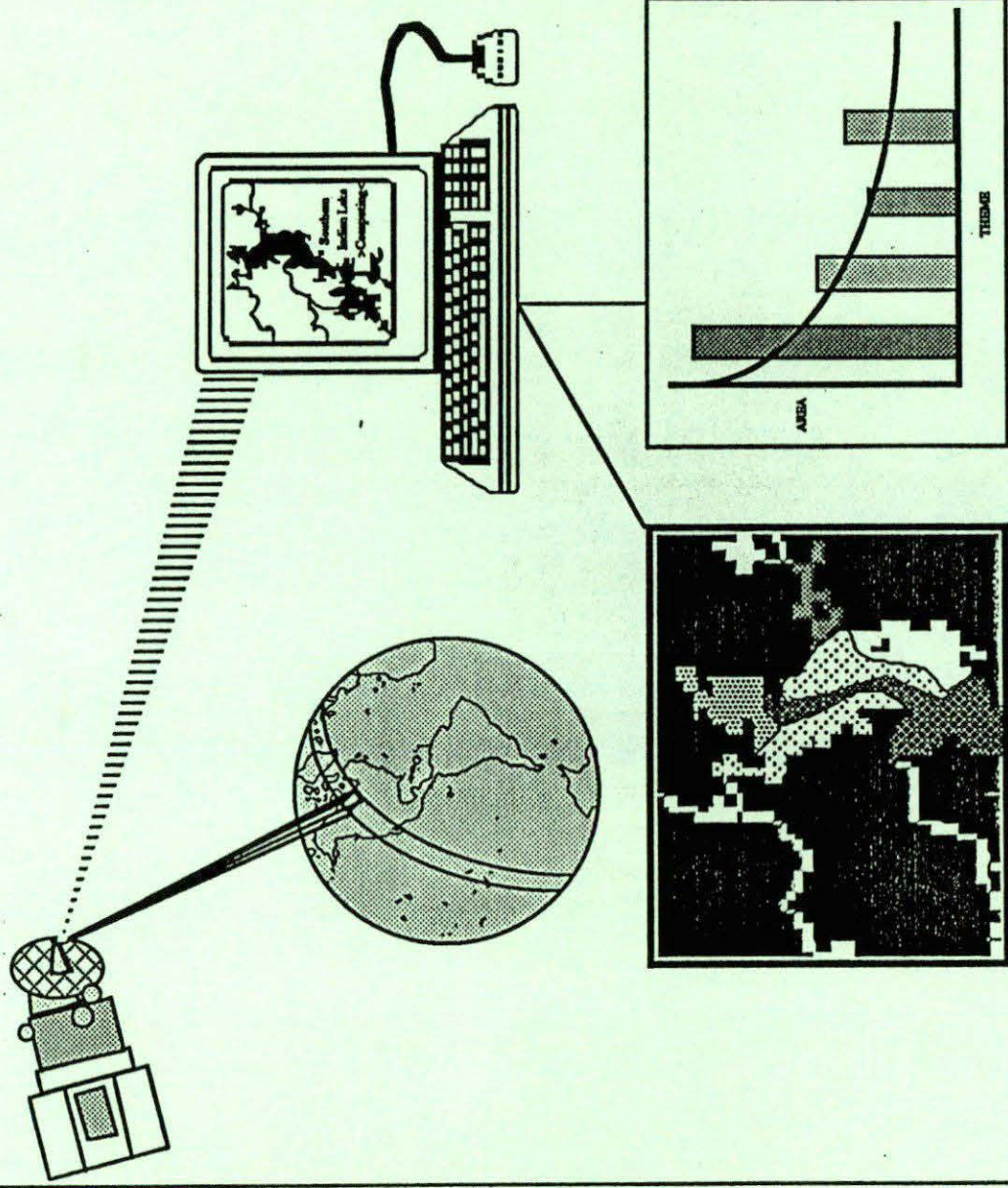
— main division      — sub division      — sub-sub division

Source: Province of Manitoba, Department of Mines and Energy and Natural Resources, Canada Land Inventory Project: Water Divisions (Map).

Additional information on the quantitative and qualitative characteristics of water within these basins may be found in the publications available from;

Inland Waters/Lands Directorate  
Water Resources Branch  
Water Survey of Canada  
Ottawa, Canada

# Part II. Applications



An introduction to data acquisition and interpretation, with emphasis on digital image analysis.

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## PART II: Applications

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### Introduction

This catalogue is designed to provide a database of archived aerial and satellite remote sensing data. It is apparent from Section 1 and 2 that a tremendous amount of *remote sensing* data is available for northern Manitoba. The data can be useful in many environmental investigations, given a sufficient understanding of the utility and limitations of application.

The large scale of aerial photography makes it useful for microscale applications and as a method of 'truthing' the more macroscale applications of satellite remote sensing. This section is designed to increase your understanding of remote sensing. The section consists of a brief background to remote sensing, examples of resolution, and a description of applications. An emphasis is placed on *digital image* analysis systems, rather than on airphoto interpretation. Discussion of photographic remote sensing and more detailed *digital* applications can be found in references listed in Selected Readings (p. 551).

### Background

Historically, *remote sensing* consisted of aerial photography from various airborne platforms. Aerial photography was used in both World Wars to obtain detailed intelligence information. Wars were a catalyst for substantial developments in photogrammetry and improvements in film type and quality. Photogrammetry, the art and science of obtaining reliable quantitative measurements from photographs (American Society of Photogrammetry, 1966), has since been a major source of information for engineers, geologists, and geographers. Large scale mapping missions began in North America after the Second World War, using photogrammetric principles developed earlier. With the advent of space flight, and improvements in computer technology, satellites began collecting digital imagery of the earth's atmosphere and surface. Contemporary remote sensing applications use both photography and digital imagery.

The process of remote sensing consists of two components: data acquisition and data interpretation (Figure 6). Data acquisition depends on the sun as the source of *electromagnetic radiation* (EMR), propagation of EMR through the atmosphere, interaction of EMR with earth's surface, and reflection or emittance through the atmosphere to the sensor. Data interpretation consists of converting photographs or digital data to information products through different interpretation techniques (Figure 6).

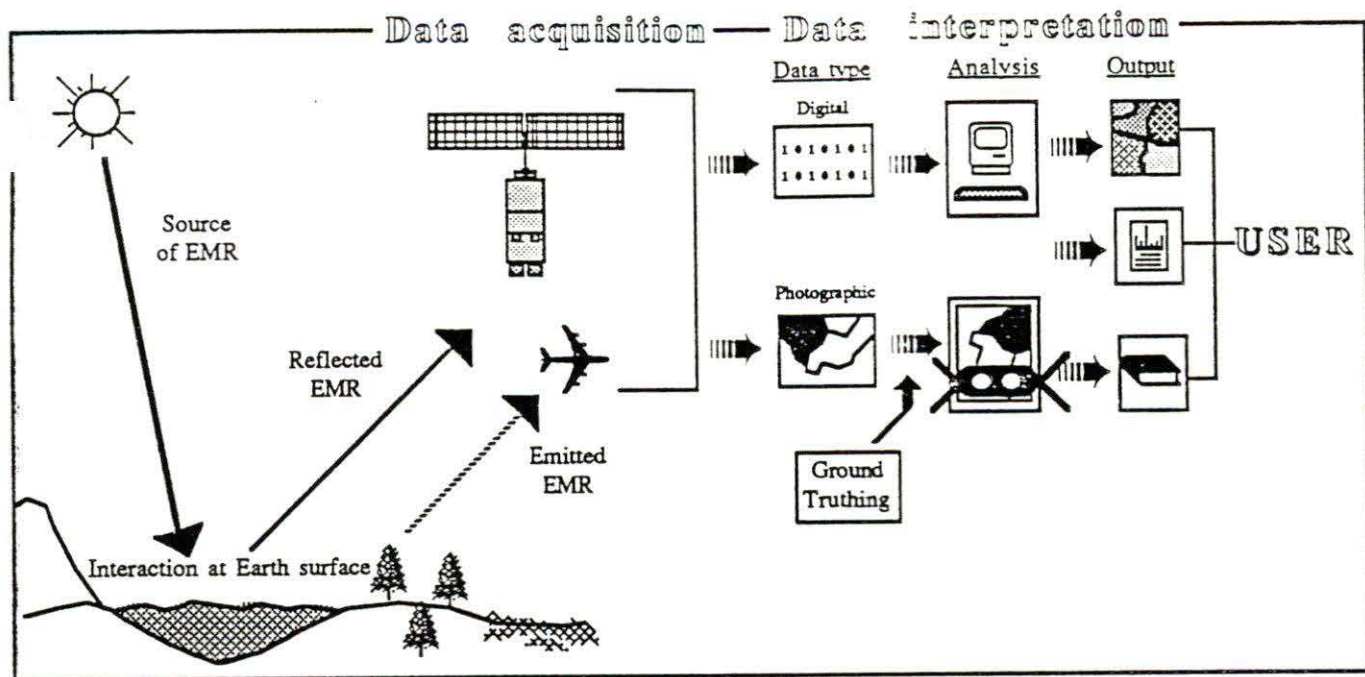


Figure 6. Schematic of the *remote sensing* process.

## Data Acquisition

Following the schematic in Figure 6, the first consideration of a remote sensing investigation is data acquisition. You must consider several parameters when planning a flight mission or selecting digital data. Table 26 and 28 are included to assist you in selecting the most appropriate aerial photographic configuration and digital remote sensors for typical hydrological applications. The utility of either method depends on *spectral sensitivity*, *spatial*, and *temporal* coverage. Selecting the appropriate tool depends on your understanding of these concepts.

### Spectral, Spatial, and Temporal Coverage (Aerial Applications)

You can control spatial and temporal coverage to a larger degree in aerial applications than in satellite applications. Spatial coverage refers to the maximum area imaged by the sensor; temporal coverage is the maximum repetitive coverage. Spatial coverage is determined by format of the camera, *focal length*, and altitude. Temporal coverage is limited by financial constraints. In photography, spectral ranges are controlled by selecting various film types and filters. There are black and white *panchromatic* (covering the entire range of visual EMR), *infrared* (IR), and color (also *panchromatic*) films. Filters control for certain ranges of spectral EMR. If the flight mission requires a spectral range of .5-.6  $\mu\text{m}$ , an appropriate filter can be fitted to the camera. A detailed description of filters can be found in references listed in Selected Readings (p. 551).

Table 25 describes different types of aerial films available, film number, and

aerial film speeds. Table 26 describes the utility of different camera, film type, and scale combinations for specific water resource remote sensing applications. This table is intended as an aid in selecting appropriate combinations to meet spectral, spatial or resolution requirements.

Table 25. Aerial film types\*.

Kodak Film	Film Number	Sensitivity	Description and Applications	
Plus-X Aerographic (Estar Base)	2402		Medium-speed , high dimensional stability for aerial mapping and reconnaissance	
Tri-X Aerographic (Estar Base)	2403		High-speed, high dimensional stability for aerial mapping and reconnaissance under low levels of illumination	
Double-X Aerographic (Estar Base)	2405		Medium-high speed, standard film for mapping and charting; high dimensional stability	
Panatomic-X Aerocon (Estar Thin Base)	3410		Panchromatic with extended red	Intermediate-speed, high contrast, high altitude reconnaissance film; suitable for small negative format
Plus-X Aerocon (Estar Thin Base)	3411			Medium-speed, high-contrast, fine grain, high-altitude reconnaissance
High Definition Aerial (Estar Thin Base)	3414			Slow speed, high definition for high-altitude aerial reconnaissance
Infrared Aerographic (Estar Base)	2424		Black and white film for reduction of haze effects, water location, forest surveys, and multiband aerial photography	
Aerochrome Infrared (Estar Base)	2443		Infrared (IR)	False-color reversal film, high dimensional stability for forest surveys and camouflage detection
Aerochrome Infrared (Estar Base)	3443			False-color reversal film for remote sensing, forest surveys, and camouflage detection,
Aerocolor Negative (Estar Base)	2445		High Speed fine grain color-negative for mapping and reconnaissance , wide exposure latitude	
Aerochrome MS (Estar Base)	2448		Color	Color-reversal film for low - to medium altitude aerial mapping and reconnaissance Very fine grain, excellent color rendition

\* Source: Kodak data for aerial photography, Eastman Kodak Company, 1976. Fourth Edition, p. 5



Table 26. Aerial Remote Sensing considerations for water resource applications\*.

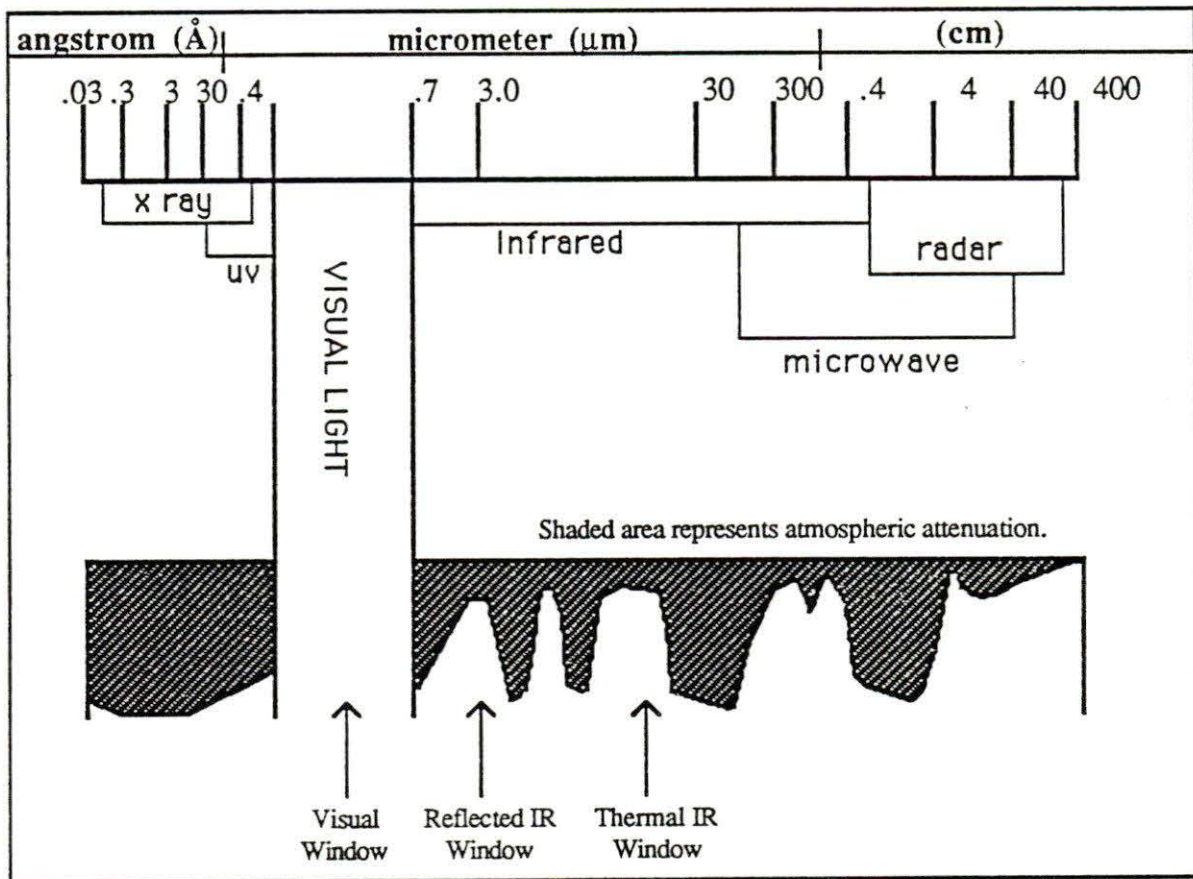
DROLOGY	PHOTOGRAPHIC REMOTE SENSORS																				
	A	B	C	D	E	F	H	G	I	J	K	L	M	N	O	P	Q	R	S	T	U
<b>STANDING WATER</b>																					
area	3	3	3	1	3	3	3	3	1	3	3	3	3	1	3	3	3	3	1	3	3
depth	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
shoreline length	3	3	2	1	3	3	2	3	1	3	3	3	2	1	3	3	3	2	1	3	3
wave climate	2	2	1	2	2	2	1	2	2	2	2	2	1	2	2	2	2	1	2	2	2
circulation pattern	2	2	1	2	2	2	1	2	2	2	2	2	1	2	2	2	2	1	2	2	2
ice cover	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
suspended sediment	3	3	3	3	3	3	3	3	3	3	0	0	0	0	0	3	3	3	3	3	3
wave approach	3	3	1	2	3	3	1	2	2	3	0	0	0	0	0	3	3	3	3	3	3
breaking waves	3	3	1	2	3	3	1	3	2	3	3	3	1	2	3	3	3	1	2	3	3
<b>FLOWING WATER</b>																					
suspended sediment	3	3	2	3	3	3	2	3	3	3	0	0	0	0	0	3	3	2	3	3	3
river plumes	3	3	3	3	3	3	3	3	3	3	0	0	0	0	0	3	3	3	3	3	3
stream velocity	2	2	1	2	2	2	1	2	2	2	2	2	1	2	2	2	2	1	2	2	2
stream width	3	3	2	2	3	3	2	3	3	3	3	3	3	3	3	3	3	3	3	3	3
stream depth	2	2	1	2	2	2	1	2	2	2	2	2	1	2	2	2	2	1	2	2	2
ice cover	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
tides	2	2	1	2	2	2	1	2	2	2	2	2	1	2	2	2	2	1	2	2	2
bottom material	1	1	0	1	1	1	0	1	1	1	1	1	0	1	1	1	1	0	1	1	1
obstacles to navigation	2	2	1	2	2	2	1	2	2	2	2	2	1	2	2	2	2	1	2	2	2
<b>HYDROGRAPHIC FORMS</b>																					
bathymetric relief	2	2	1	1	2	2	1	2	1	1	0	0	0	0	0	1	1	1	1	1	3
submarine features	3	3	2	2	3	3	2	3	3	3	3	3	1	2	3	3	3	1	3	3	3
shoals	3	3	1	2	2	3	2	3	2	3	3	3	2	2	3	3	3	3	3	3	3
river mouths	3	3	2	3	3	3	2	3	3	3	3	3	3	3	3	3	3	3	3	3	3
inlets	3	3	2	3	3	3	3	3	3	3	3	3	2	3	3	3	3	3	3	3	3
lateral channels	3	3	2	3	3	3	2	3	3	3	3	3	2	3	3	3	3	3	3	3	3
drainage patterns	3	2	1	2	2	3	2	2	2	2	3	3	2	2	3	3	3	2	2	3	3
<b>ICE AND SNOW</b>																					
glacial depth	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
glacial movement	2	2	1	1	2	2	1	2	1	2	2	2	1	1	2	2	2	1	1	2	2
snow cover	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3

Source: Adapted from a Handbook on Remote Sensing (for National Parks), Bird and Hale LTD. Toronto, Ontario.

Legend	
A	Metric Camera, Panchromatic Film, 1:10,000
B	Metric Camera, Panchromatic Film, 1:40,000
C	Metric Camera, Panchromatic Film, 1:120,000
D	Panoramic Camera, Panchromatic Film
E	Ultra High Resolution Camera, Panchromatic Film
F	Metric Camera, Color Film, 1:10,000
G	Metric Camera, Color Film, 1:40,000
H	Metric Camera, Color Film, 1:120,000
I	Panoramic Camera, Color Film
J	Ultra High Resolution Camera, Color Film
K	Metric Camera, Black and White Infrared Film, 1:10,000
L	Metric Camera, Black and White Infrared Film, 1:40,000
M	Metric Camera, Black and White Infrared Film, 1:120,000
N	Panoramic Camera, Black and White Infrared Film
O	Ultra High Resolution Camera, Black and White Infrared Film
P	Metric Camera, Color Infrared Film, 1:10,000
Q	Metric Camera, Color Infrared Film, 1:40,000
R	Metric Camera, Color Infrared Film, 1:120,000
S	Panoramic Camera, Color Infrared Film
T	Ultra High Resolution Camera, Color Infrared Film
U	Multi-spectral system

## Spectral, Spatial, and Temporal Coverage (Satellite Applications)

When considering the use of satellite imagery, spectral, spatial, and temporal coverage must also be considered. Satellite digital imagery usually provides fixed spatial and temporal coverage (SPOT being the exception). Spatial and temporal coverage of common satellite sensors is presented in Table 27. Spectrally, digital sensors utilize a wide range of the electromagnetic spectrum (Figure 7). EMR travels through space at a velocity of  $3 \times 10^8 \text{ M S}^{-1}$ . Interaction with the earth causes reflection or reradiation, which can be detected by various sensors (American Society of Photogrammetry 1983, pp. 37). The atmosphere limits which wavelengths reach the earth and which can be detected by sensors. We refer to *atmospheric windows* to describe *wavelengths* of EMR that can be transmitted through the atmosphere with little or no *attenuation*.



Source: adapted from Colwell, 1983. p. 40.

Figure 7. Electromagnetic radiation wavelengths with sensor designation and atmospheric attenuation levels.

The shaded areas, depicted in Figure 7, indicate areas of the electromagnetic spectrum (EMS) where EMR is absorbed or reflected by the atmosphere. The visual atmospheric window allows the human eye to perceive color (.4 to .7 μm.). Most photographic films record EMR at these wavelengths. Panchromatic films (listed in

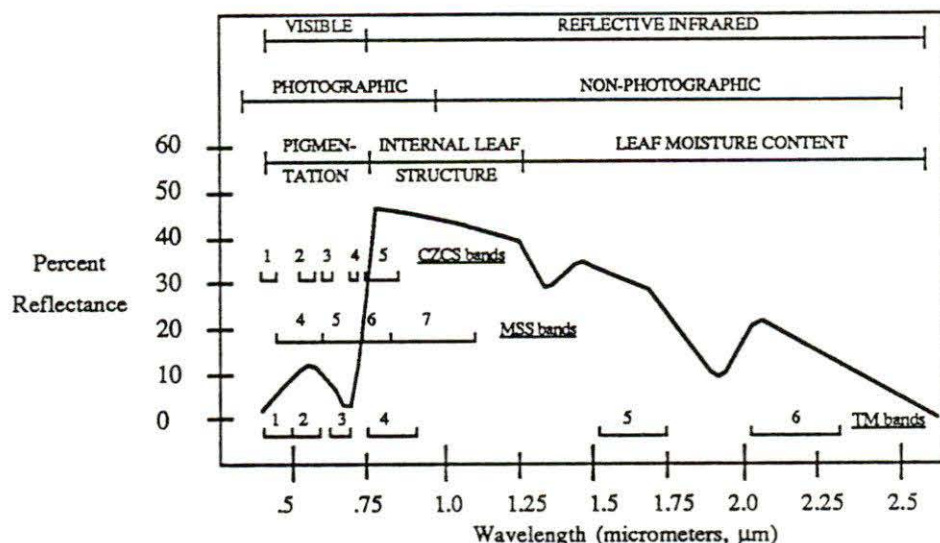
Table 25) record these levels and cover what is termed extended red (from .7 towards 1.1  $\mu\text{m}$ .). The *reflected IR* window allows sensing of the near IR spectrum. This window is especially useful in studies of vegetation and delineation of water from land. The *emitted infrared* window is open to thermal radiation emitted from the surface of objects. Common water resource applications include identification of thermal pollution, oceanographic and freshwater surface temperature mapping. The wavelengths beyond emitted IR are much longer in length, allowing penetration through atmospheric conditions that would normally attenuate or completely absorb shorter wavelengths. This region of the electromagnetic spectrum is used for radar and microwave sensing. The drop in atmospheric attenuation means day/night and all weather sensing is possible. Canada's first orbital remote sensing platform, Radarsat, will have this capability. A major application for this technology will be ice monitoring along the north and east coasts of Canada. See Selected Readings (p. 551), for more information on other longwave remote sensing applications.

The atmospheric windows, described above, allow sensing of certain wavelengths of EMR. Analogous to filters in aerial photography, spectral characteristics are controlled in satellite remote sensing by limiting sensors to specific *bandwidths*. Spectral resolution is determined in the design phase of satellites, according to proposed applications. The range of reflected wavelengths on land is generally much wider than reflected wavelengths on the ocean surface. Landsat is designed for terrestrial applications so broad spectral bands are selected. Sensors like the Coastal Zone Color Scanner (CZCS) are designed with narrower spectral bands resulting in higher spectral resolution (ability to resolve the difference between less discrete objects) than the broader band MSS and TM sensors. This sensor is designed for oceanographic and limnological applications where object/background reflectance ratios are lower than terrestrial counterparts. The bandwidths and designation numbers for MSS, TM, and CZCS are depicted in Figure 8.

## Radiometric Resolution

An advantage of digital data over photographic products is the potential to use *radiometric* values to identify and monitor environmental conditions. For any given band, a range of reflectance values are recorded by the sensor. This is termed radiometric resolution and is defined as the *quantization* of incident radiation upon the sensor (American Society of Photogrammetry, 1983, pp. 24). Radiation, incident upon MSS, is converted to a digital range of 0 to 63 resulting in a 64 level quantization. These are scaled to other ranges during ground based processing. TM bands 3 and 4 have 256 quantization levels providing an improvement in radiometric resolution over corresponding bandwidths of MSS. The trade off is the substantial cost of retrieving, storing and processing the larger amount of information generated by the TM sensor. The advantage gained is in enhanced monitoring of reflectance changes between objects and within objects, over time. An illustration of improved radiometric resolution can be obtained by comparing the TM scene (Plate 13) with an MSS scene (Plate 14) of similar spatial coverage. Some apparent differences are also due to spectral resolution. To illustrate the application of radiometric resolution, consider the reflectance

characteristics of a green leaf (Figure 8). Note the increased reflectance in the green range of .5-.6  $\mu\text{m}$ . A healthy leaf is able to reflect infrared radiation. Under stress the plant tissue loses water and reflects less radiation at this wavelength. The stress can be identified before it becomes apparent at visual wavelengths. This is identified by a drop in quantization levels in the reflected IR band. Superimposed over the *spectral reflectance curve* are three sensors with different spectral resolution characteristics. Selecting either MSS band 5 or 6, or TM band 4 would provide the necessary



Source: adapted from Lillesand and Kieffer, 1979. p.18.

Figure 8. Reflectance characteristics of green vegetation. Bandwidths of three satellite sensors are depicted.

reflectance to identify the desired characteristic. Because TM has better radiometric resolution (256 levels) less discrete changes in quantization levels can be identified resulting in easier and faster discrimination of stress in the green leaf.

## Spatial Resolution

A final consideration under the heading data acquisition (Figure 6), are two spatial parameters: swath width and pixel resolution. The pixel resolution of a sensor is the minimum area that can be resolved in a particular image. Spatial resolution is the area that one image encompasses. Table 27 describes the spatial characteristics of MSS, TM, SPOT and NOAA. At the beginning of Section 2 (pp. 157, 158, 255, and 256) the spatial coverage of MSS and TM are presented. Plate 15 shows the coverage of one scene of NOAA. The photo inset illustrates the pixel resolution of NOAA. The orbital path and coverage of one (nadir) image of SPOT is presented on page 471. Smaller pixel resolution and greater quantization sensitivity results in lower resolvable object/background ratios.

To illustrate the differences in spatial resolution a section of the Outlet Lakes region is presented. TM, MSS, NOAA, and MEIS (a high resolution airborne sensor) are presented in Plates 13 to 16. The MEIS data is comparable to aerial photographs in

scale but much more versatile because of the digital format and narrow band sensitivity. The other satellite sensors differ considerably in spatial and pixel resolution (Table 27).

Plate 13 (TM) and Plate 14 (MSS) cover approximately the same area. The improved resolution of the TM scene is due to a combination of factors, including smaller pixel resolution, narrower bands, and improved radiometric resolution. NOAA images provide repetitive coverage several times per day, have large spatial coverage, and are inexpensive.

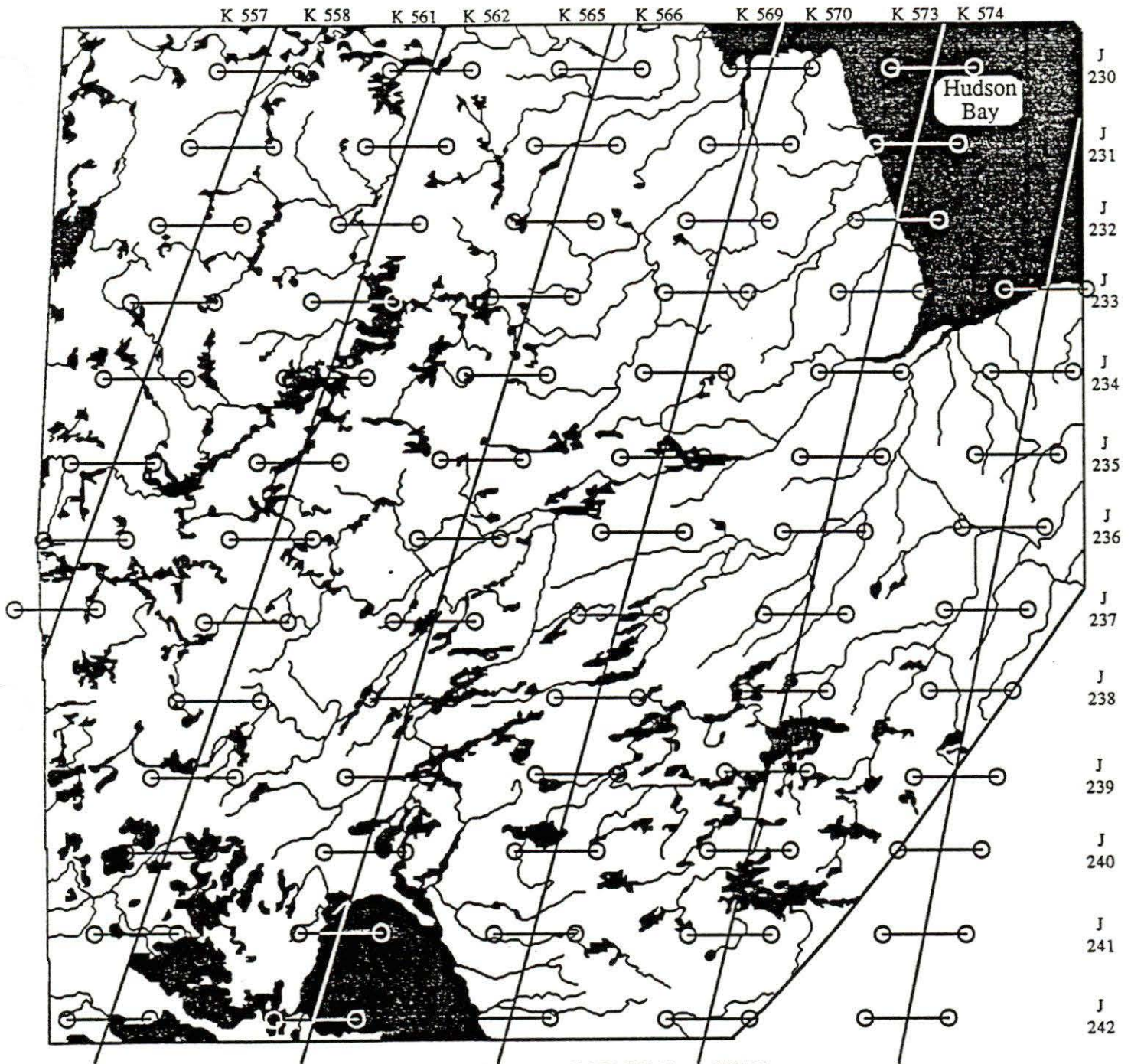
Plate 13 (TM) and Plate 14 (MSS) are cropped from a full scene transparency with no enlargement or reduction. Plate 15 (NOAA) and Plate 16 (MEIS) are photographed from a computer monitor display of digital data.

Table 27. Specifications of satellite sensors.

Satellite	Sensor	Band Designations Band No. & Wavelength ( $\mu\text{m}$ )	Resolution		Swath Width (km)	Altitude (km)	Repeat Coverage
			Visual/NIR	Thermal			
Landsat 1 - 3	MSS- Multispectral Scanner	4 (.50-.60); 5 (.60-.70) 6 (.70-.80); 7 (.80-1.1)	79 m 79 m		185	900	14 days
Landsat 4 - 5	MSS- Multispectral Scanner	1 (.50-.60); 2 (.60-.70) 3 (.70-.80); 4 (.80-1.1)	79 m 79 m		185	705	16 days
	TM- Thematic Mapper	1 (.45-.52); 2 (.52-.60) 3 (.63-.69); 4 (.76-.90) 5 (1.55-1.75); 6 (2.02-2.35) 7 (10.40-12.50)	30 m 30 m 30 m	120 m			
Spot	HRV- High Resolution Visible MSS mode Panchromatic mode	(.50-.59); (.61-.68) (.79-.89) (.51-.73)	20m 20m 10m		60-80	832	26 days *
NOAA 6 - 9	AVHRR- Advanced Very High Resolution Radiometer	1 (.55-.90); 2 (.725-.10) 3 (3.55-3.93); 4 (10.5-11.5) 5 (11.5-12.5)	1 km	1 km 1 km	1500	833	several per day

\* Due to the off nadir viewing capability of the HRV a particular geographic area can be viewed up to 11 times during the 26 - day period.

# SPOT Index Map



Source: adapted from SPOT Grid Reference System, Canada, 1 : 5 000 000, Sheet GRS 11.

<p><b>Index</b></p>	<p><b>Couple of Scenes</b></p> <p>A K 565 J 240</p> <p>B K 566 J 240</p>	<p>K 569 / K 570</p>
	<p><b>Couple of Scenes</b></p> <p>C K 565 J 241</p> <p>D K 566 J 241</p>	



Scale: ~ 1 : 6,500,000

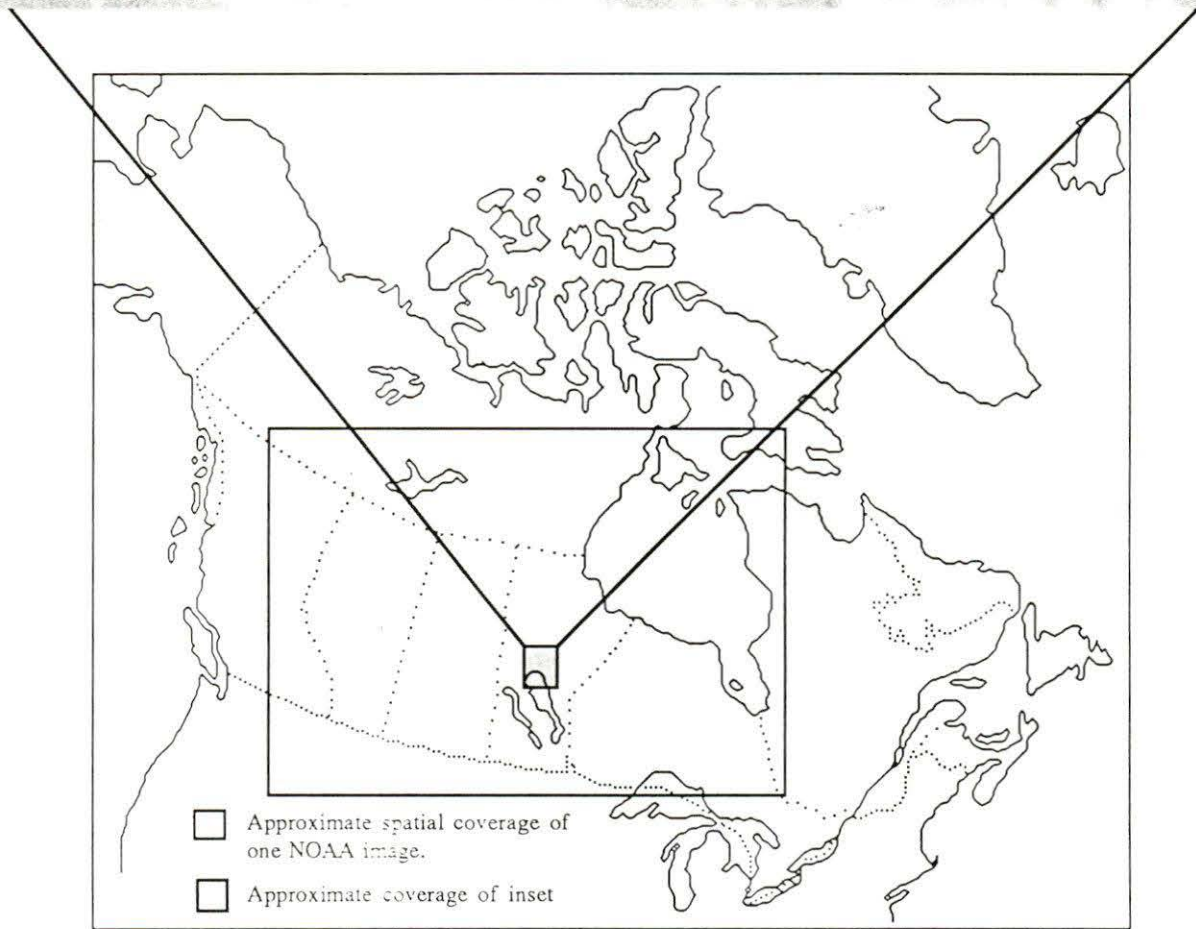


Landsat color composite TM (bands 2, 3 and 4) image of the Outlet Lakes. Image was acquired May 27, 1986. Increase radiometric resolution is apparent if compared to Plate 14.



Landsat MSS color composite (bands 4, 5 and 7) of Outlet Lakes. Image was acquired July 4, 1974. MSS and TM (Plate 13) have the same spatial coverage but TM has improved pixel and radiometric resolution.





NOAA image showing the Outlet Lakes area. Images are available several times per day. Data is most appropriate for macroscale water turbidity and thermal mapping. Ice breakup patterns can be identified on large water bodies.



.521 UM

.673 UM

4745 1000

KETTLE ISLAND  
PLAYGREEN L.  
17 JULY 1984  
-MEIS-

MEIS image of Kettle Island on Playgreen Lake. The high resolution section contains references to this type of remote sensing data. Particulars of image acquisition are recorded on the image. Photo courtesy of MacLaren Plansearch Inc.

## Data Interpretation

This section deals with the second component of the remote sensing process (Figure 6). Our description of data interpretation is limited to computer assisted image analysis of digital data. An uncorrected MSS digital tape (path 31, row 22, October 1, 1985) was provided by the Manitoba Remote Sensing Centre. We performed several application routines to show apparent advantages of using digital data rather than photographic renditions. To illustrate interpretation techniques we present an original image (image A) and the image resulting from the analysis technique (image B), as 35 mm photographs of the image analysis screen. The technique and application considerations are described. The digital image analysis system is a Dipix Aries II, resident at the Manitoba Remote Sensing Centre. Operation of the system is by E.M.S.I. Plates 17 to 20 depict the techniques used.

### Geometric Correction

Plate 17 shows two images of Split Lake, Manitoba. Image A is uncorrected and Image B is corrected for geometric distortion. Correction of the image removes errors incurred while imaging. Errors are incurred due to variations in attitude and altitude of the satellite, earth rotation during image acquisition, and scanning mechanics of the sensor. The correction of digital imagery affects the radiometric values of each pixel but is necessary to produce output products with geometric fidelity, such as the map presented in Plate 20. The routine uses input locations determined from topographical maps correct for geometric distortions. The software provides a measure of accuracy for the correction so alignment of ground truth information can be done with an estimate of variability.

### Stretching Techniques

Plate 18 depicts a method of obtaining maximum radiometric differentiation over a restricted range of reflectance values in a digital image. Image A presents three spectral bands (6, 5, and 4) of Stephens Lake. Turbidity discrimination in the Lake is minimal. For illustrative purposes, consider a hypothetical situation where radiometric values range from 0 to 63. The reflectance characteristics of the lake may display values between 30 and 45, within this 64 quantization range. Because radiometric values are displayed over the full 64 level range, differentiation of reflectance values in the water are not apparent in Image A. In image B, the 30 to 45 range is scaled over the full display capabilities of 0 to 63, producing increased differentiation of water color and decreased delineation of land reflectance values. The *linear stretch* equally distributes

Table 28. Satellite Remote Sensing consideration for water resource applications<sup>◇</sup>.

	Digital Remote Sensors						
	A	B	C	D	E	F	G
<b>HYDROLOGY</b>							
<b>STANDING WATER</b>							
area	0	0	2	0	2	3	3
depth	0	0	0	0	0	0	2
shoreline length	0	0	2	0	2	3	3
wave climate	0	2	0	0	0	3	3
circulation pattern	0	0	2	0	0	0	2
ice cover	0	2	2	2	2	2	2
suspended sediment	*	0	2	0	*	*	3
wave approach	*	0	0	0	*	*	0
breaking waves	*	0	0	0	0	*	0
<b>FLOWING WATER</b>							
suspended sediment	*	0	2	0	*	*	3
river plumes	*	0	2	0	*	*	3
stream velocity	0	0	0	0	0	0	2
stream width	0	0	2	0	0	0	3
stream depth	0	0	0	0	0	0	2
ice cover	0	2	2	2	2	2	2
tides	0	0	0	0	0	0	0
bottom material	1	1	1	1	1	0	1
impediments to navigation	0	0	0	0	0	0	0
<b>HYDROGRAPHIC FORMS</b>							
bathymetric relief	*	0	0	0	*	*	0
submarine features	*	0	0	0	*	*	0
shoals	*	0	0	0	*	*	1
river mouths	*	0	3	0	*	*	3
inlets	*	0	3	0	*	*	3
tidal channels	*	0	3	0	*	*	3
drainage patterns	*	0	3	0	*	*	3
<b>ICE AND SNOW</b>							
glacial depth	0	0	0	2	2	0	0
glacial movement	0	0	2	0	2	2	2
snow cover	0	2	2	2	3	3	3

◇ Source: Adapted from a Handbook on Remote Sensing (for National Parks), Bird and Hale LTD. Toronto, Ontario.

Legend	
A	Ultra-violet Scanner
B	Thermal Infrared Radiometer/Spectrometer (Point data)
C	Thermal Infrared Scanner
D	Microwave Radiometer (Point data only)
E	Microwave Scanner
F	Radar (SLAR)
G	Multi-spectral Scanner
0	Not applicable
1	Poor tool
2	Fair tool
3	Good tool
*	Unknown

the 30 to 45 range into the 0 to 63 range. Other types of contrast stretches can be done to highlight different radiometric characteristics.

### Quantitative Analysis

Plate 19 illustrates a classification of the radiometric values of Band 5. The colors in Stephens Lake represent the reflectance characteristics of different turbidity levels at the time of imaging. Because the image has been geometrically corrected the area covered by one pixel has been standardized. The number of pixels at a given radiometric level can be used to calculate the area of each reflectance theme (Table 29).

Table 29. Area calculations of themes, Stephens Lake.

Theme No.	Theme Color	No. Pixels	Area (ha)	Area (%)	Comments
1	Yellow	3246	3377.1	10.7	Very Turbid
2	Orange	6881	7159.0	22.7	↓
3	Red	17453	18158.1	57.6	
4	Light Blue	1967	2046.5	6.5	
5	Dark Blue	765	795.9	2.5	Less Turbid

Different types of information can be obtained from radiometric values. We illustrate with a hypothetical example which uses the relationship between suspended particulate matter and reflectance characteristics (Figure 10). If ground truth information on parts per million suspended sediment is obtained at the time of imaging, quantitative data on sediment loads can be determined over the spatial extent of the Lake. Hypothetical transects 1, 2, and 3 are placed on Plate 19 to illustrate the flexibility of the image analysis system. Radiometric values for each pixel along the transect are presented (Figures 9 to 11).

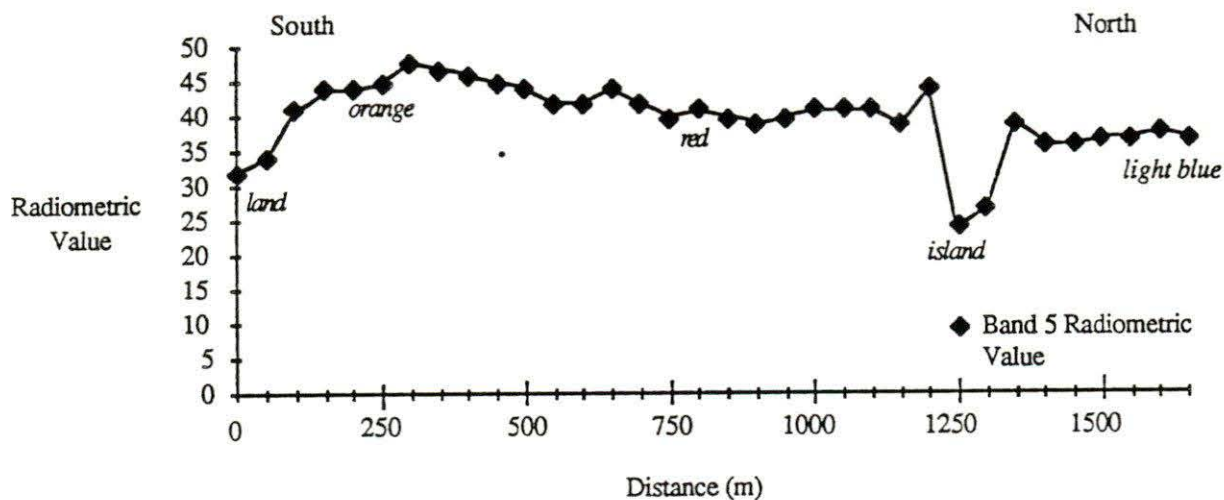


Figure 9. Stephens Lake, band 5 radiometric values for transect 1.

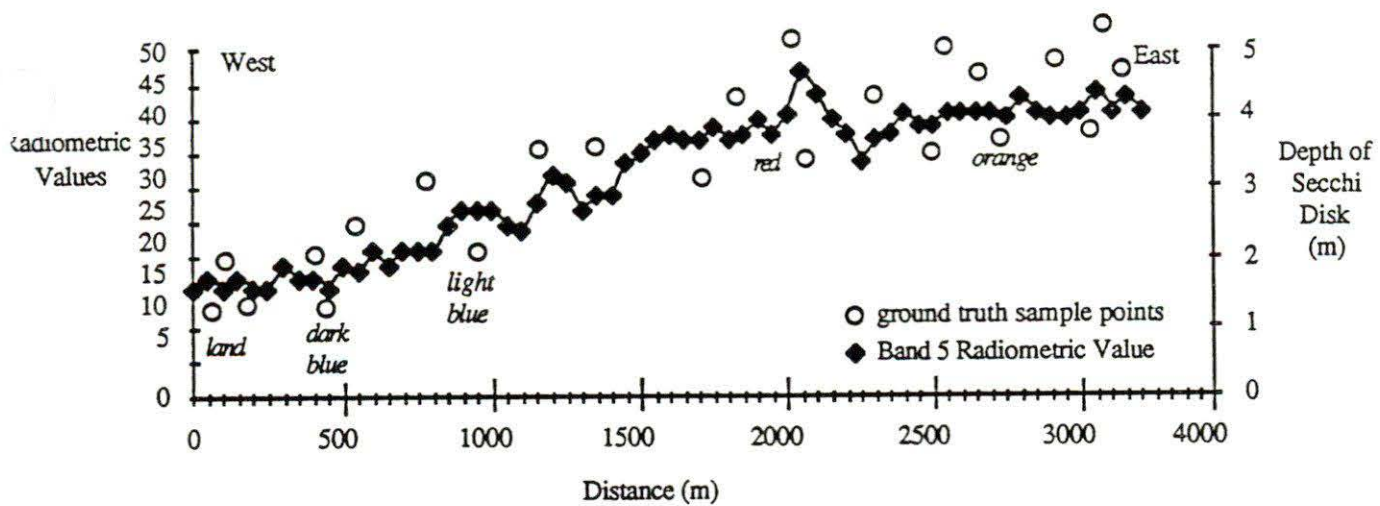


Figure 10. Stephens Lake, band 5 radiometric values for transect 2 and ground truthing illustration.

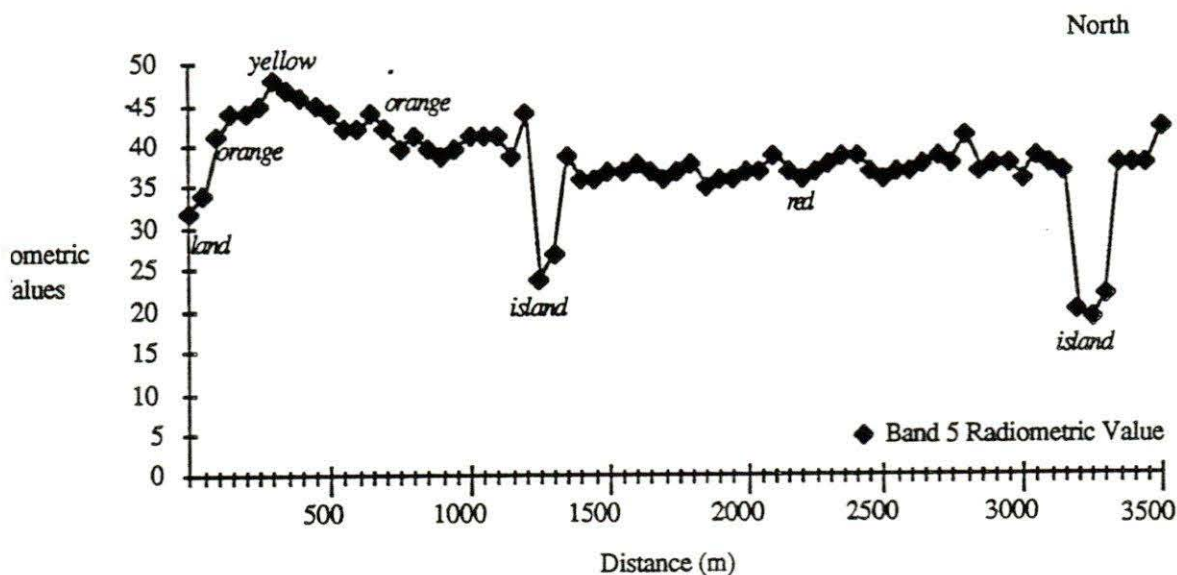


Figure 11. Stephens Lake, band 5 radiometric values for transect 3.

## Output Products

The Manitoba Remote Sensing Centre has recently acquired two new digital image analysis work stations, making a total of three. They have also invested in two output production peripherals. The Quick Color Recorder (QCR) provides color photographs of the image analysis screen, on photographic film of various formats. Plate 20 is an example of the output of the other peripheral available with the image analysis system. The Applicon Plotter produces maps at a variety of scales. Plate 20 is reduced from a 34 inches by 22 inches map sheet at 1:125,000.

## Time Series Analysis

A powerful feature of satellite remote sensing is the archival of images over time. Archived MSS data (presented in Section 2) consists of 1532 images over the last 15 years. If one considers that TM, NOAA, and SPOT are in operation and other satellites are soon to be launched, the amount of data available for monitoring time related change is tremendous and growing quickly. To illustrate this feature an example of time series coverage, for the Outlet Lakes region, is depicted in Plates 21 to 23.

## Conclusion

We have presented examples which show that remote sensing can be an effective tool in resource management. There are limitations to this tool and these should be researched before proceeding with any remote sensing investigation. For example, the amount of cloud cover that typically occurs in northern Manitoba restricts the number of useful images. When there is no apparent cloud, the atmosphere may still contain a variety of attenuating particles at different concentrations. Variable air masses can cause radiometric differences when none exist at the object. Given these limitations, remote sensing still provides a tool for monitoring aquatic and terrestrial systems in a manner previously impossible. If applied using standard scientific methods, remote sensing is a very powerful tool for resource management.

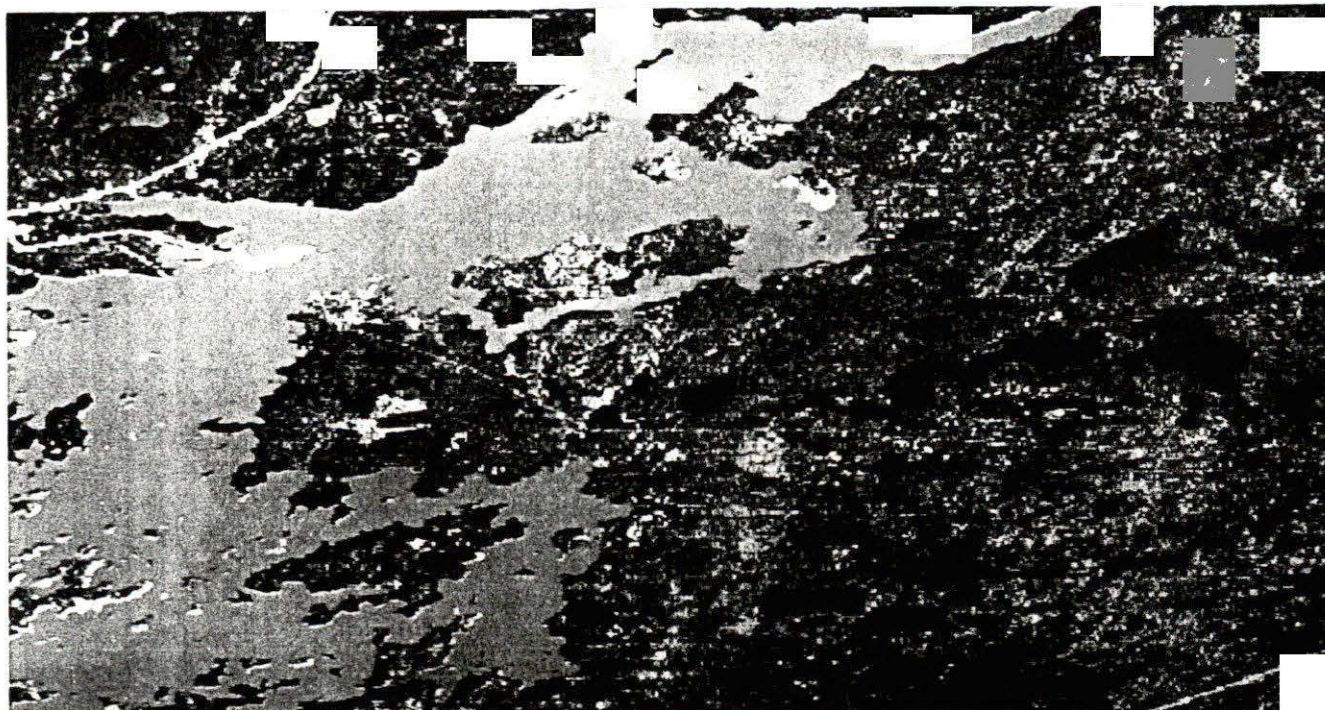


Image A



Image B

### Geometric correction

Image A - uncorrected MSS image of Split Lake. Geometric distortion is apparent when compared with a map. Image B - geometrically corrected MSS image. Geometric accuracy is within several meters.



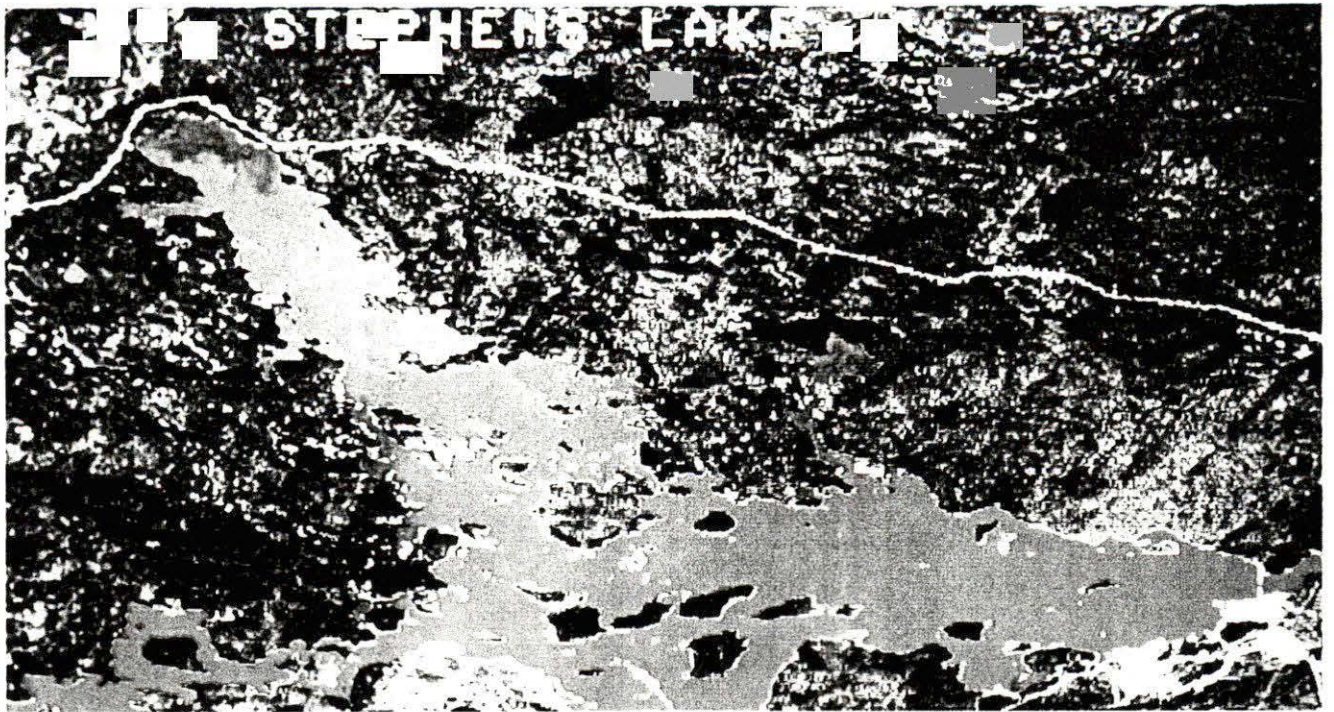


Image A

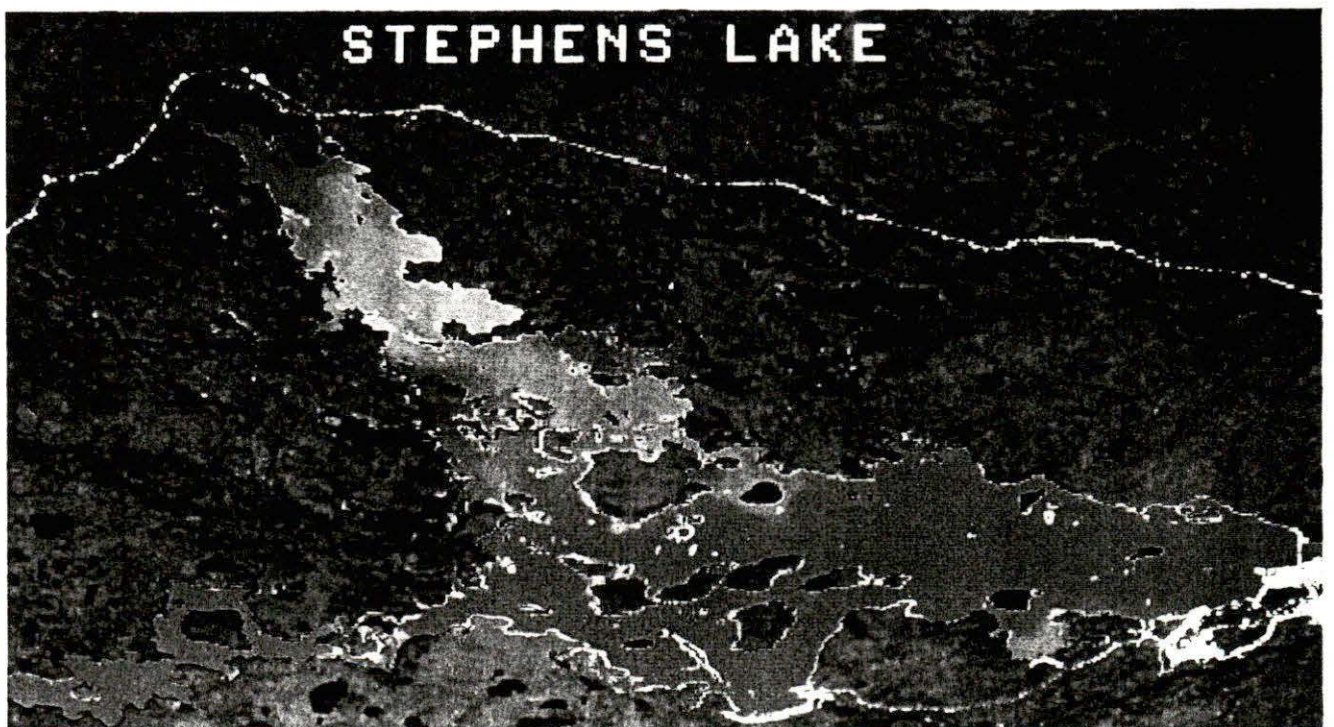
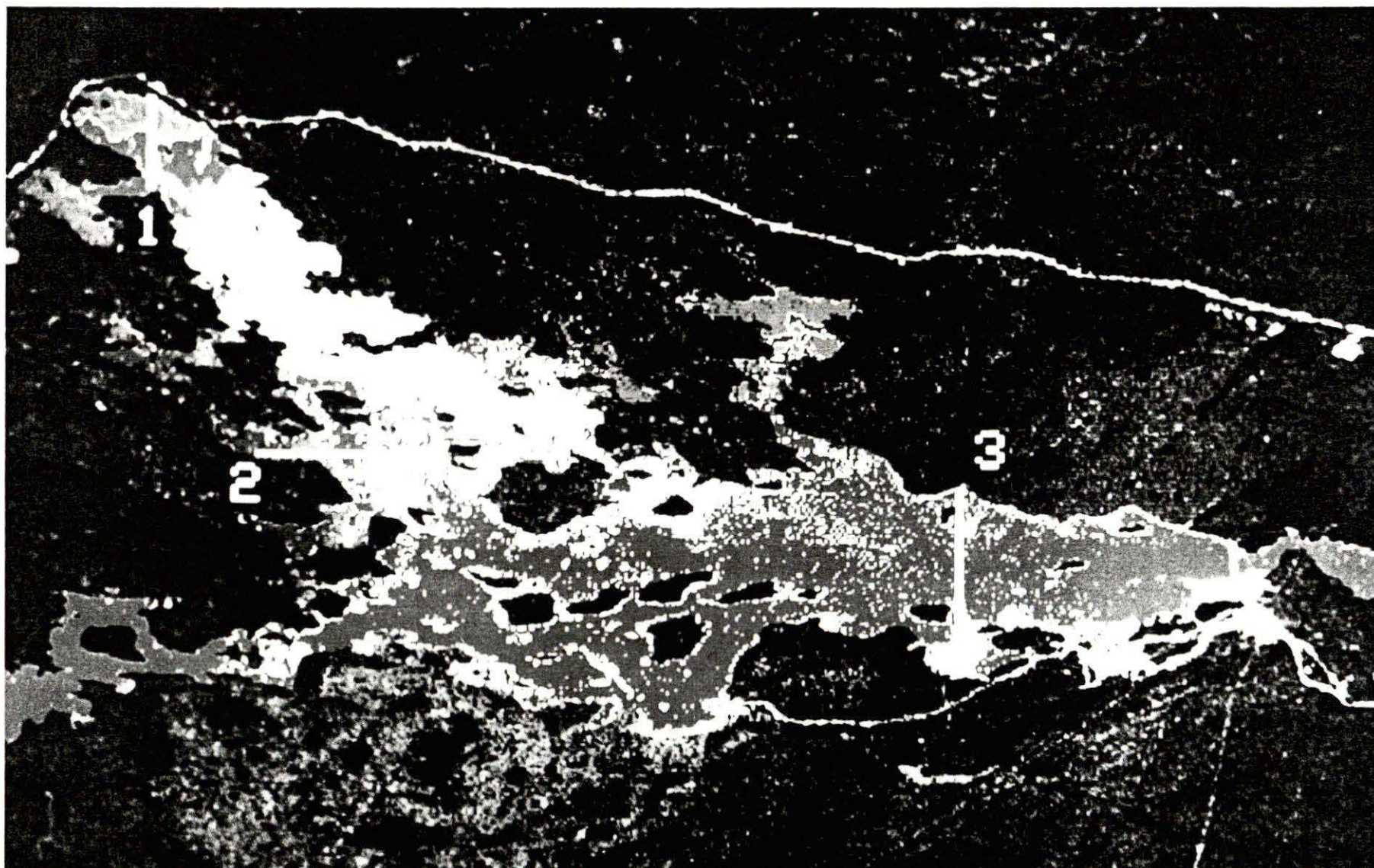


Image B

**Linear stretch**

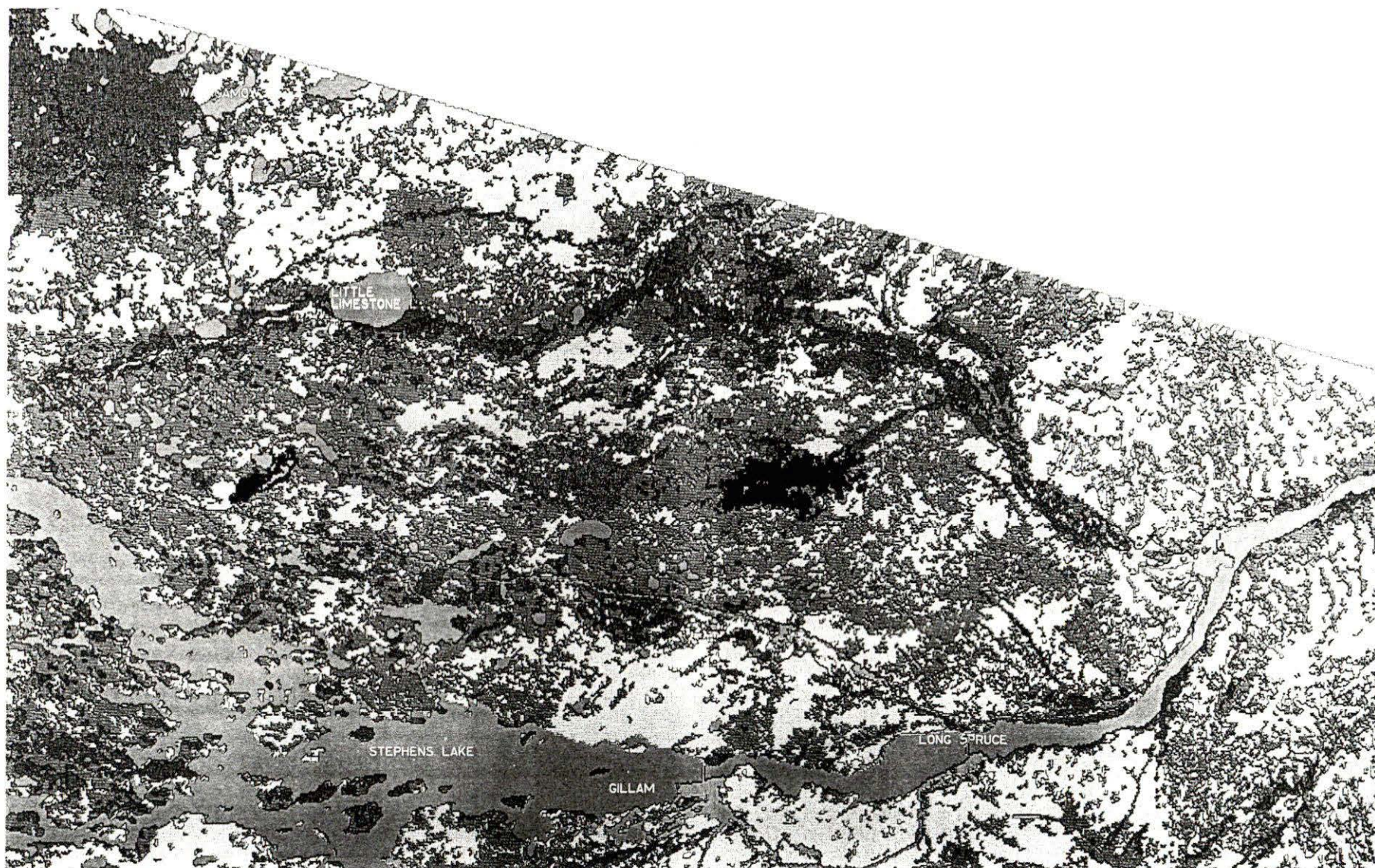
Image A - MSS color composite image. Water turbidity variation is minimal.

Image B - band 5 MSS image enhanced to display variation in water turbidity. Lighter colored water is more turbid.



### Quantitative analysis

Classification of an MSS image for water turbidity. Colors represent distinct radiometric values in Band 5. The quantitative data is generated by calculating the number of pixels in each of the classified areas. The land has not been classified in this image.



### Output product

An appicon plot depicting a land classification. A variety of scales are available. The plotter is located at the MRSC. This plate has been cropped from the original map.



Image A

Image A - Outlet Lakes.  
Image acquired February 15, 1973.

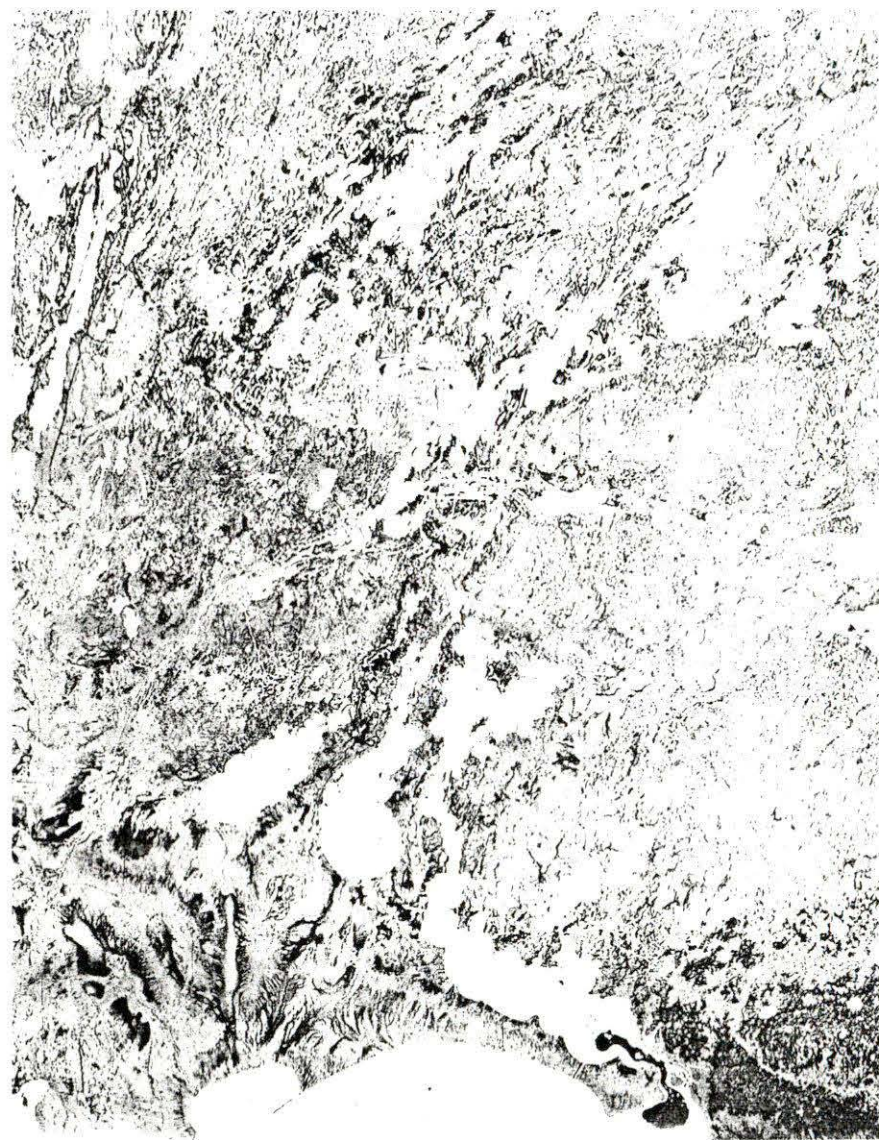


Image B

Image B - Outlet Lakes.  
Image acquired April 28, 1973.

Time Series



Image A

Image A - Outlet Lakes.  
Image acquired May 16, 1973.



Image B

Image B - Outlet Lakes.  
Image acquired July 28, 1973.

Time Series



Image A

Image A - Outlet Lakes.  
Image acquired September 19, 1973.



Image B

Image B - Outlet Lakes.  
Image acquired November 30, 1973.

Time Series

# Appendices

A - G

## Appendix A

### Supplementary Data to Section 1 Aerial Photography



Table 30. Description of supplementary aerial photographic data in Appendix A.

Header	Description
Block No.	Same block number used on the aerial photography data map.
Reference No.	Reference system for the microfiche card catalogue. Example: 9-64B refers to microfiche card 9 and NTS map (1:250,000) 64B.
Filters	Identifies filters used in photo survey.
f (mm)	Identifies focal length of aerial camera in millimeters unless otherwise specified.
Comments	General comments identifying survey site, quality of imagery, or purpose of survey.

Block No.	Reference No. - (for flightline data)	Filters	f (mm)	Comments
1	10-63J,I	NA	6 in.	Complete coverage
2	6-63G; &63H	NA	8.25	
3	6-63I	NA	6 in.	One transect
4	5-63P; 12-63I	NA	6 in.	Complete coverage
5	7-63G	NA	153.5	
6	7-63G	NA	152.91	Good coverage along shorelines, Lake Winnipeg
7	7&8-63I, 7-63H	NA	6 in.	Complete coverage, misc. coverage for 1953-54.
7	13&14-63J,7-63P, 6-63O	NA	6 in.	Complete coverage
8	12-63J	NA	6 in.	
9	5-63P	NA	6 in.	
10	7-63P, 5-63O	NA	154.4	Poor quality microfiche, boundries not precise
11	MBH-63J,G,H	NA	6 in.	Lake Winnipeg Regulation
12	10-63G, 8-63H	NA	6 in.	Complete coverage 63G
13	11-63G, 9-63H	NA	152.13	
14	7-63H, 14-63I	NA	152.47	Norway House
15	16-63J	NA	6 in.	
16	19-63J	NA	152.164	Minago R.
17	9-63I, 8-63P	NA	152.16	Two transects
18	13A-63I	NA	152.07	One transect, Cross Lake
19	8A-63H	NA	152.07	Warren Landing
20	8A-63H	NA	152.07	Norway House
21	17-63J, 14-63I	NA	152.13	Cross Lake area, Hydro survey
22	19-63J	NA	152.17	
23	11-63I,14-63I,11-63P,9-63P	NA	152.63	
23	9-63O,11-63P,19-63J,7-63O,15-63J	NA	152.63	
24	13-63I	NA	152.16	
25	13-63J	NA	152.47	Cross Lake IR.
26	10-63P	NA	152.17	One transect
27	10-63P	NA	152.14	
28	10A-63P	NA	152.07	One transect, Thicket Portage
29	13-63I,17-63J	NA	152.17	
30	11-63G	NA	152.51	Photography not suitable for mapping
31	13-63G	Nav	85	Color photography supported by multiband aerial photo. data
32	24-63G	NA	152.4	2 Mile Channel
33	9-63H	NA	152.23	Norway House
34	18-63J	NA	152.164	West Channel
35	22-63I	NA	152.678	Cross Lake
36	12-63P, 10-63O	NA	152.164	One transect
37	15-63G	NA	88.112	Coverage may not be complete
38	15-63G, 20-63J	NA	152.135	
39	23-63G	NA	152.4	2 Mile Channel
40	14-63H	NA	153.14	
41	22-63J	NA	152	Jenpeg Area, Hydro Dams
42	23-63J	NA	152	Hydro Dams
43	25-63J	NA	152.51	
44	15-63P	NA	152.74	
45	26-63G, 28-63I,18-63H,25-63P	NA	153.22	Playgreen Lake
46	26-63G	NA	153.22	Lake shore coverage (and inland)
47	16-63H	NA	152.6	Warren Landing
48	16-63H	NA	6 in.	Norway House / Nelson R. (East Channel)
48	17-63H	NA	152.67	Norway House
49	11-63H, 30-63J	NA	152	Norway House - Jenpeg area
50	35-63J	NA	152.4	
51	36-63J	NA	152.4	
52	23-63I	NA	152.4	
53	29-63I	NA	NA	Cross Lake IR
54	33-63I	NA	153.263	Cross Lake IR
55	31-63G	NA	152.92	Playgreen Lake/ Lake Winnipeg
56, 56.1	32-63G	NA	153.37	Coverage including Norway House; single transect
57	24-63H	NA	NA	Warren Landing
58	21-63H	NA	6 in.	Norway House
59	33-63J	NA	3 in.	Reconnaissance data not suitable for mapping purposes
60	34-63J	NA	NA	Reconnaissance
60.1	34-63J	NA	NA	Reconnaissance

Block No.	Reference No. - (for flightline data)	Filters	f (mm)	Comments
60.2	34-63J	NA	NA	Reconnaissance
61	22A-63I, 36A-63J	NA	88.4	Cross Lake to Waboden
62	24-63I	NA	152.4	
63	38-63J, 37-63J	NA	152.4	
64	39-63J	NA	152.4	Coverage may continue to next map sheet, not found
65	19-63I	NA	88.44	
66	12-63H	NA	152.51	
67	41-63J	NA	152.29	Jenpeg
68	9-63H	NA	152.135	
69	45-63J	NA	153.26	Waboden
70	25-63O, 46-63J	NA	153.92	
71	20-63I	NA	152.66	Cross Lake
72	26-63O, 49-63J	NA	153.37	
73	26-63I	NA	152.67	Cross Lake IR
74	26-63O	NA	153.22	One transect
75	34-63I	NA	NA	
76	34-63I	NA	NA	Hydro East Channel (Nelson R.)
77	35-63I	NA	NA	Reconnaissance (Survey Targets)
78	MBH-63J,I,G,H	NA	153.236	Lake Winnipeg Regulation
79	MBH-63G	NA	6 in.	2 Mile Channel
80	MBH-63J	NA	6 in.	8 Mile Channel
81	MBH-63I	NA	152.67	Cross Lake I.R.
82	MBH-63I	NA	152.676	Whitemud Falls
83	MBH-63J	NA	6 in.	
84	MBH-63J,I	NA	6 in.	Scale varies, Sipwes L.- Cross L.
85	MBH-63I	NA	6 in.	Cross Lake I.R.
86	MBH-63I	NA	6 in.	Whitemud Falls area
87	MBH-63J,I	NA	6 in.	Cross Lake
88	35-63G	NA	88.19	
89	53-63J, 40-63I, 39-63P, 33-63O	NA	152.034	Forest inventory survey
90	39-63I	NA	NA	Cross Lake - Low water levels
91	36-63G, 52-63J	NA	152.034	Forest inventory survey, lake shore coverage
92	51-63J	NA	88	Same area covered in 1976-79, see cards 43,46 and 49-63J
93	41-63I/12	NA	152.031	Cross Lake Airfield Area
94	MPS - 63H,G	420 nm	6 in.	Testing of peat deposition in Playgreen Lake
95	Proposed	NA	6 in.	Forestry inventory
96	Proposed	NA	6 in.	Norway House, 1:4000 (all); parts at 1:5000 & 1:20000
97	6-54D, 3-54C, 3-64A	NA	6 in.	Note: scale may vary
98	3-54F, 1-54B, 1-54G&H	NA	6 in.	Note: scale may vary
99	7-54D/SW	NA	6 in.	conflicting dates, assuming 1947
100	4-64A	NA	6 in.	Complete coverage
101	9-54D, 5-54C, 3-53M, 4-54F	NA	6 in.	Nelson R.
102	8-54D, 5-64A, 4-54C, 5-54F	NA	6 in.	Complete coverage
103	8-54C, 1054D	NA	152.14	Nelson R.
104	11-54D, 6-54C	NA	152.14	Nelson R.
105	12A-54D	NA	152.07	Ilford
106	6-64A	NA	152.38	Kelsey
107	12-54D, 7-54C	NA	152.38	Nelson R.
108	7-64A, 13-54D	NA	152.29	
109	12A-54D	NA	152.07	Amery
110	7A-64A	NA	152.07	Split Lake
110.1	7A-64A	NA	152.07	Split Lake
111	8-64D	NA	153.37	
112	13-54D	NA	152.14	
113	14-54D	NA	152.14	
114	14-54D	NA	152.17	
115	15-54D	NA	152.14	
116	15-54D	NA	152.17	
117	9-54C, 6-54F	NA	152.16	Nelson R.
118	9-64A	NA	153.37	Split Lake I.R.
119	9-64A	NA	153.37	Split Lake I.R.
120	MBH-54D	NA	6 in.	
121	MBH-54D	NA	6 in.	
122	MBH-54D/2	NA	152.44	

Block No.	Reference No. - (for flightline data)	Filters	f (mm)	Comments
123	MBH-54D,C	NA	6 in.	Kettle Rapids - Seal Island
124	MBH-54D	NA	6 in.	
125	13-54D	NA	152.164	Single transect
125.1	9-54C	NA	152.164	Single transect
126	13-54D,10-54C,6-54F	NA	153.225	Nelson R. including North Seal & Harts Creek.
127	16-54D	NA	NA	Gillam, Ilford
128	30-54D	NA	152.92	
129	4-54G&H	Nav	3 in.	Supports 70mm MBD (Multi-Band Data)
130	14-54D	NA	152.43	Limestone R.
130.1	14-54D	NA	152.43	Long Spruce Rapids
131	14-54D	NA	152.43	Stephens Lake
132	31-54D	NA	153.337	
133	31-54D	NA	85.55	
134	15-54D,9-54C	NA	153.225	
135	27-54D	NA	152.67	Gillam
136	28-54D	NA	153.263	Ilford
137	17-54D,11-54C	NA	85	Nelson R. ; supports 70mm MBD (Multi-Band Data)
138	18-54D	NA	85	Supports 70mm MBD
139	19-54D	NA	85	One transect, supports 70mm MBD
140	20-54D	NA	3 in.	One transect, supporting 70mm MBD
141	14-54C	NA	3.47 in.	Single transect
142	10-54E	NA	152.667	
143	22-54D,15-54C	NA	152.388	
143.1	22-54D,15-54C	NA	152.667	
144	24-54D	NA	152.67	Ilford
144	24-54D	NA	153.22	Ilford
145	5-54G&H,7-54F	NA	152.667	
146	25-54D,16-54C	NA	152.421	
147	6-54G&H	NA	152.421	
148	MBH-54D	NA	6 in.	Long Spruce/Kettle
149	MBH-54D	NA	152.67	Kettle G.S. - Forebay area
150	MBH-64A	NA	153.011	Kelsey
151	MBH-64A	NA	6 in.	Split Lake I.R. and York Landing I.R.
152	MBH-54D	NA	152.67	Kettle G.S. - Limestone
153	MBH-54D/5	NA	6 in.	Gull Lake - Kettle Rapids
154	MBH-54D/16	NA	6 in.	Long Spruce G.S. - Limestone G.S.
155	MBH-54D	NA	6 in.	Gull Rapids and Birthday Rapids
156	MBH-54D	NA	6 in.	Clark Lake - Gull Lake (Nelson R.)
157	32-54D	NA	152.034	Manitoba Hydro flight, Stephan Lake
158	33-54D	NA	152.94	Hydro, Churchill transmission
159	34-54D/9	NA	152.031	Nelson R. East of Long Spruce Station
160	35-54D	NA	152.031	Hydro, Limestone G.S.
160.1	20-54C	NA	152.031	Nelson R.
161	36-54D	NA	152.031	Limestone G.S. and River
162	MBH-54D,64A	NA	152.031	Nelson River: Split L. - Stephans L.
163	Proposed (Manitoba Hydro)	NA	6 in.	Limestone Generating Station; general work area
164	Proposed (Manitoba Hydro)	NA	6 in.	Kettle - Henday (transmission line corridor)
165	MBH-54D	NA	152.031	Nelson River
166	MBH-54D	NA	152.031	Long Spruce Town Site
167	MBH-54C	NA	152.031	Nelson River
167a	DF2-54F	Nav	152.614	Marine mammal survey
167b	DF2-54F	Nav	152.614	Marine mammal survey
168	4-63O, 3-64A	NA	6 in.	
168.1	4-63O, 3-64A	NA	6 in.	
169	4-63O	NA	6 in.	
170	2-64B,3-64A	NA	6 in.	Scale may vary
171	3-64B,4-64A,5-63P,12-63I	NA	153.65	
172	6-63O,5-64B,5-64A, 7-63P	NA	6 in.	Complete coverage
173	5-63O, 6-63P	NA	151.65	
174	7-63O, 9-63P, 7-64A	NA	152.51	
175	MBH-64A	NA	6 in.	
176	7-63O	NA	152.32	Nelson House IR.
177	5A-64B & 8A-64C	NA	152.71	Leaf Rapids/Churchill R.
178	8A-63O	NA	152.07	Nelson House

Block No.	Reference No. - (for flightline data)	Filters	f (mm)	Comments
179	9-63O, 11-63P, 6-64B,8-64A	NA	153.22	
180	10A-63P	NA	152.07	Thicket Portage
180.1	10A-63P	NA	152.07	Pikwironei
181	11-63P	NA	152.47	
182	6-64B, 6-64H, 4-64G	NA	152.52	
183	12-63P	NA	152.14	
184	8-63O, 6-64B	NA	152.52	
185	12-63P	NA	152.17	
186	12-63P	NA	152.17	
187	12-63P	NA	152.14	
188	6-64A	NA	152.38	Kelsey
189	7-64B	NA	152.52	
190	10-63O	NA	152.164	
191	10-63O, 12-63P	NA	152.164	Single transect
192	13-63O	Nav	3.5 in.	Coverage of Burntwood R.
193	23-63O	NA	NA	Wapisu L.
194	34A-63P/12	NA	NA	Thompson Mine
195	10-64A	NA	152.66	Grass R./Kelsey
196	13-64A, 15-64B	NA	153.674	
196.1	15-64B	NA	153.674	Gap lines
197	9A-64B	NA	6 in.	South Indian Lake I.R.
198	15-64B	NA	152.07	Gap lines
198.1	15-64B	NA	152.07	Gap lines
198.2	15-64B	NA	152.07	Gap lines
199	11-63O	NA	152.135	
200	18-63O/14	NA	152.29	Rat R.(Notigi L.)
201	24-63O	NA	152.67	Nelson House IR.
202	26-63O	NA	153.22	One transect
203	13-63P	NA	152.66	
204	16-64A,25-64B	NA	152.67	
205	10-64B	Nav 2.2x	3.5 in.	Supports MBD (Multi-Band Data)
206	12-63O, 15-63P	NA	152.47	
207	20-63O	NA	153.263	
208	20-63O	NA	152.67	Nelson House
209	26-63O, 20-63N	NA	153.337	
209.1	25-64B,11-64G, 26-63O	NA	153.34	
210	18-63P/5	NA	6 in.	Thicket Portage
211	19-63P	NA	6 in.	Pikwitonei
212	24-63P	NA	NA	Two photo frames
213	34-63P	NA	NA	Thompson & Burntwood River
214	15-64A	NA	NA	Assean L.
215	15-64A	NA	NA	Kelsey, Nelson R.
216	15-64B	NA	152.07	Gap lines
217	15-64B	NA	152.07	Two transects
218	18-63O/14	NA	NA	Rat R. - Notigi L. (Dept. Hwys)
219	21-63O	NA	NA	One transect
220	12-64B	520nm AV 3.3x	3.5 in.	Supports MBD (Multi-Band Data)
221	26-64B	NA	153.011	Leaf Rapids
222	16-63O	Nav	3.5 in.	Support for Muti band (70 mm) data
223	15-63O	Nav 2.2x 4173	3.5 in.	Support for Muti band (70 mm) data
223.1	15-63O	Nav 2.2x 4173	3.5 in.	Support for Muti band (70 mm) data
224	17-63O	AV	3.5 in.	Support for Muti band (70 mm) data
225	19-63O,26-63P,17-64A,18-64B	NA	3.5 in.	Support for 70mm MBD (surficial geology)
226	22-63O	NA	NA	Highways (Park Sites)
227	23-63O, 32-63P	NA	NA	Highways
228	29-63O	NA	152.69	GAP LINES
228.1	29-63O,27-64B	NA	152.69	GAP LINES
228.2	29-63O,27-64B	NA	152.69	GAP LINES
229	31-63P	NA	152.421	
230	23-64B	NA	NA	Highways
231	23-64B	NA	NA	
232	7-64B	NA	152.164	
233	25-63O, 30-63P,22-64A,22-64B	NA	152.92	
234	23-63P	520 nm 3.3AV	3 in.	Thompson (Multiband support)

Block No.	Reference No. - (for flightline data)	Filters	f (mm)	Comments
235	8-64B	NA	152.45	Leaf Rapids
236	14-64B/15, 15-64B	NA	6 in.	Sub-standard photography
237	30-63O	NA	152.034	HWY flight Waboden to Paint L.
238	25-63P, 18-64A	NA	153.22	
239	17-64B	NA	NA	One transect South Bay
240	17-64B	NA	NA	Leaf Rapids area
241	19-64B,8-64G	NA	152.695	Two transects
241.1	19-64B,8-64G	NA	152.456	One transect
242	29-63P	NA	NA	Thompson
243	29-63P	NA	NA	Thompson
244	15-63P	NA	152.51	Not suitable for mapping
245	20-64B	NA	153.263	South Indian Lake
246	24-64B	NA	NA	South Indian Lake
247	7-64B	NA	153.22	
247.1	7-64B	NA	153.22	
248	12-63P	NA	6 in.	
249	12-63P	NA	152.164	
250	MBH-63O	NA	6 in.	Nelson House / Three Point Lake
251	MBH-63P,O	NA	6 in.	Notogi - Split L.
252	MBH-63P	NA	6 in.	Thompson - Split L.
253	MBH-63P	NA	6 in.	Thompson
254	MBH-63P	NA	6 in.	Thompson
255	MBH-63P	NA	6 in.	Thompson
256	31-63O,37-63P, 26-64A	NA	153.26	Burntwood R.
257	37-63O,42-63P,29-64A	NA	152.031	Manitoba Hydro flight
257.1	37-63O, 29-64B	NA	152.031	Manitoba Hydro flight
258	32-63O, 38-63P	525nm AV 3X #5073	88.037	TP75-80, RG4-6W
259	33-63O, 39-63P	NA	152.034	Forest inventory
260	27-64A	NA	152.031	Manitoba Hydro flight
261	34-63O,40-63P	NA	152.031	Manitoba Hydro flight
262	35-63O	NA	152.031	Manitoba Hydro flight
263	28-64A/2	NA	152.031	Manitoba Hydro flight
264	36-63O,41-63P/13	NA	152.031	Manitoba Hydro flight
265	37-63O	NA	152.031	Manitoba Hydro flight
265.1	37-63O	NA	152.031	Manitoba Hydro flight
265.2	37-63O	NA	152.031	Manitoba Hydro flight
266	Proposed	NA	6 in.	Proposed - Forestry inventory survey
267	7-63N	NA	NA	SW quarter of sheet
268	8-63N	NA	8.25	SW corner of sheet
269	4-64C,8-63N	NA	6 in.	High Rock L., Sisipuk
270	4-64C, 8-63N	NA	153	Railway
271	8-63N	NA	153.65	NE side of sheet
272	3-64C	NA	6 in.	N part of sheet
273	5-63N,6-63N	NA	8 in.	Complete coverage for 1929 (9000 ft. ASL)
274	4-64C	NA	6 in.	Cont. W N 3/4 of sheet, Kississing L.
275	9-63N	NA	15165	Whole sheet coverage
276	10-63N	NA	152.91	Cont. S, whole sheet covered
277	10A-63N	NA	152.07	Sherridon
278	11-63N	NA	152.32	NE part of sheet
279	11-63N,13-63N,7-64C	NA	152.07	Focal length varies.
280	11-63N	NA	152.52	NE part of sheet
281	12-63N	NA	152.47	S 2/3 of sheet
282	12-63N	NA	152.45	S 2/3 of sheet
283	12-63N	NA	153.37	S 2/3 of sheet
284	8-64C	NA	152.52	Granville L.
285	8A-64C	NA	152.73	Block over Leaf Rapids
286	12-63N	NA	152.164	Highrock I.R.
287	13-63N,10-63O,12-63P	NA	152.164	
288	14-63N,13-63O	Nav	3.5 in.	Supports 70mm MBD (Multi-Band Data)
289	18-63N	NA	NA	Pukatawagan
290	19-63N	NA	153.263	Sherridon
291	10-64C	NA	152.51	
292	9-64C	NA	152.01	Lynn Lake
293	9-64C	NA	152.01	Fox Lake Mine

Block No.	Reference No. - (for flightline data)	Filters	f (mm)	Comments
294	9-64C	NA	152.45	Leaf Rapids
295	15-63N	NA	152.678	Pukatawagan I.R.
296	16-63N,16-63O	Nav	3.5 in.	Support for 70mm MBD (Multi-Band Data)
297	17-63N	NA	NA	Sherridon
298	10-64C	NA	152.391	Reindeer Lake, Hughes Lake
299	11-64C	Nav 2.2X	3.5 in.	Supports 70 mm MBD (Multi-Band Data)
300	20-63N,16-64C	NA	152.456	
301	20-63N,26-63O	NA	153.37	
302	12-64C	Nav 2.2X 4173	3.5 in.	Supports 70 mm MBD (Multi-Band Data)
303	16-64C	NA	152.698	
304	17-64C	NA	NA	Select sites Lynn Lake HWY, 391
305	12-64C	Nav 2.2X 4173	3.5 in.	Supports 70 mm MBD (Multi-Band Data)
306	22-63N,19-64C	NA	152.92	
307	13-64C	NA	152.67	Lynn Lake
308	13-64C	NA	153.22	Pickeral Narrows
309	23-63N, 20-64C	NA	152.69	Gap lines
310	14-64C	NA	153.26	Full coverage
311	15-64C	NA	3.5 in.	Acquired to map Pleistocene Geology , supports MBD
312	24-63N	NA	152.034	Coverage TP69-80, RG19-30
313	25-63N	NA	152.94	Pukatwagan to Laurie R. Hydro Line
314	21-64C	NA	152.94	
315	22-64C	NA	152.031	Highways, Lynn Lake
316	Proposed	NA	6 in.	Proposed - forestry inventory survey
317	1-64G, 4-64H	NA	6 in.	Scale may vary, coverage may not be complete
318	2-64G	NA	153.65	
319	3-64G, 5-64H	NA	152.91	Complete coverage
320	4-64G, 6-64H, 6-64B	NA	152.52	
321	6-64H	NA	152.52	
322	6-64G, 12-64B	520nm AV 3.3X	3.5 in.	Supports 70mm MBD (Multi-Band Data)
323	7-64G,15-64B,13-64A, 8-64H	NA	153.67	
324	7-64G,15-64B	NA	152.07	Good coverage S.I. Lake
325	7-64G, 15-64B	NA	152.07	
326	8-64G,9-64H, 19-64B,18-64A	NA	152.456	
327	8-64G,9-64H, 19-64B	NA	152.456	
328	10-64G, 10-64H, 22-64B,22-64A	NA	152.92	Good coverage over S.I. Lake
329	10-64G	NA	152.92	
330	11-64G,25-64B,26-63O	NA	153.37	
331	11-64G,16-64A,25-64B,9-64H	NA	152.67	
332	11-64G	NA	152.671	
333	12-64G,12-64H	NA	152.034	Manitoba Hydro flight
334	13-64G,11-64H	NA	152.034	Manitoba Hydro flight
335	DF1-64B,G	NA	152.034	Surveyed to investigate shoreline erosion
336	4-64H,1-64G,4-54L, 5-54E,	NA	6 in.	Complete coverage, scales may vary
337	4&5-54K	NA	6 in.	
338	5-54L,5-54 K	NA	6 in.	Complete coverage
339	6-54L,6-54E,5-64H	NA	153.19	Complete coverage
340	7-54L, 8-54K	NA	152.43	Churchill
340	7-54L, 8-54L	NA	6 in.	
341	9-54L,9-54K	NA	152.42	
342	10-54L/16E	NA	152.34	
343	6-54K/13W	NA	6 in	
344	7-54K/12W	NA	6 in.	Stygge Lake
345	10-54K	NA	152.38	Cape Churchill
346	6-64H	NA	152.52	
347	7-64H,7-54E,15-54L	NA	152.73	
348	12-54L,12-54K	NA	88.25	
349	14-54L	NA	152.42	
350	14-54L	NA	88.21	Coverage along Hudson Bay coast
351	14-54L	NA	152.07	
352	8-64H	NA	152.07	
353	8-54E	PAN 520	88.44	Support for 70 mm MBD (Multi-Band Data)
354	16-54L	Nav	85	Support for 70 mm MBD (Multi-Band Data)
355	21-54K	NA	153.263	Canadian Wildlife Service, La Perouse Bay
356	21-54K	NA	153.263	Canadian Wildlife Service, La Perouse Bay

Block No.	Reference No. - (for flightline data)	Filters	f (mm)	Comments
357	21-54K	NA	153.263	Canadian Wildlife Service, Cape Churchill Lake
358	19-54K	NA	152.667	Canadian Wildlife Service, Cape Churchill Lake
359	19-54K	NA	152.667	Canadian Wildlife Service, La Perouse Bay
360	10-54E,23-54L,20-54K	NA	152.667	
361	23-54L,20-54K	NA	152.682	
362	19-54L	Nav	3.5 in.	Supports 70mm MBD (Multi-Band Data)
362.1	19-54L	Nav	3.5 in.	Supports 70mm MBD
362.2	19-54L	Nav	3.5 in.	Supports 70mm MBD
363	MBH-54L, 54E	NA	6 in.	
364	20-54L	AV	3.47 in.	Supports 70mm MBD (Multi-Band Data)
365	MBH-54L	NA	6 in.	Water supply study - Churchill
366	22-54L	HF	3 in.	Supports 70mm MBD (Multi-Band Data)
366.1	22-54L	HF	3 in.	Supports 70mm MBD
366.2	22-54L	HF	3 in.	Supports 70mm MBD
366.3	22-54L	AV 3.3X	3 in.	Supports 70mm MBD
367	24-54L	NA	152.92	
368	24-54L	NA	151.659	North Knife R.
368.1	24-54L	NA	151.659	South Knife R.
369	26-54L	NA	153.263	
370	11-64H	NA	NA	Manitoba Hydro flight
371	12-64H,11-54E,27-54L	NA	NA	Manitoba Hydro flight
372	12-54E,28-54L	NA	152.94	Churchill transmission,Manitoba Hydro
373	29-54L	NA	152.176	Churchill
374	DF2-54L	Nav	152.614	Marine mammal survey
375	DF2-54L	Nav	152.614	Marine mammal survey





## **Appendix B**

### **Supplementary Data to Section 1.1 High Resolution Remote Sensing Data**

Table 31. Description of supplementary data in Appendix B.

Header	Description
Block	A character (A, B, C...etc) identifying a block of imagery.
Channels (nm)	Identifies wavelengths associated with each channel.
Comments	Lists the purpose for which imagery was acquired; provides contact names and addresses for users wanting to obtain further information.

Block	Channels (nm)	Comments
A	6 (445), 0 (521), 4 (590), 1 (673), 7 (871)	This imagery was acquired to test for peat deposition in Playgreen Lake. Large format color photography was flown coincident with the MEIS. Hard copy MEIS data for flight line 05 can be viewed at Maclaren Plansearch Inc. The digital data for each flight line is available at CCRS (Canada Centre for Remote Sensing). For further information on the nature cost and availability of this data contact: Mr. Chris Petzinger Canada Centre for Remote Sensing (or) Maclaren Plansearch Inc. Airborne Operations 640-5 Donald St. Hunt Club Rd., Ottawa Ont., K1A 0Y7 Winnipeg Mb. R3L 2T4
B	NA	For more information on this flight contact CCRS, Airborne Operations, (see above address)
C	L ~ (15 - 30 cm)	This data has a resolution of 12.5 m. The digital data is available through the Jet Propulsion Laboratory, California Institute of Technology, Pasadena, California. A quick look BW hard copy of the images can be viewed by contacting; Mr. M. McKernan, Maclaren Plansearch Inc., 640-5 Donald St. Winnipeg Mb. R3L 2T4.
D	Thermal (10 -12 um)	This survey was conducted for the Provincial Fisheries Branch to map water temperature of rivers and streams to define spawning areas for trout. For further information about the imagery contact: Mr. Garry Swanson Dept. Natural Resources (or) E.M.S.I Fisheries Enhancement 754 Carter Ave Box 40, 1495 St. James St. Winnipeg, Manitoba, R3M 2C9 Winnipeg, Manitoba, R3H 0W9
E	450, 550, 650 nm band pass filters. Total spectral range of data 300 - 1100 nm	The survey was conducted to evaluate water quality using arrays of video cameras equipped with a variety of filters to obtain multispectral data. Aircraft altitudes ranged from 500 - 16000 ft. The video imagery is also accompanied by 35 mm photography. To obtain further information about this imagery contact: Mr. Peter Seidyl Environment Canada Water Quality Branch 1901 Victoria Ave. Regina, Sask. S4P 3R4
F	NA	This survey extended from the Notigi control structure along the Rat and Burntwood Rivers to Thompson. It was obtained during low flow conditions, and includes coverage of banks. For further information on the cost and availability of this data contact: Bernie Shumilalac Manitoba Hydro P.O. Box 815, Winnipeg Mb., R3C 2H4
G	NA	This survey is a continuation of the above survey. It covers the Burntwood River from Thompson to Split Lake.

Block	Channels (nm)	Comments
H	MEIS	The MEIS and MSS data was used in geobotanical exploration for gold and sulfide mineralization. Color infrared (CIR) photography (9X9) was flown coincident with the MEIS and MSS. To obtain information about the nature, cost and availability of the digital data contact:
	3 (465.12-496.52),	
	7 (532.76-564.36),	
	6 (691.8-704.89),	
	5 (702.46-717.89),	Mr. Chris Petzinger
	4 (726.84-742.82),	Canada Centre for Remote Sensing, Airborne Operations, Hunt Club Rd.,
	2 (738.37-755.14),	Ottawa Ont., K1A 0Y7
	0 (757.87-794.73)	A detailed flightline map can be viewed at the Manitoba Department of Energy and Mines; contact:
	MSS (nm)	Dr. Mark Fedikow
	2 (415-450), 3 (445-495),	Manitoba Department of Energy and Mines
	4 (500-550), 5 (550-595),	Mineral Resources, Geological Services
	6 (590-645), 7 (626-695)	535-330 Graham Ave.
	8 (680-780), 9 (765-895),	Winnipeg, Mb., R3C 2H4
	10 (865-1035), 11 (1550-1750)	
I	Thermal (10- 12 um)	Thermal and high resolution visual video imagery was acquired to study water temperature and turbidity patterns as they relate to the distribution of marine mammals in the Churchill River estuary.
		For further information contact:
		Mr. Pierre Richard
		Mr. David Barber
		Department of Fisheries and Oceans (or) E.M.S.I.
		Marine Mammal Management
		754 Carter Ave
		501 University Cres.
		Winnipeg, Manitoba, R3M 2C9
		Winnipeg , Manitoba, R3T 2N6

# Appendix C

## Supplementary Data to Section 2 Satellite Imagery

The following tables provide supplementary information pertaining to satellite imagery documented in Section 2 of this catalogue.


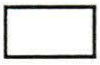


Table 32. Additional information for the Landsat microfiche maps, Appendix C.

Header	Description						
App.	Appendix number Reference number used in conjunction with App. # in Landsat data block.						
Q. of CO  <table border="1" data-bbox="170 634 256 774"> <tr><td>C</td><td>O</td></tr> <tr><td>1</td><td>2</td></tr> <tr><td>G</td><td>P</td></tr> </table>	C	O	1	2	G	P	Image Quality, if blank, no data has been processed for this scene at time of catalogue publishing. C O refers to color composites of two types, 1 and 2; 1 - produced by the exposure of Band 1 data with the color blue, band 2 data with the color green, and band 4 data with the color red. - image appears redish (analogous to false-color infrared photography). - intensity of red can be related to vegetation growth. 2 - produced by the exposure of band 2 data with the color red, band 3 with the color green, band 4 data with the color blue. - image appears blue, useful for water discrimination. Quality is documented under each color composite (1 and 2) as Excellent (E), Good (G), Fair (F), Poor (P), Uncorrectable (U).
C	O						
1	2						
G	P						
Tape  <table border="1" data-bbox="147 1038 272 1136"> <tr><td>GC</td><td>TM</td></tr> <tr><td>D</td><td>T</td></tr> </table>	GC	TM	D	T	Tape Availability  GC refers to Geocoded data processed by Digital Image Correction System (DICS) Ottawa. Availability of DICS processed data indicated by a D.  TM refers to Thematic Mapper data . Availability of recorded data indicated by T.		
GC	TM						
D	T						

Source: Landsat Imagery Catalogue.

Due to the nature of the microfiche MSS renditions, a continuum of clarity was encountered. The comments column in the appendix data block identifies the difference between problems of visibility due to microfiche quality and cloud cover. The comments are intended to provide the user with more information on cloud type and clarity of terrain. Comments differentiate between 'a) comments', directed to transparent shading and 'b) comments', directed to non shaded areas on the microfiche maps. Comments also include the reason for an 'NA' shaded area or an 'NA' non shaded area. Table 33 describes typical comments.

Table 33. Description of comments, Appendix C.

Shading Patterns	Description	Definition
	transparent, light-shading	<p>- a transition zone used to identify those areas found between the dense cloud (opaque) and cloud-free (non-shaded) areas.</p> <p>A transparent cloud may include one or a number of cloud cover type. The comment (a) will serve to subjectively identify:</p> <ul style="list-style-type: none"> <li>i) the atmospheric conditions (ex. scat. clouds, thin c/c, and/or blowing snow, fog or smoke).</li> <li>ii) and also to make note of this area's relative clarity (ex. clear or not clear).</li> </ul>
	non-shaded	<p>- refers to a cloud-free zone.</p> <p>Due to the complexity of varying amounts of moisture in the atmosphere haze conditions were also included under cloud-free areas as a means of defining the relative clarity, contrast, and crispness of the terrain. The comments under (b) will consist of a combination of:</p> <ul style="list-style-type: none"> <li>i) condition of haze (ex. dense haze, hazy, no haze)</li> <li>ii) definition of terrain relative to the condition of haze (ex. well defined terrain, poorly defined terrain)</li> </ul>
	not available, dark shading	<p>microfiche not clear (due to):</p> <ul style="list-style-type: none"> <li>- poor reproduction of image on to medium.</li> <li>- atmospheric conditions.</li> <li>- problems in image acquisition (Landsat 3).</li> </ul>
	not available, non-shaded	<p>- microfiche not available at MRSC.</p> <p>Please note that nearly all 'NA' involve a year where imagery was available from another satellite. In these cases, of overlapping years, only one image was selected by the MRSC (Table 6. Satellite Status Report).</p>



APP.#	Q. of CO		TAPE		COMMENTS: a-transparent c/c; b-non-shaded area: * = interpreted from hardcopy
	1	2	GC	TM	
1					a-thin c/c, not clear; b- dense haze, terrain poorly defined
2					a-very thin c/c, clear; b-hazy, terrain very well defined
3					a-thin c/c, clear; b-hazy, terrain very well defined
4					a-thin c/c, fog or snow, not clear; b-some haze, terrain well defined
5					a-c/c, fog or snow, not clear; b- some haze, terrain very well defined
6					b- dense haze, not clear in S.E., terrain moderately defined
7					a- scat. clouds ~30% ; b-dense haze, terrain well defined
8					a-scat. clouds, clear; b-dense haze, terrain well defined
9					a-thin c/c or very dense haze, terrain mod. defined in W, poorly defined in E.
10					a-scat. clouds or fog ; b-hazy, terrain well defined
11					a-thin c/c or fog affecting shoreline; b-some haze, terrain well defined
12					microfiche not clear
13					a- scat. clouds ~ 30%; b-hazy, terrain well defined
14					a-dense clouds, terrain visible but not clear
15					a- scat. clouds ~30%; b-dense haze, terrain mod. defined
16					a- fog at stream outlet; b-dense haze, terrain well defined
17					a- thin c/c or fog near shoreline; b-hazy, terrain well defined
18					a- thin c/c; b-hazy, terrain well defined
19					b-dense haze, terrain visible, mod. defined
20					a- thin c/c, terrain visible, poorly defined
21					a- striated dense c/c; b-hazy, terrain well defined
22					a- thin cloud cover thru/out; b-terrain visible, poorly defined
23					microfiche not clear
24					NA, microfiche not at MRSC.
25				T	a- thin c/c or fog; b-no haze, terrain very well defined
26				T	a-c/c or fog along shoreline; b-hazy, terrain well defined, clear image
27				T	a- dense haze or thin c/c; b-terrain visible, poorly defined
28				T	a-thin c/c or fog along shoreline; b-hazy, terrain mod. defined
29				T	b-some haze, terrain very well-defined
30				T	a- flaw in microfiche, fog along shoreline; b- some haze, terrain mod. defined
31				T	microfiche not clear
32				T	microfiche not clear
33				T	blocked-out in N.W. a- thin c/c, not clear; b-some haze, terrain well defined
34				T	a- scat. clouds + shadowing thru/out; b-dense haze, terrain mod. defined
35				T	a-very thin c/c or fog along shoreline; b-some haze, terrain very well defined
36				T	a- scat. clouds, ~ 60% + shadowing; b- hazy, terrain visible, poorly defined
37				T	a- thin c/c thru/out, terrain poorly defined
38				T	a- scat. clouds + shadowing, not clear; b-hazy, terrain mod.-defined
39				T	a-thin c/c or fog along shoreline; b- some haze, terrain very well defined
40				T	a- very thin c/c, not clear; b-hazy, terrain mod defined
41				T	microfiche not clear
42				T	microfiche not clear
43				T	microfiche not clear
44				T	microfiche not clear
45				T	b-hazy, terrain well defined. (ice break-up)
46				T	a- scat. clouds, ~ 20%, terrain visible, not clear; b- hazy, terrain well defined
47					a- scat. clouds, ~20% + shadowing, not clear; b-no haze, terrain very well defined
48				T	b- hazy, terrain well defined, clear
49				T	NA, microfiche not at MRSC
50					a-very thin c/c, clear; b- dense haze, terrain mod. defined
51					a- thin c/c, not clear; b-some haze, terrain poorly- defined
52					a-c/c, not clear; b-terrain poorly-defined, shoreline well defined
53					b- dense haze, terrain very well defined
54					a- thin c/c with striated, scat. c/c ~50%, not clear; b-dense haze, terrain mod. defined
55					a-v. thin c/c, clear; b-some haze, terrain poorly defined, shoreline & ice well defined
56					microfiche not clear
57					microfiche not clear
58					microfiche not clear

APP.#	Q. of CO		TAPE		COMMENTS: a-transparent c/c; b-non-shaded area: * = interpreted from hardcopy
	1	2	GC	TM	
59					microfiche not clear
60					b- some haze, terrain well defined and clear
61					a-c/c thru/out, terrain poorly-defined, not clear
62					microfiche not clear
63				T	a-thin c/c, not clear; b- dense haze, poorly-defined
64				T	microfiche not clear
65				T	microfiche not clear
66				T	microfiche not clear
67				T	a- scat. clouds, ~20%; b-dense haze, shoreline & terrain visible, not clear
68				T	microfiche not clear
69				T	b- dense haze, terrain very well defined, clear
70				T	a- scat. striated c/c & fog( v. thin); b-terrain visible, well defined, clear
71				T	a- c/c thru/out, shoreline & terrain visible but not clear
72				T	b-some haze, strong glare, shoreline visible, terrain poorly defined
73				T	microfiche not clear
74				T	a-some haze, shoreline & terrain poorly defined, strong glare, not clear
75				T	microfiche not clear
76				T	a- thin c/c; b-some haze, terrain very well defined
77				T	a-thin c/c, not clear; b-some haze, terrain well defined
78				T	NA, microfiche not at MRSC
79					NA, microfiche not at MRSC
80					a-thin c/c; b- dense haze thru/out, terrain poorly defined
81					a- c/c or snowcover, not clear; b-some haze, terrain mod. defined
82	G				a-clouds or snowcover, not clear; b- very strong glare, terrain poorly defined
83					a- thin c/c, not clear; b- dense haze, terrain poorly-defined
84					a-very thin and scat. c/c, clear; b-dense haze, well defined
85					b- dense haze, well defined
86					b- dense haze, poorly-defined
87					a-thin c/c thru/out, clear; b-dense haze, terrain mod. defined
88					a- c/c not clear in N., clear in S. b- dense haze, terrain mod. defined
89					a- thin c/c or blowing snow b-some haze, terrain well defined
90					microfiche not clear
91					microfiche not clear
92					a- scat. cloud, ~ 40% + shadowing, b-terrain visible but easily confused with shadows
93					a- scat. clouds ~ 50% + shadowing; b-some haze, terrain well defined
94					a-thin c/c, striated in NE and part of SE; b-hazy, terrain mod. defined
95					b-some haze, terrain well defined and clear
96					a- c/c not clear; b-hazy, terrain poorly defined
97					microfiche not clear
98					microfiche not clear
99					microfiche not clear
100					NA, microfiche not at MRSC
101				T	a- thin c/c; b- terrain visible, poorly defined
102				T	a-c/c, not clear; b-dense haze, terrain poorly defined
103				T	a- scat. clouds ~40%; b-dense haze, terrain poorly defined
104				T	a-scat. clouds ~40%; b-dense haze, terrain poorly defined
105				T	microfiche not clear
106				T	microfiche not clear
107				T	a- scat. clouds ~ 50% + shadowing; b-dense haze, terrain mod. defined
108	G			T	a- scat. or thin c/c, clear; b-some haze, terrain very well defined
109				T	b-dense haze, terrain well defined, clear
110				T	b-dense haze, terrain well defined, clear
111					b- dense haze, terrain well defined, clear. 1/3 frame missing
112				T	microfiche not clear
113				T	microfiche not clear
114				T	a- thin c/c, clear; b-some haze, terrain very well defined and clear
115				T	a- thin c/c, terrain visible, not clear; b-hazy, terrain well defined
116	G				b- dense haze, terrain well defined

APP.#	Q. of CO		TAPE		COMMENTS: a-transparent c/c; b-non-shaded area: * = interpreted from hardcopy
	1	2	GC	TM	
117					lower half blocked out; b- some haze, terrain very well defined
118					a- thin c/c, clear; b-some haze, terrain well defined
119					a-thin c/c, snow, or fog, clear; b-dense haze, terrain well defined. (ice break up)
120					a- scat. or very thin c/c, not clear; b-dense haze, terrain poorly defined
121					a- scat. clouds ~30% + shadowing, clear; b-hazy, terrain very well defined
122					a- thin c/c, clear; b- dense haze, terrain well defined
123					b- dense haze, terrain mod. defined
124					a- thin clouds thru/out, some ground visibility, mod. defined
125					a- very thin c/c, clear; b-dense haze, terrain very well defined
126					a- blowing snow or c/c, not clear; b-some haze, terrain well defined
127	G				microfiche not clear
128					b-dense haze, terrain well defined and clear
129					a- low scat. clouds ~25% + shadowing; b-hazy, terrain poorly defined due to shadowing
130					a- scat. clouds ~ 75% + shadowing; b-terrain visible, poorly defined
131					a- scat. clouds, not clear; b-hazy, terrain well defined
132					b- dense haze, terrain visible, mod. well defined
133					b- hazy , terrain well defined and clear
134					b-very dense haze, terrain visible mod. well defined and clear
135					b-some haze, terrain visible, poorly defined due to snow cover.
136					microfiche not clear
137					microfiche not clear
138					NA, microfiche not at MRSC.
139				T	b-dense haze thru/out, terrain poorly defined
140				T	a- scat. clouds thru/out ~40%; b-hazy, terrain mod. defined
141				T	a- blowing snow or clouds thru/out, not clear, 1/5 of frame missing.
142				T	a- thin c/c; b-hazy thru/out, terrain well defined. 2/5 of frame missing
143				T	b- some haze, terrain well defined
144				T	microfiche not clear
145				T	a- very thin c/c, not clear; b-some haze, terrain very well defined
146	G			T	a-low, scat. clouds ~ 30%; b-dense haze, terrain poorly defined in E half, well def. in W half
147	G			T	b- dense haze, terrain well defined
148				T	b- some haze, terrain very well defined
149				T	1/10 of frame missing; b-dense haze, terrain mod. defined.
150					b- hazy, terrain very well defined
151				T	a- very thin c/c, clear; b-hazy, terrain well defined
152				T	1/2 microfiche not clear. b-terrain visible but poorly defined
153				T	a- scat. clouds ~50% + shadowing, not clear; b-terrain mod. defined
154					microfiche not clear
155					a-thin or scat. clouds, not clear; b-dense haze, terrain mod. defined
156					1/2 image not clear. b- terrain poorly defined
157					NA, microfiche not at MRSC
158					a- scat. clouds +shadowing, not clear; b-dense haze, terrain well defined
159					a- scat. clouds, from NW to SE, not clear, b-dense haze, terrain well defined
160					a-thin and striated clouds, clear; b-hazy, terrain well defined
161					microfiche not clear
162					a- scat. clouds, terrain visible, not clear; b-dense haze, terrain poorly defined .
163					a- scat. clouds + shadowing; b-hazy, terrain mod. defined
164					b-dense haze thru/out, terrain visible but poorly defined
165					b- dense haze, terrain well defined
166					b- dense haze, terrain well defined
167					a- dense haze with c/c; b-terrain mod. well defined
168					b-dense haze, terrain visible but poorly defined
169					1/2 image not clear
170					microfiche not clear
171				T	microfiche not clear
172				T	b- dense haze, terrain well defined
173				T	a- thin c/c; b- hazy, terrain well defined
174				T	a- scat. clouds; b-dense haze, terrain poorly defined

APP.#	Q. of CO		TAPE		COMMENTS: a-transparent c/c; b-non-shaded area; * = interpreted from hardcopy
	1	2	GC	TM	
175				T	not clear in NE b-hazy, terrain mod. defined on W side, poorly defined on E side
176				T	a) thin c/c; b- dense haze, some terrain visible but poorly defined
177				T	3/4 microfiche not clear; b)-mod. defined
178				T	3/4 microfiche not clear; b)- poorly defined
179				T	a- scat. clouds ~ 50%, not clear; b-dense haze, terrain visible mod. defined
180				T	a-very thin c/c; b-hazy thru/out, terrain well defined
181				T	a- thin c/c; b-some haze, terrain well defined
182				T	microfiche not clear
183				T	microfiche not clear
184				T	1/3 of image not clear; b- some haze, terrain well defined
185				T	a- thin or scat c/c, not clear; b-strong glare at NE, terrain visible & mod. defined
186				T	a- thin c/c, some terrain visible; b-hazy, terrain very well defined
187					1/4 frame missing. a-thin c/c, clear; b-some haze, terrain very well defined
188					1/10 frame missing. b-dense haze, terrain well defined
189					a- thin c/c, clear; b-dense haze, terrain well defined
190					NE not clear. b- some haze, terrain poorly defined
191					NA, microfiche not at MRSC
192					a-thin c/c, clear; b-dense haze, terrain poorly defined
193					a-thin c/c, clear; b-dense haze, terrain well defined
194					a-scat. striated c/c, clear; b-dense haze, terrain poorly defined
195					a- thin c/c, clear; b-dense haze, terrain mod. well defined
196					a- thin c/c, snow or smoke, clear; b-dense haze, terrain well defined
197					a- thin c/c or blowing snow; b-terrain visible, poorly defined
198					3/4 microfiche not clear; b) terrain mod. defined
199					a- thin c/c and dense haze thru/out, not clear; terrain poorly defined
200					a- scat. cloud ~25% + shadowing, not clear; b-hazy, terrain mod. defined
201					a- scat. clouds ~30%; b- dense haze, terrain poorly defined
202					a- thin c/c; b- dense haze, terrain well defined and clear
203					a- smoke, fog or c/c in SE; b-dense haze, terrain mod. defined
204					b-dense haze, terrain well defined and clear
205					b- dense haze, terrain well defined
206					b-dense haze, terrain mod. defined
207				T	3/4 image not clear. b-dense haze, terrain poorly defined
208				T	a- scat. clouds ~50%; b- hazy, terrain well defined
209				T	a- scat. and thin c/c; b-dense haze, terrain poorly defined
210				T	a- scat. clouds ~30%; b-hazy, terrain well defined and clear
211	G			T	NE not clear; b-some haze, terrain well defined
212				T	microfiche not clear
213				T	a- thin and scat. clouds with dense haze thru/out, terrain visible but not clear
214				T	a- scat. clouds~40% + shadowing; b-dense haze, terrain poorly defined
215				T	a- thin and scat. clouds ~70%, not clear; b-dense haze, terrain mod. defined
216				T	a- very thin c/c, clear; b-hazy, terrain very well defined
217				T	b-dense haze, terrain poorly defined
218				T	a- thin c/c, not clear; b-hazy , terrain well defined
219				T	a- very thin c/c, clear. b-dense haze, terrain well defined
220				T	a-very thin c/c, clear; b-hazy, terrain well defined
221				T	a- thin and scat. clouds, not clear; b-some haze, terrain very well defined
222				T	a- very thin c/c, not clear; b-dense haze in SW, terrain well defined and clear
223					NA, microfiche not at MRSC
224	G				NA, microfiche not at MRSC
225				T	NA, microfiche not at MRSC
226				T	NA, microfiche not at MRSC
227					NA, microfiche not at MRSC
228					a- microfiche not clear; b-terrain poorly defined
229					microfiche not clear
230					a- scat. clouds + shadowing, not clear; b-dense haze, terrain very well defined
231	G				b- hazy, terrain very well defined
232					a- dense clouds at SW + scat. clouds ~40% on E, some haze, terrain very well defined

APP.#	Q. of CO		TAPE		COMMENTS: a-transparent c/c; b-non-shaded area: * = interpreted from hardcopy
	1	2	GC	TM	
233					a- thin c/c, clear; b-hazy, terrain very well defined
234					a-thin c/c, not clear; b-dense haze, terrain poorly defined
235					a- very thin c/c, clear; b-hazy, terrain well defined
236					a- very dense haze or c/c, not clear; b-dense haze, terrain very well defined
237					a- thin c/c or snow, not clear; b-some haze, terrain very well defined
238					NA, microfiche not at MRSC
239					a-dense clouds at NW + scat. clouds ~30%, clear; b- dense haze, terrain well defined
240					a- thin c/c, not clear; b-dense haze, terrain well defined
241					a- very thin and scat. clouds, clear; b-hazy, terrain very well defined
242	G				b- dense haze, terrain very well defined
243					a- very thin c/c, not clear; b-some haze, terrain well defined
244					a- blowing snow or c/c, not clear; b-some haze, terrain well defined
245					a- blowing snow or c/c, not clear; b-some haze, well defined
246					a- scat. clouds ~50% + shadowing; b-hazy, terrain poorly defined due to shadows
247					a- thin and scat. clouds ~ 50% + shadowing; b-some haze, terrain poorly defined
248					a- low, scat. clouds ~40% + shadowing; b-dense haze, terrain well defined
249					a- scat. clouds ~ 25%; b-hazy, terrain well defined and clear
250					b-dense haze, terrain well defined
251					a-scat. clouds and/or smoke; b-hazy, terrain poorly defined
252					b-hazy, terrain mod. well defined
253					b-dense haze, terrain well defined
254					b-dense haze, terrain well defined
255				T	a-microfiche not clear at NE; b-hazy, terrain well defined
256				T	a- low, scat. clouds ~25%; b-dense haze, terrain well defined
257				T	a-low, scat. clouds; b-some haze, terrain well defined and clear
258				T	a-thin and scat. clouds ~40%; b-hazy, terrain well defined
259				T	a-thin c/c or very dense haze thru/out, terrain visible but not clear
260				T	a- scat. clouds ~50%, clear; b-hazy, terrain well defined
261				T	a- thin c/c; b-dense haze, terrain poorly defined
262				T	a-thin, striated c/c; b-dense haze, terrain poorly defined
263				T	b- some haze, terrain very well defined
264				T	a- very thin c/c, and/or blowing snow, clear; b-some haze, terrain very well defined
265	G			T	a- very thin c/c, and/or blowing snow, clear; b-some haze, very well defined
266				T	microfiche poor b- terrain visible and well defined
267				T	a- scat. clouds ~30% + shadowing; b-dense haze, terrain mod. defined
268				T	a- low, scat. clouds ~40% + shadowing, not clear; b-dense haze, well defined and clear
269				T	a- scat. clouds ~40% + shadowing, not clear; b- dense haze, mod. well defined
270				T	a- thin c/c, not clear; b -dense haze, terrain well defined
271				T	b-hazy, terrain very well defined
272				T	b-dense haze, terrain well defined
273					a- very thin c/c, clear; b-some haze, terrain very well defined
274				T	a- thin c/c, and/or blowing snow; b-hazy, terrain very well defined
275				T	a- thin or scat. clouds + shadowing, not clear; b-hazy, very well defined
276				T	a- scat. clouds ~40% + shadowing, not clear; b-some haze, terrain very well defined
277				T	a- thin c/c with dense haze thru/out, terrain visible but poorly defined
278				T	a-thin c/c, terrain visible but not clear; b-hazy, terrain well defined
279					NA, microfiche not at MRSC
280	G				NA, microfiche not at MRSC
281				T	NA, microfiche not at MRSC
282				T	NA, microfiche not at MRSC
283				T	NA, microfiche not at MRSC
284					a-very thin c/c, clear; b-hazy, terrain very well defined
285					NA, microfiche not at MRSC
286	G				a- scat. clouds ~30%, clear; b-hazy, terrain very well defined
287					a-low, striated, scat. clouds, clear; b-dense haze, terrain very well defined
288	G				a- very low c/c ~25%; b-hazy, terrain very well defined
289					a- scat. clouds, not clear; b-dense haze, terrain well defined
290					a-low scat. clouds, clear; b-hazy, terrain very well defined

APP.#	Q. of CO		TAPE		COMMENTS: a-transparent c/c; b-non-shaded area: * = interpreted from hardcopy
	1	2	GC	TM	
291					a- thin c/c, clear; b-dense haze, terrain well defined
292					a-scat. clouds, not clear; b-some haze, terrain well defined
293					NA, microfiche not at MRSC
294					a-low scat. clouds ~30%, not clear; b-dense haze, terrain well defined
295					a-very low scat. clouds, clear, dense on W. side; b-dense haze, poorly defined
296					a-striated, high altitude clouds, not clear; b- dense haze, poorly defined
297					striated clouds thru/out, not clear; b-dense haze, terrain poorly defined
298					a- thin, scat. clouds, clear; b-some haze, terrain very well defined
299					a- thin c/c, clear; b-dense haze, terrain very well defined
300					a-small isolated clouds, clear; b-some haze, terrain visible well defined
301					a- thin c/c or blowing snow; b-terrain poorly visible not well defined
302					a- scat. cloud thru/out ~50%, terrain poorly defined
303					a-low,scat. clouds thru/out ~50%; b-hazy, terrain mod. defined and clear
304					a-low, striated, scat. clouds ~50%; b-hazy, terrain mod. defined
305					b-some haze, terrain visible and well defined
306					b- dense haze, terrain visible and very well defined
307					b-dense haze in SW, terrain well defined
308					b- hazy, terrain well defined
309	G				b- hazy, terrain well defined
310					b- some haze, terrain well defined
311				T	b- hazy, terrain well defined and clear
312				T	b- dense haze, terrain mod. defined
313				T	b- some haze, terrain well defined
314				T	a- scat. clouds ~25%; b-dense haze, terrain well defined
315				T	a- scat. clouds ~30%, clear; b-dense haze, terrain well defined
316				T	b- some haze, terrain very well defined
317				T	a- thin c/c or blowing snow; b-some haze, terrain very well defined
318				T	a- thin c/c or blowing snow, clear; b-some haze, terrain very well defined
319				T	a- blocked out from snow or c/c; b-some haze, terrain mod. defined
320				T	a-thin c/c, not clear; b-dense haze, terrain poorly defined
321				T	b- dense haze, terrain well defined and clear
322				T	a- scat. clouds ~20% + shadowing; b-dense haze, terrain well defined
323				T	a- scat. clouds, not clear; b-hazy, terrain very well defined
324				T	a- thin c/c, not clear; b-hazy, terrain well defined and clear
325				T	b- dense haze, terrain very well defined
326					a- thin c/c or blowing snow, not clear; b-some haze, terrain very well defined
327				T	a- thin c/c or blowing snow, not clear; b-some haze, terrain very well defined
328				T	a- thin c/c or scat. clouds, not clear; b-hazy, terrain very well defined
329				T	a- scat. clouds + shadowing, not clear; b-hazy, terrain very well defined
330				T	a- thin and scat. clouds, not clear; b-dense haze, terrain mod. defined
331				T	a- scat. or thin c/c, not clear; b-some haze, terrain very well defined
332				T	a- thin c/c with dense haze, not clear; b-terrain poorly defined
333				T	a- thin c/c, not clear; b-hazy, terrain very well defined
334				T	a-fog, smoke or haze in SE, clear; b-hazy, terrain very well defined
335					a- thin c/c, clear; b-hazy, terrain well defined
336					NA, microfiche not at MRSC
337					microfiche not clear
338	G				a- thin c/c, clear; b-some haze, terrain very well defined
339					a- thin and scat. c/c ; b-dense haze, terrain well defined
340					a-thin, striated c/c in upper half; b-some haze, terrain mod. defined
341	G				a- thin c/c, not clear; b-dense haze, terrain well defined
342					a- thin c/c thru/out; b-dense haze, terrain well defined
343					b-dense haze or smoke, terrain well defined
344					b- dense haze or smoke, terrain very well defined
345					a-thin c/c ,clear; b-dense haze, terrain well defined
346					a- thin c/c in NE, not clear; b-dense haze, terrain mod. defined
347					a- very low, scat. clouds; b-hazy, terrain very well defined
348	G				b-dense haze or smoke in lower half, some haze in upper half, terrain well defined

APP.#	Q. of CO		TAPE		COMMENTS: a-transparent c/c; b-non-shaded area: * = interpreted from hardcopy
	1	2	GC	TM	
349					a- c/c, not clear; b- dense haze, terrain poorly defined
350					a-smoke or glare in E half, clear; b-hazy, terrain very well defined
351					a- thin c/c, poorly defined; b-some haze, terrain well defined
352					b- v. thin clouds or blowing snow, clear; b-some haze, well defined
353					a-thin c/c, poorly defined; b-some haze, terrain well defined
354					3/4 microfiche not clear; b) terrain poorly defined
355					1/2 microfiche not clear; a-thin c/c, clear; b- dense haze, poorly defined
356					b- dense haze, terrain well defined
357					b- hazy, terrain very well defined
358					a-striated, scat. c/c + shadowing; b-hazy, terrain well defined
359					a-very thin c/c thru/out, terrain well defined
360					b-dense haze, terrain well defined
361					a- thin c/c, mod. defined; b-dense haze, terrain well defined
362				T	a- thin and scat. clouds thru/out; b-terrain visible but poorly defined
363				T	a- thin cloud, not clear; b-dense haze, terrain visible but poorly defined
364	G			T	a- scat. clouds ~40%; b-hazy, terrain well defined
365				T	a- thin and scat. clouds, clear; b-dense haze, terrain mod. defined
366				T	a- scat. clouds ~70% + shadowing; b-some haze, terrain visible but poorly defined
367				T	b- thin c/c or dense haze thru/out, terrain very well defined
368				T	a- thin c/c thru/out, not clear; b-some haze, terrain very well defined
369				T	a- c/c and/or blowing snow, not clear; b-some haze, terrain mod. defined
370				T	a-thin c/c thru/out, terrain not clear
371				T	a- very thin c/c, clear; b-dense haze, terrain very well defined
372				T	a- thin c/c, clear; b-some haze, terrain very well defined
373				T	b- dense haze thru/out, terrain very well defined
374				T	a-thin c/c or blowing snow, not clear; b-hazy, terrain well defined
375				T	a-1/2 microfiche not clear; b-some haze, terrain very well defined
376				T	a-1/2 microfiche not clear; b-some haze, terrain very well defined
377				T	NE corner not clear; b- some haze, terrain very well defined and clear
378				T	microfiche not clear
379				T	a-low scat. c/c ~20% + shadowing; b-dense haze, terrain very well defined
380				T	NA, microfiche not at MRSC
381				T	b- some haze, terrain very well defined
382					a- very thin c/c, clear; b-some haze, terrain very well defined
383					NA, microfiche not at MRSC
384					3/4 microfiche not clear
385					a- striated c/c, not clear; b-no haze, terrain very well defined
386					a- scat. clouds ~20%, clear; b-dense haze, terrain well defined
387					b- dense haze, terrain very well defined
388					a-thin, striated c/c, clear; b-dense haze, terrain mod. defined
389	G				b- hazy, terrain very well defined
390					a- thin c/c, clear; b-dense haze, terrain well defined
391					b-dense haze or smoke thru/out, terrain well defined
392					a-low, scat. clouds ~20%, clear; b-dense haze, terrain well defined
393					a-scat. clouds ~40%, not clear; b-dense haze, terrain poorly defined
394					a- thin c/c or smoke; b-dense haze or smoke thru/out, terrain mod. defined
395					b-dense haze or smoke thru/out, terrain poorly defined
396					b-very little haze or smoke, terrain very well-defined
397					b- dense haze, terrain well defined
398					a- very thin c/c, not clear; b-some haze, terrain well defined
399					a-thin c/c or smoke, poorly defined; b-some haze, terrain well defined
400					1/4 microfiche not clear; a-c/c + shadowing; b-some haze, terrain well defined
401					b-some haze, well defined; terrain definition may be confused with shadows.
402					a- thin c/c with very dense haze, terrain visible, poorly defined
403					a- very thin scat. clouds ~25%+ shadowing; b-dense haze, well defined and clear
404					a-scat. clouds ~20% + shadowing, not clear; b-some haze, terrain well defined
405					a- scat. clouds ~20% + shadowing, not clear; b-hazy, terrain well defined
406					1/2 microfiche not clear; b-terrain definition affected by shadowing.

APP.#	Q. of CO		TAPE		COMMENTS: a-transparent c/c; b-non-shaded area: * = interpreted from hardcopy
	1	2	GC	TM	
407					a- thin c/c, not clear; b-dense haze, terrain well defined
408					a-low, scat. clouds ~20%, clear; b-dense haze, terrain well defined
409					a- very thin c/c, not clear but visible; b-dense haze, terrain well defined
410					a- thin c/c, not clear; b-dense haze, terrain well defined
411	G			T	b- dense haze, terrain visible but poorly defined
412	G			T	a-scat. clouds ~20%; b-dense haze, terrain mod. defined
413				T	a- thin or scat. clouds; b-dense haze, terrain well defined
414				T	a-striated scat. clouds; b-dense haze, terrain well defined
415				T	a- thin c/c, not clear; b-dense haze, terrain well defined
416				T	a- thin c/c, clear; b-some haze, terrain very well defined
417				T	a- c/c or blowing snow, not clear; b-some haze, terrain very well defined
418				T	1/2 microfiche not clear; 1/2 scat. clouds, not clear
419				T	b-very dense haze thru/out, terrain poorly defined
420					a-scat. clouds + shadowing, clear; b-hazy, terrain very well defined
421				T	a-scat. clouds, clear; b-dense haze, terrain well defined
422				T	a-thin c/c, not clear; b-dense haze, terrain mod. defined
423				T	b-dense haze thru/out, terrain very well defined
424					a- thin c/c, not clear; b-dense haze, terrain well defined
425				T	a- thin c/c or blowing snow, not clear; b-dense haze, terrain well defined
426				T	a-scat. clouds and/or blowing snow, not clear; b-some haze, terrain well defined
427				T	a-thin c/c, not clear; b-hazy, terrain very well defined
428				T	a- thin c/c, clear; b-hazy, terrain very well defined
429				T	a-scat. clouds, not clear; b-hazy, terrain very well defined
430				T	b-dense haze, terrain mod. defined
431				T	NA, microfiche not at MRSC
432	G			T	b- no haze, terrain very well defined
433					1/5 microfiche not clear; b-some haze, terrain very well defined
434					NA, microfiche not at MRSC
435					a-thin and scat. c/c, clear; b-some haze, terrain well defined
436					a- scat. clouds ~20% + shadowing, clear; b-hazy, terrain well defined
437					a- very thin c/c, not clear; b-hazy, terrain very well defined
438					a- scat. clouds, clear; b-hazy thru/out, terrain well defined
439					a- thin c/c; b-hazy, terrain very well defined
440					blur in image; a-thin c/c thru/out, terrain poorly defined
441					a- thin c/c, clear; b-hazy, terrain mod. defined
442					a-scat. clouds thru/out; b-hazy, terrain poorly defined
443					b- hazy, terrain well defined
444					b-dense haze, terrain mod. defined
445					a- low, scat. clouds ~20%; b-hazy, terrain well defined
446					a- thin, striated clouds; b-dense haze thru/out, image poorly defined
447					b- dense haze thru/out, image poorly defined
448					a- scat. clouds ~25%; b-some haze, terrain very well defined
449					a- thin c/c, terrain visible but not clear; b-some haze, terrain well defined
450					a- thin c/c; b-some haze, terrain very well defined and clear
451					a-c/c and/or blowing snow, not clear; terrain poorly defined
452					a-thin c/c ~30%; b-hazy, terrain well defined and clear
453					a- scat. clouds ~30%; b-hazy, terrain well defined
454	G				a-low, scat. clouds; b-hazy, terrain well defined and clear
455					a-low, scat. clouds ~30%; b-hazy, terrain well defined but confused w/shadows
456					b- some haze, terrain well defined and clear
457					a-c/c spread thru/out entire image, terrain visible and mod. defined
458					a-c/c spread thru/out entire image, terrain visible and mod. defined
459					a- thin cloud or blowing snow, clear; b-terrain visible, mod. defined
460				T	b- dense haze thru/out, terrain visible, mod. defined
461				T	a- low, striated, scat. clouds ~40% +shadowing, terrain well defined
462				T	a- low, striated, scat. clouds ~30%; b-hazy, terrain well defined
463				T	a- c/c, not clear; b-hazy, terrain well defined but confused with shadowing
464				T	a- thin c/c, not clear; b-some haze, terrain well defined



APP.#	Q. of CO		TAPE		COMMENTS: a-transparent c/c; b-non-shaded area: * = interpreted from hardcopy
	1	2	GC	TM	
465				T	a- thin c/c, not clear; b-some haze terrain well defined
466				T	a- scat clouds, not clear; b-some haze, terrain very well defined
467				T	a- thin c/c; b-dense haze, terrain well defined
468				T	b-dense haze, terrain visible and mod. defined
469					a-low, scat. clouds ~30% and thin c/c; b-dense haze, terrain mod. defined
470					a- scat. clouds thru/out, not clear; b-some haze, terrain well defined
471	G			T	a-scat. clouds ~20% + shadowing, not clear; b-hazy, terrain well defined
472				T	a- thin or scat. c/c, not clear; b-hazy, terrain well defined
473				T	a- thin c/c, not clear; b- dense haze, terrain poorly defined
474				T	a- thin c/c, not clear; b-hazy, terrain well defined
475				T	a- scat. clouds, not clear; b-dense haze, terrain well defined
476				T	SE microfiche not clear; a-thin c/c or snow, not clear; b-some haze, very well defined
477				T	a-thin c/c, clear; b-hazy, terrain well defined
478				T	a- scat. c/c, not clear; b-dense haze, terrain mod. defined
479				T	b- dense haze thru/out, terrain very well defined and clear clear
480				T	a- scat. c/c ~20% + shadowing; b-dense haze, terrain well defined
481				T	a- scat. c/c, not clear; b-dense haze, terrain well defined
482				T	b-dense haze, terrain well defined
483				T	NA, microfiche not at MRSC
484				T	b- fog or smoke over few lakes; some haze, terrain well defined
485				T	b-dense smoke, fog, or haze, terrain well defined
486					microfiche not clear
487					microfiche not clear
488	G				NA, microfiche not clear
489					a- scat. clouds ~20%; b-hazy, terrain poorly defined
490					a- very thin c/c; b-hazy, terrain poorly defined
491					a-thin c/c, not clear
492					b- hazy, terrain well defined
493					a- scat. clouds, clear; b-some haze, terrain well defined thru/out
494					a- scat. and thin c/c, clear; b-some haze, terrain well defined
495					a- thin c/c, clear; b-some haze, terrain is visible and well defined
496					low scat. clouds in SE; b-no haze, terrain visible and well defined
497					3/4 microfiche not clear; b- some haze, terrain well defined and clear in NW
498					b-dense haze on W side, hazy thru/out, terrain visible, mod. defined
499					1/2 microfiche not clear; a-dense haze, terrain is visible, poorly defined
500					b-dense haze thru/out, terrain is visible, mod. defined
501					b- hazy, terrain well defined
502					a- scat. c/c ~20% + shadowing, not clear; b-dense haze, terrain poorly defined
503					b- dense haze, terrain well defined
504					b- dense haze, terrain very well defined
505					a-thin c/c or smoke, not clear; b-dense haze or smoke, terrain well defined
506					b- dense haze, terrain very well defined
507					b- thin c/c thru/out, terrain mod. defined
508					a- thin c/c, clear; b-some haze, terrain very well defined
509					microfiche not clear
510					NA, microfiche not at MRSC
511				T	a- thin cloud, not clear; b-dense haze, terrain visible but poorly defined
512				T	a- scat. clouds thru/out, terrain visible but confused with shadowing effect
513				T	a- very small clouds ~25%; b-hazy, terrain well defined; dense haze in SE
514				T	NA, microfiche not at MRSC
515				T	a- striated scat. clouds thru/out; b-dense haze, terrain visible poorly defined
516				T	b- hazy, terrain very well defined
517				T	b- some haze, terrain very well defined
518				T	a- snow or thin c/c, not clear; b-some haze, terrain mod. defined
519				T	a- thin c/c, not clear; b-some haze, terrain well defined
520				T	a- thin c/c, clear; b-dense haze, terrain very well defined
521				T	a- thin and scat. c/c, not clear; b-dense haze, terrain mod. defined
522				T	a- scat. cloud ~25%, clear; b-dense haze, terrain well defined

APP.#	Q. of CO		TAPE		COMMENTS: a-transparent c/c; b-non-shaded area: * = interpreted from hardcopy
	1	2	GC	TM	
523				T	a- scat. clouds + shadowing, not clear; b-dense haze terrain well defined
524				T	a- thin c/c, clear; b-dense haze, terrain well defined
525				T	a- thin c/c, clear; b-dense haze, terrain very well defined
526				T	b- some haze, terrain very well defined and clear
527				T	3/4 microfiche not clear; b) terrain mod. defined
528				T	3/4 microfiche not clear; b) terrain mod. defined
529				T	a- thin c/c, clear; b-some haze, terrain well defined
530				T	NA, microfiche not at MRSC
531				T	NA, microfiche not at MRSC
532				T	b- hazy, terrain mod. defined
533				T	SE not clear; hazy, terrain well defined
534					a- thin c/c or snowcover; b-terrain visible but mod. defined
535					a- thin c/c, not clear; b-terrain visible, poorly defined
536					NA, microfiche not at MRSC
537					a-low, scat. clouds ~30%; b-hazy, terrain is visible, well defined
538					b-some haze, terrain very well defined
539					a- scat. clouds, not clear; b-some haze, terrain very well defined
540					NA, microfiche not at MRSC
541					b- dense haze, terrain poorly defined
542					b- hazy, terrain well defined
543					a-thin c/c on E side; b-hazy thru/out, terrain mod. defined
544					a-scat. clouds thru/out bottom half; b-hazy, terrain well defined
545					a-thin c/c or snow; b-no haze, terrain well defined and clear
546					a- thin c/c; b-dense haze, terrain visible, mod. defined
547					a) low, scat. clouds, not clear; b-some haze, very well defined
548					b- hazy, terrain visible, well defined
549					a- thin c/c thru/out. b-hazy, some terrain visible but poorly defined
550					b- dense haze, terrain mod. defined
551					a- scat. clouds + shadowing, not clear; b-hazy, terrain well defined
552					a- scat. clouds + shadowing; b-terrain well defined & clear except in SE
553					a- dense smoke or c/c, not clear; b-dense haze, terrain well defined
554					b- hazy, terrain very well defined and clear
555					b- dense haze thru/out, terrain well defined
556					b- some haze, terrain very well defined
557					NA, microfiche not at MRSC
558				T	a- scat. clouds ~20%; b-hazy, terrain well defined
559				T	b- hazy, terrain well defined
560				T	a- scat. clouds ~30%; b-hazy, terrain mod. defined
561				T	b- hazy, terrain very well defined and clear
562	G			T	b-some haze, terrain very well defined; some snowcover or blowing snow
563				T	b- some haze, terrain very well defined and clear; blowing snow on E side
564				T	a- thin c/c, clear; b-hazy, terrain well defined
565				T	a- scat. clouds + shadowing; b-hazy, terrain well defined
566				T	b- dense haze, terrain well defined
567				T	a- scat. clouds + shadowing, not clear; b-hazy, terrain well defined
568				T	a- thin c/c, clear; b-dense haze, terrain well defined
569				T	a- thin c/c or snowcover, not clear; b-some haze, terrain very well defined
570				T	a-thin c/c with blowing snow, clear; b-some haze, terrain well defined
571				T	NE and SE not clear; b-some haze, terrain well defined
572				T	a- thin c/c, clear; b-dense haze, terrain well defined
573					* a- scat. clouds ~20%, clear; b-some haze, terrain very well defined
574	G	G			* a- thin c/c, clear; b-dense haze, terrain well defined
575					* a-thin c/c, clear; b-hazy, terrain well defined
576	F	P			* a-scat. clouds ~30%, clear; b-some haze, terrain very well defined
577	F	G			* a-scat. c/c ~30%, clear; b-some haze, terrain very well defined
578	F	G			* a-thin c/c, clear; b-some haze, terrain very well defined
579					* a-thin cloud or blowing snow, clear; b-some haze, terrain very well defined
580					microfiche not clear

APP.#	Q. of CO		TAPE		COMMENTS: a-transparent c/c; b-non-shaded area: * = interpreted from hardcopy
	1	2	GC	TM	
581					a- thin c/c, not clear; b-hazy, terrain poorly defined due to snow cover
582	G	G			a- thin c/c, clear; b-dense haze, terrain well defined; some open water
583	G	F			a- thin c/c or very dense haze, clear; b- dense haze thru/out, very well defined
584	G	F			a- thin c/c or blowing snow, clear; b-some haze, terrain well defined
585	G	P			a- thin and scat c/c ~30% + shadowing, clear; b-dense haze, well defined
586	G	P			a- scat. c/c ~10%, clear; b-dense haze, terrain well defined
587	F	F			a- thin c/c, clear; b-hazy, terrain well defined
588	P	F			a- thin c/c, not clear; b-some haze, terrain well defined; NE not clear
589					a- thin c/c, clear; SE and SW corner not clear; b-some haze, terrain well defined
590					b- some haze, terrain very well defined
591	F	F			a- scat. clouds, not clear; b-some haze, terrain very well defined
592	P	F			a-thin c/c, clear; b-hazy, terrain very well defined
593					NA, microfiche not at MRSC
594					NA, microfiche not at MRSC
595					NA, microfiche not at MRSC
596	F	F			NA, microfiche not at MRSC
597	G	G			NA, microfiche not at MRSC
598					NA, microfiche not at MRSC
599		G			NA, microfiche not at MRSC
600	F	F			NA, microfiche not at MRSC
601					a-thin c/c, clear; b-some haze, terrain very well defined
602					a-thin c/c, clear; b-some haze, terrain very well defined
603					b-some haze, terrain mod. well defined
604					a-thin c/c, clear; b-some haze, terrain well defined
605					a-thin c/c, clear; b-dense haze, terrain well defined
606					a-thin c/c, not clear; b-dense haze, terrain very well defined
607					a-thin c/c, not clear; b-some haze, terrain very well defined
608					a-thin and scat. c/c, clear; b-hazy, terrain very well defined
609	G				b-some haze, terrain very well defined
610					a-thin c/c, clear; b-dense haze, terrain very well defined
611					a-thin c/c, clear; b-hazy, terrain very well defined
612					a- c/c or blowing snow, not clear; b-dense haze, terrain very well defined
613					microfiche not clear; shoreline visible, terrain poorly defined
614					a-thin c/c, clear; b-dense haze, terrain well defined
615					a-thin c/c, clear; b-hazy, terrain very well defined
616					a-scat. clouds ~5%, clear; b-dense haze, terrain very well defined
617					a-thin and scat. c/c ~5%, clear; b-hazy, terrain very well defined
618					a-very thin c/c, clear; b-hazy, terrain very well defined
619					a-thin c/c, clear; b-hazy, terrain mod. defined
620					b-some haze, terrain very well defined
621					a-thin c/c, not clear; b-some haze, terrain poorly defined
622					1/2 microfiche not clear; b- dense haze, terrain mod. defined
623					1/2 microfiche not clear; b-terrain mod. defined
624					a- thin c/c or blowing snow, clear; b-hazy, terrain well defined
625					a-thin c/c, not clear; b-dense haze, terrain mod. defined
626	G				b-hazy, terrain very well defined
627					b-dense haze with fog along shoreline, terrain well defined
628					a-thin c/c, clear; b-dense haze, terrain very well defined
629					a-thin c/c or blowing snow, clear; b-hazy, terrain very well defined
630					NA, microfiche not at MRSC
631					NA, microfiche not at MRSC
632					NA, microfiche not at MRSC
633					NA, microfiche not at MRSC
634					a-c/c, clear; b-dense haze, terrain well defined
635					* a-scat. c/c ~20%, clear; b-hazy, terrain very well defined
636					* a-very thin c/c, clear; b-some haze, terrain very well defined
637					* a- thin c/c, clear; b- hazy, terrain mod. defined
638					* a-thin c/c, clear; b-dense haze, terrain well defined

APP.#	Q. of CO		TAPE		COMMENTS: a-transparent c/c; b-non-shaded area: * = interpreted from hardcopy
	1	2	GC	TM	
639	P	P			* a-thin and scat. c/c, clear; b-dense haze, terrain well defined
640	F	P			* a- very thin c/c, clear; b-some haze, terrain very well defined
641	F				* a- thin c/c, clear; b-some haze, terrain well defined
642					microfiche not clear; some broken ice
643	G	F			a-thin c/c, clear; b-no haze, terrain very well defined
644					a- very thin c/c, clear; b-dense haze, terrain well defined
645	F	F			a- scat. clouds ~30%, clear; b-hazy, terrain very well defined
646	G	F			b- dense haze, terrain very well defined
647	F	F			a- thin c/c, not clear; b-dense haze, terrain very well defined
648					microfiche not clear; poorly defined
649	F	G			b-dense haze, terrain well defined
650	F	F			a-thin and scat. c/c, clear; b-dense haze, terrain well defined
651					b- dense haze, very well defined
652					a-c/c or very dense haze, not clear; b-hazy, terrain well defined
653	G	F			microfiche not clear; b-terrain not visible but shoreline well defined
654	F	P			b- some haze, terrain well defined; some areas poorly defined due to snowcover
655					a-thin and scat. c/c ~30%, clear; b-some haze, terrain well defined
656					a-scat. c/c, clear; b-hazy, terrain very well defined
657					strong glare from c/c; b-no haze, terrain very well defined
658					a- thin c/c, not clear; b-hazy, terrain very well defined
659	G	G			a-thin and scat. c/c ~10%, clear; b-hazy, terrain very well defined
660					NA, microfiche not at MRSC
661					NA, microfiche not at MRSC
662					NA, microfiche not at MRSC
663					NA, microfiche not at MRSC
664					NA, microfiche not at MRSC
665					NA, microfiche not at MRSC
666					a-thin or scat. c/c, not clear; b-hazy, terrain very well defined
667					a-thin c/c, not clear; b-dense haze on E side, poor; hazy, well def. on W side
668					b-some haze, terrain very well defined; missing 5-10% of W
669					microfiche not clear; some open water, terrain poorly defined
670					a-thin c/c, clear; b-some haze, terrain well defined
671					a-thin c/c, not clear; b-dense haze, terrain mod. defined
672	G				b-dense haze, terrain very well defined
673					a-thin c/c, not clear; b-dense haze, terrain well defined
674					a-thin c/c, not clear; b-hazy, terrain very well defined
675					a-thin c/c, clear; b-hazy, terrain very well defined
676					a-thin c/c, not clear; b-hazy, terrain well defined
677					microfiche not clear; poorly defined
678	G				microfiche not clear; shoreline visible
679					a-scat. c/c, clear; b-dense haze, terrain poorly defined
680					a-thin c/c, not clear; b-dense haze, terrain mod. defined
681					a-thin c/c, clear; b-dense haze, terrain well defined
682					a-thin c/c, clear; b-hazy, terrain very well defined
683					a- thin c/c, clear; b-dense haze, terrain well defined
684					NA, microfiche not at MRSC
685					a- c/c or snowcover thru/out, not clear, terrain is poorly defined
686					NA, microfiche not at MRSC
687					NA, microfiche not at MRSC
688					NA, microfiche not at MRSC
689					a-thin c/c, clear; b-dense haze, terrain well defined
690					* a-scat. c/c ~30%, clear; b-hazy, terrain very well defined
691					* a- thin c/c, clear; b-some haze, terrain well defined
692	G	G			* a- thin c/c, clear; b-some haze, terrain very well defined
693	F	F			* b-some haze, terrain very well defined
694					* a-thin c/c, clear; b-hazy, terrain well defined
695					* image not clear; poorly defined
696	G	G			* a-scat. c/c ~20%, clear; b-some haze, terrain very well defined

APP.#	Q. of CO		TAPE		COMMENTS: a-transparent c/c; b-non-shaded area: * = interpreted from hardcopy
	1	2	GC	TM	
697	F	G			* a- thin c/c or blowing snow, not clear; b-some haze, terrain well defined
698					microfiche not clear; a- some terrain visible, poorly defined
699					microfiche not clear; terrain poorly defined
700	F	P			a-thin c/c, not clear; b-hazy, terrain well defined
701	P	F			a-scat. c/c ~20%, not clear; b-dense haze, terrain well defined
702	F	P			a-scat. c/c ~30%, clear; b-some haze, terrain very well defined
703	E	P			a-striated, scat. c/c + shadowing, not clear; b-hazy, terrain well defined
704	P	F			1/2 microfiche not clear; b-dense haze, mod. defined on W half
705	P	F			a-thin c/c, clear; b-hazy, terrain well defined; streak in N half
706					a-thin c/c or blowing snow, not clear; b-some haze, terrain well defined
707	P	F			a-thin c/c, clear; b-dense haze, terrain mod. defined
708					a-thin c/c, clear; b-dense haze, terrain well defined
709					a-thin c/c, not clear; b-dense haze, terrain mod. defined
710					a-scat. clouds ~30%, clear; b-dense haze, terrain well defined
711					a-thin c/c or very dense haze, not clear; b-some haze, mod. defined
712					NA, microfiche not at MRSC
713		F			a-thin c/c or snowcover in NE, not clear; b-some haze, terrain very well defined
714	G	G			a-very thin or scat. c/c ~10%, clear; b-some haze, terrain very well defined
715	G	F			a-very thin c/c or smoke, clear; b-some haze, terrain very well defined
716					NA, microfiche not at MRSC
717					NA, microfiche not at MRSC
718					NA, microfiche not at MRSC
719	G	E			NA, microfiche not at MRSC
720	E	F			NA, microfiche not at MRSC
721	F	F			NA, microfiche not at MRSC
722					NA, microfiche not at MRSC
723					NA, microfiche not at MRSC
724	G	G			NA, microfiche not at MRSC
725					NA, microfiche not at MRSC
726	F	G			NA, microfiche not at MRSC
727					NA, microfiche not at MRSC
728					NA, microfiche not at MRSC
729					NA, microfiche not at MRSC
730					microfiche not clear; poorly def.
731					a-very thin c/c, clear; b-hazy, terrain well defined; ice break up
732	G				a-thin c/c, clear; b-some haze, terrain very well defined
733					a-thin c/c, clear; b-some haze, terrain very well defined
734					a-thin c/c and/or blowing snow, not clear; b-some haze, terrain mod. defined
735					a-cloud cover and/or blowing snow, not clear; b-some haze, terrain well defined
736					a-thin c/c or very dense haze, terrain poorly defined
737	G		D		a-scat. clouds ~20%, clear; b-hazy, terrain very well defined
738					a-thin c/c, clear; b-hazy, terrain very well defined
739					a-c/c, not clear; b-dense haze, terrain very well defined
740					a-very thin c/c and/or blowing snow, clear; b-hazy, terrain mod. defined
741					a-E. side of microfiche not clear; b-some haze, terrain mod. defined
742					a-thin c/c, not clear; b-dense haze, terrain well defined
743					a-scat. clouds ~30%, clear; b-hazy, terrain very well defined
744					a-thin c/c, clear; b-dense haze, terrain very well defined
745	G				b- dense haze, terrain very well defined
746					b-some haze, terrain very well defined
747					a-thin c/c, clear; b-dense haze, terrain well defined
748					NA, microfiche not at MRSC
749					NA, microfiche not at MRSC
750					NA, microfiche not at MRSC
751					a-thin c/c, clear; b-dense haze, terrain very well defined
752					* a-very thin c/c, clear; b-some haze, terrain very well defined
753	P				* b- some haze, terrain very well defined
754	F				* a- thin c/c and/or blowing snow; b-some haze, terrain well defined

APP.#	Q. of CO		TAPE		COMMENTS: a-transparent c/c; b-non-shaded area: * = interpreted from hardcopy
	1	2	GC	TM	
755	F	P			* a-thin c/c and/or blowing snow, clear; b-some haze, terrain very well defined
756	P	F			* a- thin c/c, not clear; b-some haze, terrain very well defined
757	F	E			* a- very thin c/c, clear; b-hazy, terrain very well defined
758					* a-very thin c/c, clear; b-some haze, terrain very well defined
759	F	G			* a-thin c/c, not clear; b-some haze, terrain very well defined
760					b-some haze, terrain well defined
761					a-thin c/c thru/out, terrain mod. defined
762	F	F			a-scat. clouds ~20%, clear; b-hazy, terrain very well defined
763	F	F			a-scat. c/c ~40%, not clear; b-dense haze, terrain very well defined
764	G	F			a-scat. clouds ~30%, clear; b-hazy, terrain very well defined
765	F	F			a-scat. clouds ~15%, clear; b-hazy, terrain very well defined
766	F	F			b-no haze, terrain very well defined
767	P	F			a-c/c or very dense haze, not clear; b-dense haze, terrain well defined
768	P	P			b-dense haze, terrain very well defined
769					E. side of microfiche not clear; b-some haze, terrain very well defined
770	G	G			a-scat. clouds and blowing snow, not clear; b-dense haze, terrain mod. defined
771	F	F			a-scat. or thin c/c, clear; b-dense haze, terrain well defined
772					a-thin c/c, clear; b-dense haze, terrain mod. defined
773					a-thin c/c, clear; b-hazy, terrain well defined
774					a-thin c/c, clear; b-some haze, terrain well defined
775	F	F			b-some haze, terrain very well defined
776					a-scat. clouds 50%, clear; b-some haze, terrain very well defined
777					b-hazy, terrain very well defined
778					NA, microfiche not at MRSC
779					NA, microfiche not at MRSC
780					NA, microfiche not at MRSC
781					NA, microfiche not at MRSC
782	F	F			NA, microfiche not at MRSC
783					NA, microfiche not at MRSC
784	G	G			NA, microfiche not at MRSC
785					NA, microfiche not at MRSC
786					NA, microfiche not at MRSC
787	G	G			NA, microfiche not at MRSC
788					NA, microfiche not at MRSC
789	G	G			NA, microfiche not at MRSC
790	F				NA, microfiche not at MRSC
791					NA, microfiche not at MRSC
792					a- very thin c/c and/or blowing snow, clear; b-some haze, terrain very well defined
793					a-thin c/c, clear; b-some haze, terrain well defined
794					a-part of microfiche not clear; b-some haze, terrain well defined
795					a-thin and scat. clouds ~50%, not clear; b-some haze, terrain very well defined
796					a-scat. clouds thru/out ~30%, clear; b-some haze, terrain very well defined
797					a-thin and scat. clouds ~20%, clear; b-hazy, terrain well defined
798					a-very thin c/c, clear; b-hazy, terrain very well defined
799					a-c/c, not clear; b-some haze, terrain poorly defined
800					a-very thin c/c, clear; b-hazy, terrain very well defined
801					a-thin c/c, clear; b-dense haze, terrain very well defined
802					a-thin c/c and/or blowing snow, clear; b-some haze, terrain very well defined
803					a-thin c/c, not clear; b-dense haze, terrain poorly defined
804			D		a-thin c/c, clear; b-dense haze, terrain very well defined
805					a-very thin c/c, clear; b-dense haze, terrain well defined
806			D		a-very thin c/c, clear; b-hazy, terrain very well defined
807					a-thin c/c, clear; b- dense haze, terrain mod. well defined
808					a-thin c/c and/or blowing snow, clear; b-some haze, terrain mod. defined.
809					a-thin c/c, clear; b-some haze, terrain very well defined
810					a-thin c/c, not clear; b-dense haze, terrain poorly defined
811					a-thin c/c, clear; b-dense haze, terrain well defined
812					b-dense haze, terrain very well defined

APP.#	Q. of CO		TAPE		COMMENTS: a-transparent c/c; b-non-shaded area: * = interpreted from hardcopy
	1	2	GC	TM	
813					b-hazy, terrain very well defined
814					a-thin c/c, clear; b-some haze, terrain very well defined
815					NA, microfiche not at MRSC
816					NA, microfiche not at MRSC
817					NA, microfiche not at MRSC
818					NA, microfiche not at MRSC
819					NA, microfiche not at MRSC
820					NA, microfiche not at MRSC
821					a-scat. clouds ~40%, clear; b-hazy, terrain very well defined
822					a-scat. clouds ~20%, clear; b-dense haze, terrain very well defined
823					* a-thin c/c, clear; b-hazy, terrain very well defined
824	P	P			* a-thin c/c, clear; b-some haze, terrain very well defined
825	P				* a-thin c/c, clear; b-some haze, terrain very well defined
826					NA, microfiche not at MRSC
827	F	P			NA, microfiche not at MRSC
828	G	F			NA, microfiche not at MRSC
829	P				* a-thin c/c, clear; b-hazy, terrain very well defined
830	P	F			* a-scat. clouds ~20%, clear; b-hazy, terrain very well defined
831	G	G			* a-thin cloud or snowcover, not clear; b-some haze, terrain very well defined
832	G	G			* a-very thin c/c, not clear; b-some haze, terrain very well defined
833					a-scat. clouds ~30%, not clear; b-hazy, terrain very well defined
834	P	P			a-thin c/c, not clear; b-hazy, terrain very well defined
835	F				a-scat. clouds ~30%, clear; b-hazy, terrain well defined
836	P	P			a-thin c/c, clear; b-some haze, terrain very well defined
837	F	G			b-dense haze, terrain poorly defined
838	F				a-thin and scat. clouds, not clear; b-no haze, terrain very well defined
839	P	P			a-scat. clouds, clear; b-hazy, terrain very well defined
840					a-scat. clouds, not clear; b-dense haze, terrain poorly defined
841	G	G			a-thin c/c, not clear; b-dense haze, terrain mod. defined
842	G	G			a-very thin c/c, clear; b-some haze, terrain well defined
843	F	G			a-very thin c/c, clear; b-some haze, terrain well defined
844	F	F			b-hazy, terrain very well defined
845	G	G			a-scat. clouds ~50%, not clear; b-some haze, terrain very well defined
846					NA, microfiche not at MRSC
847					NA, microfiche not at MRSC
848					NA, microfiche not at MRSC
849	P	P			NA, microfiche not at MRSC
850					NA, microfiche not at MRSC
851					NA, microfiche not at MRSC
852					NA, microfiche not at MRSC
853	P	G			NA, microfiche not at MRSC
854	G	F			NA, microfiche not at MRSC
855					NA, microfiche not at MRSC
856					a-thin c/c, clear; b-some haze, terrain well defined
857					a-very thin c/c and/or blowing snow, clear; b-some haze, terrain very well defined
858					a-thin c/c and/or blowing snow thru/out, clear; b-some haze, terrain well defined
859					microfiche not clear, image poorly defined
860					microfiche not clear, image poorly defined
861					a-thin c/c, not clear; b-some haze, terrain well defined
862					a-very thin c/c, clear; b-dense haze, terrain very well defined
863					a-thin c/c, clear; b-some haze, terrain well defined
864					microfiche not clear
865					a-very thin c/c, clear; b-some haze, terrain very well defined
866			D		a-scat. clouds ~25%, clear; b-hazy, terrain very well defined
867					a-thin c/c, clear; b-some haze, terrain well defined
868					NA, microfiche not at MRSC
869					a-thin c/c, clear; b-some haze, terrain very well defined
870					a-cloud or snowcover, not clear; b-some haze, terrain well defined

APP.#	Q. of CO		TAPE		COMMENTS: a-transparent c/c; b-non-shaded area: * = interpreted from hardcopy
	1	2	GC	TM	
871					a-thin and scat. c/c ~30%, clear; b-hazy, terrain very well defined
872					a- very thin and scat. c/c ~30%, not clear; b- dense haze, terrain well defined
873					a-thin and scat. c/c, not clear; b-dense haze, terrain well defined
874					a-scat. clouds ~25%, clear; b-dense haze, terrain well defined
875					a-thin c/c, clear; b-hazy, terrain well defined
876					NA, microfiche not at MRSC
877					a-thin c/c, clear; b-hazy, terrain very well defined
878					part of microfiche not clear; b-hazy, terrain poorly defined
879					part of microfiche not clear; b-hazy, terrain poorly defined
880	G				a-scat. clouds ~15%, clear; b-dense haze, terrain well defined
881					a-very thin c/c, clear; b-dense haze, terrain well defined
882					a-very thin c/c thru/out, clear, terrain mod. defined
883					NA, microfiche not at MRSC
884					NA, microfiche not at MRSC
885					NA, microfiche not at MRSC
886					NA, microfiche not at MRSC
887					NA, microfiche not at MRSC
888					NA, microfiche not at MRSC
889					NA, microfiche not at MRSC
890					NA, microfiche not at MRSC
891					NA, microfiche not at MRSC
892					a-thin c/c, clear; b-dense haze, terrain well defined
893					a-very thin c/c, clear; b-hazy, terrain very well defined
894					* a-scat. clouds, clear; b-hazy, terrain very well defined
895					* a-very thin c/c, clear; b-some haze, terrain very well defined
896					* a-thin c/c or blowing snow, clear; b-some haze, mod. defined
897	G	F			* a-thin c/c, clear; b-dense haze, terrain very well defined
898					* a-thin c/c, clear; b-hazy, terrain very well defined
899					* a-thin c/c, clear; b-hazy, terrain very well defined
900	P	G			* a-thin c/c, clear; b-some haze, terrain very well defined
901	F	F			* a-thin c/c, not clear; b-some haze, terrain well defined
902	G	F			* a-thin c/c, clear; b-some haze, terrain well defined
903					* a-some blowing snow and/or clouds, clear; b-some haze, terrain well defined
904	F	G			microfiche not clear
905					a-thin c/c thru/out, clear, terrain well defined
906	F	F			a-thin c/c, not clear; b-dense haze, terrain well defined
907	P	F			b-dense haze or smoke terrain very well defined
908	P	F			a-scat. clouds ~40%, not clear; b-dense haze, terrain very well defined
909	P	P			a-scat. clouds ~20%, clear; b-some haze, terrain very well defined
910					a-thin c/c and/or blowing snow, clear; b-some haze, terrain very well defined
911	E	E			a-scat. clouds, not clear; b-dense haze, terrain very well defined
912	G	G			a-thin or scat. c/c, clear; b-dense haze, terrain very well defined
913	G	F			a-smoke or thin c/c, clear; b-dense haze, well defined
914					b-dense haze or smoke, terrain mod. defined
915	F	G			a-very thin c/c or blowing snow, clear; b-some haze, terrain well defined
916					a-thin c/c or blowing snow, not clear; b-some haze, terrain mod. defined
917					a-thin c/c, clear; b-hazy, terrain very well defined
918	G				a-scat. c/c, clear; b-some haze, terrain very well defined
919	G	G			a-very thin c/c, clear; b-haze or smoke, terrain very well defined
920					NA, microfiche not at MRSC
921					NA, microfiche not at MRSC
922					NA, microfiche not at MRSC
923					NA, microfiche not at MRSC
924	P	F			NA, microfiche not at MRSC
925					NA, microfiche not at MRSC
926	G	G			NA, microfiche not at MRSC
927					NA, microfiche not at MRSC
928					NA, microfiche not at MRSC



APP.#	Q. of CO		TAPE		COMMENTS: a-transparent c/c; b-non-shaded area: * = interpreted from hardcopy
	1	2	GC	TM	
929	G	G			NA, microfiche not at MRSC
930					NA, microfiche not at MRSC
931					a-very thin c/c, clear; b-hazy, terrain well defined
932					a-thin c/c, clear; b-some haze, terrain well defined
933					part of microfiche not clear; b-terrain mod. defined
934					microfiche not clear
935					part of microfiche not clear; b-terrain poorly defined
936					a-thin c/c, clear; b-dense haze, terrain very well defined
937					NA, microfiche not at MRSC
938					a-thin c/c and/or blowing snow, clear; b-some haze, terrain well defined
939	F				b-hazy, terrain very well defined
940			D		b-hazy, terrain very well defined
941					a-stat. clouds ~20%, clear; b-hazy, terrain very well defined
942					NA, microfiche not at MRSC
943					a-thin c/c, not clear; b-some haze, terrain well defined
944					a-thin c/c, clear; b-dense haze, terrain well defined
945					a-scat. clouds ~15%, clear; b-dense haze, terrain very well defined
946			D		a-very thin c/c, clear; b-dense haze, terrain very well defined
947					a-scat. clouds ~20% + shadowing, clear; b-hazy, terrain very well defined
948					a-scat. clouds ~30%, not clear; b-dense haze, terrain well defined
949					a-thin and scat. clouds thru/out, clear
950					a-thin c/c, not clear; b-dense haze, mod. defined
951					microfiche not clear
952					a-thin c/c, clear; b-hazy, terrain very well defined
953					3/4 of microfiche not clear; b- terrain mod. defined
954					microfiche not clear; terrain poorly defined
955					microfiche not clear; terrain poorly defined
956					a-scat. clouds ~20%, clear; b-dense haze, terrain well defined
957	G		D		b- dense haze, terrain very well defined
958					NA, microfiche not at MRSC
959					NA, microfiche not at MRSC
960					NA, microfiche not at MRSC
961					NA, microfiche not at MRSC
962					NA, microfiche not at MRSC
963					NA, microfiche not at MRSC
964					NA, microfiche not at MRSC
965					microfiche not clear, terrain poorly defined
966					a-scat. clouds ~15%, clear; b-dense haze, terrain very well defined
967					a-scat. clouds ~30%, clear; b-dense haze, terrain well defined
968					a-scat. clouds ~20%, clear; b-dense haze, terrain well def.
969					NA, microfiche not at MRSC
970	F	E			* a-very thin c/c, clear; b-hazy, terrain very well defined
971					* b-some haze, terrain very well defined
972	P	P			* a-thin c/c and/or blowing snow, clear; b-some haze, terrain very well defined
973					* a-thin c/c and/or blowing snow, clear; b-some haze, terrain very well defined
974	F	P			* a-very thin c/c, clear; b-dense haze, terrain very well defined
975	G	F			* a- thin c/c, clear; b-hazy, very well defined
976	P	G			* a-thin c/c and/or blowing snow; clear; b-some haze, terrain very well defined
977	G	G			* a-thin c/c, clear; b-some haze, terrain very well defined
978	G				a-thin c/c, clear; b-some haze, terrain very well defined
979	F	G			a-scat. clouds thru/out, terrain well defined
980	P	P			a-scat. clouds ~30%, not clear; b-dense haze, terrain very well defined
981	F	F			a-scat. clouds ~20%, clear; b-dense haze, terrain very well defined
982	F	P			a-scat. clouds, clear; b-hazy, terrain very well defined
983					a- very thin c/c, clear; b-some haze, terrain very well defined
984					a-scat. clouds ~20%, clear; b-dense haze, terrain mod. defined
985	P	P			a-thin c/c, clear; b-dense haze, terrain very well defined
986					a-scat. clouds ~50%/block, not clear; b-dense haze, terrain poorly defined

APP.#	Q. of CO		TAPE	COMMENTS: a-transparent c/c; b-non-shaded area: * = interpreted from hardcopy
	1	2	GC TM	
987	G	G		a-thin c/c, not clear; b-dense haze, terrain well defined
988				a-thin c/c, clear; b-dense haze, terrain very well defined
989				a-thin c/c, clear; b-dense haze, terrain well defined
990	G	G		a-thin c/c and/or blowing snow, clear; b-hazy, terrain very well defined
991	P	G		a-thin c/c, clear; b-hazy, terrain very well defined
992	F			a-thin c/c and/or blowing snow, clear; b-hazy, terrain very well defined
993	G	G		b-hazy, terrain very well defined
994		F		NA, microfiche not at MRSC
995				NA, microfiche not at MRSC
996				NA, microfiche not at MRSC
997		P		NA, microfiche not at MRSC
998				NA, microfiche not at MRSC
999	F	F		NA, microfiche not at MRSC
1000	G	G		NA, microfiche not at MRSC
1001	G	G		NA, microfiche not at MRSC
1002				NA, microfiche not at MRSC
1003				NA, microfiche not at MRSC
1004	P	G		NA, microfiche not at MRSC
1005				NA, microfiche not at MRSC
1006				a-very thin c/c, clear; b-some haze, terrain very well defined
1007				a-thin c/c, clear; b-some haze, terrain very well defined
1008				a-thin c/c, clear; b-some haze, terrain very well defined
1009				a-thin c/c, clear; b-some haze, terrain very well defined
1010				a-thin c/c, clear; b-some haze, terrain very well defined
1011				a-scat. clouds ~30%, clear; b-hazy, terrain well defined
1012				a-scat. clouds ~20%, clear; b-hazy, terrain very well defined
1013				NA, microfiche not at MRSC
1014				a-very thin c/c, clear; b-some haze, terrain very well defined
1015				a-very thin c/c, clear; b-some haze, terrain very well defined
1016			D	b-hazy, terrain very well defined
1017				a-thin c/c, clear; b-hazy, terrain very well defined
1018				a-thin c/c, not clear; b-dense haze, terrain poorly defined
1019				1/2 microfiche missing; b-hazy, terrain very well defined
1020				1/10 microfiche missing; a-thin c/c, clear; b-dense haze, terrain well defined
1021				NA, microfiche not at MRSC
1022				a-thin c/c and/or blowing snow, clear; b-some haze, terrain very well defined
1023				a-very thin c/c, clear; b-dense haze, terrain well defined
1024				a-scat. clouds ~20%, clear; b-dense haze, terrain very well defined
1025	G		D	b-dense haze, terrain very well defined
1026				a-scat. clouds ~15%/block, clear; b-dense haze, terrain very well defined
1027				a-scat. clouds, not clear; b-dense haze, well defined
1028				a-scat. clouds ~15%, clear; b-dense haze, terrain well defined
1029				NA, microfiche not at MRSC
1030				a-thin c/c, clear; b-some haze, terrain very well defined
1031				b-some haze, terrain very well defined
1032				a-very thin c/c, clear; b-some haze, terrain very well defined
1033				a-thin c/c, clear; b-hazy, terrain very well defined
1034				a-thin c/c, not clear; b-dense haze, terrain mod. defined
1035				a-thin and scat. c/c, clear; b-dense haze, terrain well defined
1036				a-thin c/c, clear; b-dense haze, terrain well defined
1037				a-thin c/c, clear; b-hazy, terrain very well defined
1038				NA, microfiche not at MRSC
1039				NA, microfiche not at MRSC
1040				NA, microfiche not at MRSC
1041				NA, microfiche not at MRSC
1042				NA, microfiche not at MRSC
1043				NA, microfiche not at MRSC
1044				NA, microfiche not at MRSC

APP.#	Q. of CO		TAPE		COMMENTS: a-transparent c/c; b-non-shaded area: * = interpreted from hardcopy
	1	2	GC	TM	
1045					NA, microfiche not at MRSC
1046					a-thin c/c, clear; b-some haze, terrain very well defined
1047					a-thin c/c, clear; b-dense haze, terrain very well defined
1048					a-scat. clouds ~20%, clear; b-dense haze, terrain very well defined
1049					a-scat. clouds ~20%, clear; b-dense haze, terrain well defined
1050					b-dense haze, terrain very well defined
1051					* a-thin c/c, not clear; b-hazy, terrain very well defined
1052					* a-very thin c/c, clear; b-some haze, terrain well defined
1053					* a-very thin c/c, clear; b-some haze, terrain very well defined
1054	P	G			* a-thin c/c and/or blowing snow; b-some haze, terrain well defined
1055	F	P			* a-very thin c/c and/or blowing, clear; b-some haze, terrain very well defined
1056	P	P			* b-some haze, terrain very well defined
1057	G	F			* a-very thin c/c, clear; b-some haze, terrain very well defined
1058					* a-thin c/c, clear; b-dense haze, terrain very well defined
1059					* a-very thin c/c, clear; b-hazy, terrain very well defined
1060					* a-thin c/c, clear; b-dense haze, terrain well defined
1061					* a-scat. clouds ~20%, clear; b-dense haze, terrain very well defined
1062	F	F			* b-some haze, terrain very well defined
1063					* b-some haze, terrain very well defined
1064	G	P			a-thin c/c, clear; b-hazy, terrain poorly defined
1065	G	F			a-striated, scat. clouds ~40%, not clear; b-dense haze, terrain mod. defined
1066		P			a-thin c/c, not clear; b-very dense haze, terrain mod. defined
1067	G	F			a-scat. clouds ~20% ,clear; b-dense haze, terrain well defined
1068	P	F			a-scat. clouds ~60%, not clear; b-dense haze, terrain well defined
1069	F	F			a-scat. clouds 40%, not clear; b-dense haze, terrain well defined
1070		F			microfiche not clear; b-dense haze, terrain poorly defined
1071	F	F			a-thin c/c, clear; b-hazy, terrain very well defined
1072					a-thin c/c, clear; b-some haze, terrain very well defined
1073	G	E			a-scat. c/c ~20%, not clear; b-dense haze, terrain mod defined
1074	G	G			a-thin c/c, clear; b-dense haze, terrain well defined
1075					a-thin c/c or blowing snow, not clear; b-hazy, terrain well defined
1076	G	G			a-thin c/c or blowing snow, not clear; b-hazy, terrain very well defined
1077	G	G			a-thin c/c or blowing snow, not clear; b-some haze, terrain very well defined
1078	F				a-very thin c/c, clear; b-hazy, terrain very well defined
1079					a-very thin c/c, clear; b-hazy, terrain well defined
1080	G	G	D		b-hazy, terrain well defined
1081					NA, microfiche not at MRSC
1082					NA, microfiche not at MRSC
1083					NA, microfiche not at MRSC
1084					NA, microfiche not at MRSC
1085	P	P			NA, microfiche not at MRSC
1086	P	P			NA, microfiche not at MRSC
1087					NA, microfiche not at MRSC
1088					NA, microfiche not at MRSC
1089					NA, microfiche not at MRSC
1090					NA, microfiche not at MRSC
1091					NA, microfiche not at MRSC
1092					NA, microfiche not at MRSC
1093					NA, microfiche not at MRSC
1094	G	G			NA, microfiche not at MRSC
1095					NA, microfiche not at MRSC
1096					NA, microfiche not at MRSC
1097					a-thin c/c, not clear; b-some haze, terrain very well defined
1098					a-thin c/c, not clear; b-some haze, terrain very well defined
1099					a-thin c/c, not clear; b-some haze, terrain well defined
1100					a-part of microfiche not clear; b-some haze, terrain very well defined
1101					a-thin c/c, not clear; b-hazy, terrain very well defined; (ice break up)
1102					a-thin c/c, clear; b-hazy, terrain very well defined; (ice break up)

APP.#	Q. of CO		TAPE		COMMENTS: a-transparent c/c; b-non-shaded area: * = interpreted from hardcopy
	1	2	GC	TM	
1103					a-thin c/c, clear; b-hazy, terrain well defined
1104	G				a-thin and scat. clouds, clear; b-hazy, terrain very well defined
1105					NA, microfiche not at MRSC
1106					b-dense haze, terrain very well defined
1107					a-thin and scat. clouds, clear; b-hazy, terrain well defined
1108					a-scat. clouds ~30%, clear; b-hazy, terrain very well defined
1109	G				a-thin c/c, clear; b-dense haze, terrain very well defined
1110					a-thin c/c, clear; b-dense haze, terrain well defined
1111					a-thin c/c, clear; b-dense haze, terrain very well defined
1112					NA, microfiche not at MRSC
1113					b-some haze, terrain very well defined
1114					b-dense haze, terrain very well defined
1115	G				a-scat. clouds thru/out; b-terrain mod. defined
1116	G		D		a-very thin c/c, clear; b-dense haze thru/out, terrain well defined
1117					a-scat. clouds ~25%, clear; b-hazy, terrain very well defined
1118					a-scat. clouds ~50%, not clear; b-dense haze, terrain poorly defined
1119					a-thin c/c, not clear; b-dense haze, terrain poorly defined
1120					NA, microfiche not at MRSC
1121					a-thin c/c, clear; b-dense haze, terrain well defined
1122					a-thin c/c, clear; b-dense haze, terrain very well defined
1123					a-thin c/c, clear; b-hazy, terrain very well defined
1124					a-thin c/c and/or blowing snow, clear; b-some haze, terrain well defined
1125					a-cloudcover, not clear; b-hazy, terrain poorly defined
1126					a-scat. clouds ~60%/block, not clear; b-dense haze, terrain mod. defined
1127					a-thin c/c, not clear; b-dense haze, terrain poorly defined. (ice break up)
1128					a-thin and scat. clouds, clear; b-dense haze, terrain well defined
1129					a-scat. clouds, clear; b-dense haze, terrain well defined
1130					a-thin c/c, clear; b-hazy, terrain very well defined
1131					NA, microfiche not at MRSC
1132					NA, microfiche not at MRSC
1133					NA, microfiche not at MRSC
1134					NA, microfiche not at MRSC
1135					NA, microfiche not at MRSC
1136					NA, microfiche not at MRSC
1137					NA, microfiche not at MRSC
1138					NA, microfiche not at MRSC
1139					NA, microfiche not at MRSC
1140					a-very thin c/c, clear; b-dense haze, terrain very well defined
1141					a-scat. clouds ~30%, clear; b-dense haze, terrain well defined
1142					a-thin c/c, clear; b-hazy, terrain very well defined
1143					a-thin c/c, clear; b-dense haze, terrain well defined
1144					a-thin c/c, clear; b-dense haze, terrain well defined
1145					a-thin c/c, clear; b-hazy, terrain very well defined
1146					a-thin c/c, clear; b-dense haze, terrain well defined
1147					part of microfiche missing; a-thin c/c, clear; b-dense haze, terrain is poorly defined
1148					* a-thin c/c, clear; b-some haze, terrain very well defined
1149	F	F			* a-thin c/c, clear; b-hazy, terrain very well defined
1150	F	F			* b-some haze, terrain very well defined; much snow
1151					NA, microfiche not at MRSC
1152	P	P			* a-thin c/c, clear; b-hazy, terrain very well defined
1153	G	F			* a-thin c/c, clear; b-hazy, terrain very well defined
1154	F	G			* a-thin c/c, clear; b-some haze, terrain very well defined
1155	F				* b-some haze, terrain very well defined
1156		F			* b-some haze, terrain very well defined
1157	F	F			* a-thin c/c, clear; b-some haze, terrain very well defined
1158					b-much snow cover terrain well defined
1159	F	F			b-dense haze, terrain very well defined
1160	G	G			a-very thin c/c or smoke, clear; b-dense haze, terrain very well defined

APP.#	Q. of CO		TAPE		COMMENTS: a-transparent c/c; b-non-shaded area: * = interpreted from hardcopy
	1	2	GC	TM	
1161	F	F			a-very thin c/c, clear; b-dense haze, terrain well defined
1162	G	F			part of microfiche not clear; b-dense haze, terrain poorly defined
1163					NA, microfiche not at MRSC
1164	P	P			a-very thin c/c, clear; b-dense haze, terrain well defined
1165					a-cloudcover, not clear; b-dense haze, terrain mod. defined
1166					a-thin c/c, clear; b-dense haze, terrain mod. defined
1167	G	G			c/c or blowing snow in SE., not clear; b-some haze, terrain very well defined
1168	F		D		a-very thin c/c, clear; b-hazy, terrain very well defined
1169	G	G	D		b-no haze, terrain very well defined
1170	G				a-very thin c/c, clear; b-dense haze, terrain very well defined.
1171					NA, microfiche not at MRSC
1172	G	G			NA, microfiche not at MRSC
1173	G	P			NA, microfiche not at MRSC
1174	G	G			NA, microfiche not at MRSC
1175					NA, microfiche not at MRSC
1176	F	G			NA, microfiche not at MRSC
1177	G	F			NA, microfiche not at MRSC
1178					NA, microfiche not at MRSC
1179			D		NA, microfiche not at MRSC
1180	G	G	D		NA, microfiche not at MRSC
1181			D		NA, microfiche not at MRSC
1182	P	P			NA, microfiche not at MRSC
1183					b-hazy, terrain well defined
1184					a-thin c/c, not clear; b-hazy, terrain very well defined
1185					a-thin c/c, not clear; b-some haze, terrain well defined
1186					b-hazy, terrain very well defined. (ice break up)
1187					a-thin c/c, clear; b-dense haze, terrain well defined
1188	F				a-scat. clouds, not clear; b-dense haze, terrain well defined
1189					b-some haze, terrain very well defined
1190	G				a-thin c/c, clear; b-some haze, terrain well defined
1191					a-thin c/c thru/out, terrain very well defined
1192					a-thin c/c, clear; b-hazy, terrain very well defined
1193					a-very thin c/c, clear; b-some haze, terrain very well defined
1194					a-thin c/c, not clear; b-dense haze, terrain poorly defined
1195					a-scat. clouds ~20%, clear; b-dense haze, terrain very well defined
1196					a-thin c/c, not clear; b-dense haze, terrain poorly defined
1197	G				NA, microfiche not at MRSC
1198	G				NA, microfiche not at MRSC
1199					a-very thin c/c, clear; b-hazy, terrain very well defined
1200					a-thin c/c, clear; b-dense haze, terrain very well defined
1201					a-thin c/c, clear; b-dense haze, terrain well defined
1202	G				a-thin c/c, clear; b-dense haze, terrain very well defined
1203					a-scat. clouds ~30%, clear; b-dense haze, terrain very well defined
1204					NA, microfiche not at MRSC
1205					NA, microfiche not at MRSC
1206					NA, microfiche not at MRSC
1207					NA, microfiche not at MRSC
1208					NA, microfiche not at MRSC
1209					NA, microfiche not at MRSC
1210					NA, microfiche not at MRSC
1211					a-scat. clouds ~20%, clear; b-hazy, terrain very well defined
1212					b-dense haze, terrain very well defined
1213	P				* a-thin c/c, clear; b-some haze, terrain well defined
1214	G	P			* a-thin c/c, clear; b-hazy, terrain well defined
1215	F	G			* a-thin c/c or blowing snow, clear; b-some haze, terrain well defined
1216					* a-scat. clouds ~40%, not clear; b-hazy, terrain mod. defined
1217					* a-thin c/c, not clear; b-dense haze, terrain mod. defined
1218	E	G			* a-thin c/c, clear; b-hazy, terrain very well defined

APP.#	Q. of CO		TAPE		COMMENTS: a-transparent c/c; b-non-shaded area: * = interpreted from hardcopy
	1	2	GC	TM	
1219	P	G			* b-dense haze, terrain well defined
1220	F	P	D		* a-thin c/c, clear; b-hazy, terrain very well defined
1221	G	F			* b-some haze, terrain very well defined
1222	F	G			* a-thin c/c, clear; b-some haze, terrain very well defined
1223	F	G			* b-some haze, terrain very well defined
1224	G				b-some haze, terrain very well defined; snowcover thru/out
1225					a-thin c/c, not clear; b-some haze, terrain very well defined
1226	F	F			a-thin c/c, not clear; b-dense haze, terrain mod. defined
1227	G	F			a-thin c/c, clear; b-dense haze, terrain very well defined
1228	P	F			a-thin c/c, not clear; b-dense haze, terrain poorly defined
1229	G	G			a-thin c/c, clear; b-some haze, terrain very well defined; strong glare at NE
1230					a-thin c/c thru/out, terrain well defined
1231					a-part of microfiche not clear; b-dense haze, terrain mod. defined
1232					a-thin c/c, not clear; b-dense haze, terrain well defined
1233	G	G			a- thin c/c and/or blowing snow, not clear; b- hazy, terrain very well defined
1234					NA, microfiche not at MRSC
1235	G				NA, microfiche not at MRSC
1236	G	G			b-some haze, terrain very well defined; many shades
1237	G				a-thin c/c, clear; b-dense haze, terrain very well defined
1238					a-thin c/c, not clear; b-dense haze, terrain mod. defined
1239					NA, microfiche not at MRSC
1240		G			NA, microfiche not at MRSC
1241	F	P			NA, microfiche not at MRSC
1242	G	G			NA, microfiche not at MRSC
1243	G	E			NA, microfiche not at MRSC
1244	G	G			NA, microfiche not at MRSC
1245					NA, microfiche not at MRSC
1246					NA, microfiche not at MRSC
1247					NA, microfiche not at MRSC
1248	F	G			NA, microfiche not at MRSC
1249					NA, microfiche not at MRSC
1250			D		NA, microfiche not at MRSC
1251					NA, microfiche not at MRSC
1252	F	F			NA, microfiche not at MRSC
1253					b-hazy, terrain well defined
1254					a-thin c/c, clear; b-some haze, terrain very well defined
1255					a-thin c/c, clear; b-some haze, terrain very well defined
1256					a-thin c/c, clear; b-some haze, terrain very well defined
1257					a-thin c/c, clear; b-hazy, terrain very well defined
1258					a-scat. clouds, clear; b-dense haze, terrain well defined
1259					a-thin c/c, clear; b-some haze, terrain very well defined
1260					a-thin c/c, clear; b-hazy, terrain very well defined
1261					a-thin c/c, not clear; b-dense haze, terrain very well defined
1262					a-thin c/c, clear; b-dense haze, terrain very well defined
1263					a-thin c/c, clear; b-hazy, terrain very well defined
1264					b-some haze, terrain very well defined
1265					a-thin c/c, clear; b-dense haze, terrain very well defined
1266					a-scat. clouds ~20%, clear; b-dense haze, well defined
1267					a-very thin c/c, clear; b-dense haze, terrain well defined
1268	G				a-thin c/c, not clear; b-dense haze, terrain mod. defined
1269					a-thin c/c, not clear; b-dense haze, terrain poorly defined
1270					b-hazy, terrain very well defined
1271					b-dense haze, terrain very well defined
1272					a-very thin c/c, clear; b-dense haze, terrain mod. defined
1273	G				a-thin c/c, clear; b-dense haze, terrain mod. defined
1274					a-scat. clouds ~15%, clear; b-dense haze, terrain well defined
1275					a-very thin c/c, clear; b-hazy, terrain very well defined
1276					a-thin c/c, clear; b-hazy, terrain very well defined

APP.#	Q. of CO		TAPE		COMMENTS: a-transparent c/c; b-non-shaded area: * = interpreted from hardcopy
	1	2	GC	TM	
1277					NA, microfiche not at MRSC
1278					NA, microfiche not at MRSC
1279					NA, microfiche not at MRSC
1280					NA, microfiche not at MRSC
1281					NA, microfiche not at MRSC
1282					NA, microfiche not at MRSC
1283					a-thin c/c, clear; b-dense haze, terrain very well defined
1284					a-thin c/c, not clear; b-dense haze, terrain poorly defined
1285					NA, microfiche not at MRSC
1286					a-scat. clouds ~30%, clear; b-dense haze, terrain well defined
1287					a-scat. clouds ~30%, clear; b-dense haze, terrain well defined
1288					b-some haze, terrain very well defined
1289	F				* a-scat. clouds, not clear; b-hazy, terrain very well defined
1290	F	G			* a-thin c/c, clear; b-hazy, terrain well defined
1291	P	P			* a-scat. clouds ~40%, clear; b-hazy, terrain very well defined
1292					* a-scat. clouds ~60%, clear; b-dense haze, terrain mod. defined
1293	F	F			* a-thin c/c, clear; b-dense haze, terrain very well defined
1294	G	G			* a-scat. clouds ~20%, clear; b-hazy, terrain very well defined
1295					* a-thin c/c, clear; b-hazy, terrain well defined
1296	G	F			* b-hazy, terrain very well defined
1297					* a-thin c/c, clear; b-some haze, terrain well defined
1298	P	P			* a-thin c/c, clear; b-some haze, well defined
1299	G	G			* a-thin c/c, clear; b-some haze, terrain well defined
1300	G	E			NA, microfiche not at MRSC
1301	P	P			* a-thin c/c, not clear; b-some haze, terrain well defined
1302					a-thin c/c and/or snowcover, clear; b-hazy, terrain very well defined
1303					a-thin c/c, clear; b-hazy, terrain poorly defined
1304	F	G			a-very thin c/c, clear; b-dense haze, terrain well defined
1305	G	F			a-very thin c/c, clear; b-dense haze, terrain well defined
1306	F	P			a-low, scat. clouds ~30%, clear; b-hazy, terrain very well defined
1307	G	F			a-thin c/c, not clear; b-dense haze, terrain poorly defined
1308	P	F			a-thin c/c, not clear; b-dense haze thru/out, terrain mod. defined
1309	G	F			a-scat. clouds ~40%, not clear; b-dense haze, terrain mod. defined
1310	F	F			a-very thin c/c, not clear; b-dense haze, terrain very well defined
1311					a-thin c/c, clear; b-dense haze, terrain well defined
1312	G	G			a-thin c/c, not clear; b-hazy, terrain poorly defined
1313					NA, microfiche not at MRSC
1314					NA, microfiche not at MRSC
1315			D		a-thin c/c or snowcover, not clear; b-hazy, terrain well defined
1316	G	P			a-very thin c/c, clear; b-dense haze, terrain well defined
1317					a-very thin c/c, clear; b-dense haze, terrain well defined
1318					NA, microfiche not at MRSC
1319					NA, microfiche not at MRSC
1320					NA, microfiche not at MRSC
1321					NA, microfiche not at MRSC
1322	F	F			NA, microfiche not at MRSC
1323	F	G			NA, microfiche not at MRSC
1324	G	G			NA, microfiche not at MRSC
1325					NA, microfiche not at MRSC
1326	G	P			NA, microfiche not at MRSC
1327					NA, microfiche not at MRSC
1328					NA, microfiche not at MRSC
1329	G	F			NA, microfiche not at MRSC
1330					NA, microfiche not at MRSC
1331	G	G			NA, microfiche not at MRSC
1332					NA, microfiche not at MRSC
1333					a-thin c/c and/or blowing snow, not clear; b-hazy, terrain mod. defined
1334					a-thin c/c, not clear; b-some haze, terrain well defined

APP.#	Q. of CO		TAPE		COMMENTS: a-transparent c/c; b-non-shaded area: * = interpreted from hardcopy
	1	2	GC	TM	
1335					a-thin c/c and/or blowing snow, clear; b-some haze, terrain well defined
1336					a-thin c/c, clear; b-hazy, terrain very well defined
1337	G				a-scat. clouds, clear; b-hazy, terrain very well defined
1338					a-scat. clouds ~50%, clear; b-hazy, terrain very well defined
1339					a-thin c/c, clear; b-hazy, terrain very well defined
1340					a-thin c/c, not clear; b-dense haze, terrain well defined
1341					a-thin c/c, clear; b-hazy, terrain well defined
1342					a-thin c/c, clear; b-some haze, terrain very well defined
1343					a-thin and scat. c/c, clear; b-dense haze, terrain very well defined
1344					a-thin c/c, clear; b-hazy, terrain very well defined
1345					a-very thin c/c, clear; b-dense haze, terrain very well defined
1346					a-thin c/c, not clear b-hazy, terrain very well defined
1347					a-thin c/c, clear; b-some haze, terrain very well defined
1348					a-scat. clouds ~30%, clear; b-dense haze, terrain well defined
1349					a-very thin c/c, clear; b-dense haze, terrain well defined
1350					a-thin and scat. c/c, clear; b-dense haze, terrain poorly defined
1351	G				a-c/c, not clear; b-dense haze, terrain mod. defined
1352					a-thin c/c, clear; b-dense haze, terrain mod. defined
1353					a-scat. clouds ~30%/block, clear; b-hazy, terrain well defined
1354					a-thin c/c, not clear; b-dense haze, terrain mod. defined
1355					a-very thin c/c, clear; b-hazy, terrain very well defined
1356					a-scat. clouds, not clear; b-some haze, terrain mod. defined
1357					a-thin c/c, clear; b-hazy, terrain well defined
1358					a-thin c/c, clear; b-dense haze, terrain mod. defined
1359	G				a-thin c/c, clear; b-dense haze, terrain very well defined
1360					a-thin c/c, clear; b-some haze, terrain very well defined
1361					a-thin c/c, clear; b-some haze, terrain very well defined
1362					a-very thin c/c, clear; b-hazy, terrain well defined
1363					NA, microfiche not at MRSC
1364					NA, microfiche not at MRSC
1365					NA, microfiche not at MRSC
1366					NA, microfiche not at MRSC
1367					NA, microfiche not at MRSC
1368					NA, microfiche not at MRSC
1369					NA, microfiche not at MRSC
1370					a-c/c and/or blowing snow, clear; b-hazy, terrain very well defined
1371					NA, microfiche not at MRSC
1372					a-scat. clouds ~40%, clear; b-hazy, terrain well defined
1373					a-thin c/c, not clear; b-hazy, terrain very well defined
1374					b-some haze, terrain very well defined
1375					* a-scat. clouds ~20%, clear; b-dense haze, terrain well defined
1376					* a-thin c/c, clear; b-some haze, terrain very well defined
1377	P	F			* a-very thin c/c, clear; b-some haze, terrain very well defined
1378					* a-thin c/c, clear; b-some haze, terrain very well defined
1379	G		D		* a-very thin c/c, not clear; b-hazy, terrain very well defined
1380	G	G			* b-some haze, terrain very well defined
1381	G	P			* a-thin c/c, not clear; b-hazy, terrain very well defined
1382	E	E			* b-some haze, terrain very well defined
1383	F	F			b-some haze, terrain very well defined
1384	F	F			a-scat. clouds, clear; b-hazy, terrain well defined
1385	G	G			microfiche not clear
1386	F	F			a-clouds or smoke; b-some haze, terrain very well defined
1387	G	G			b-dense haze, terrain very well defined
1388					a-thin and scat. c/c, clear; b-very dense haze, terrain poorly defined
1389					a-thin c/c, not clear; b-dense haze, terrain poorly defined
1390					a-scat. and thin c/c, not clear; b-dense haze .mod defined
1391					b-dense haze, terrain well defined
1392					a-thin c/c, clear; b-dense haze, terrain well defined



APP.#	Q. of CO		TAPE		COMMENTS: a-transparent c/c; b-non-shaded area: * = interpreted from hardcopy
	1	2	GC	TM	
1393	G	G			a-very thin c/c, clear; b-some haze, terrain very well defined
1394					NA, microfiche not at MRSC
1395	G	G			b-some haze, terrain very well defined
1396					a-thin c/c, clear; b-hazy, terrain very well defined
1397	G				a-scat. clouds ~30% + shadowing, clear; b-some haze, terrain very well defined
1398					a-thin c/c, clear; b-hazy, very well defined
1399	G	G			a-thin c/c, clear; b-dense haze, terrain well defined
1400					NA, microfiche not at MRSC
1401					NA, microfiche not at MRSC
1402	P	F			NA, microfiche not at MRSC
1403					NA, microfiche not at MRSC
1404	F	G	D		NA, microfiche not at MRSC
1405	F	G	D		NA, microfiche not at MRSC
1406	G	G			NA, microfiche not at MRSC
1407	G	G			NA, microfiche not at MRSC
1408					NA, microfiche not at MRSC
1409	G	G			NA, microfiche not at MRSC
1410	G	G			NA, microfiche not at MRSC
1411	G	G			NA, microfiche not at MRSC
1412					NA, microfiche not at MRSC
1413					NA, microfiche not at MRSC
1414		P			NA, microfiche not at MRSC
1415		F			NA, microfiche not at MRSC
1416					a-thin c/c and/or blowing snow, clear; b-some haze, terrain very well defined
1417					NA, microfiche not at MRSC
1418	G	F			a-very thin c/c, clear; b-hazy, terrain very well defined
1419	G	G	D		a-thin c/c, clear; b-hazy, terrain very well defined
1420					a-thin c/c, clear; b-hazy, terrain very well defined
1421					a-thin c/c, clear; b-hazy, terrain very well defined
1422					b-some haze, terrain very well defined
1423					a-thin c/c, clear; b-some haze, terrain very well defined
1424	G				a-thin c/c, clear; b-dense haze, terrain very well defined
1425					a-thin c/c, clear; b-dense haze, terrain well defined
1426					a-thin c/c, clear; b-dense haze, terrain very well defined
1427					a-thin cloudcover thru/out, clear;
1428					a-very thin c/c, clear; b-some haze, terrain very well defined
1429					a-thin c/c, clear; b-some haze, terrain very well defined
1430					a-thin c/c, clear; b-some haze, terrain very well defined
1431	G		D		a-very thin c/c, clear; b-dense haze, terrain well defined
1432	G				a-scat. clouds ~50%/block, not clear; b-dense haze, terrain very well defined
1433	G				a-very thin c/c, clear; b-dense haze, terrain poorly defined
1434	G				a-thin c/c, not clear; b-dense haze thru/out, terrain mod. defined
1435					a-very thin c/c thru/out, clear and well defined
1436					b-hazy, terrain well defined
1437					a-very thin c/c, not clear; b-dense haze, terrain well defined
1438	G				a-scat. clouds ~40%, clear; b-dense haze, terrain poorly defined
1439	G				a-very thin c/c, clear; b-dense haze, mod. defined
1440	G				a-very thin c/c, clear b-dense haze, terrain very well defined
1441	G				a-thin c/c, not clear; b-dense haze, terrain mod. defined
1442					NA, microfiche not at MRSC
1443					NA, microfiche not at MRSC
1444					NA, microfiche not at MRSC
1445					NA, microfiche not at MRSC
1446					NA, microfiche not at MRSC
1447					NA, microfiche not at MRSC
1448					a-thin c/c, clear; b-hazy, terrain very well defined
1449					* a-thin c/c, clear; b-dense haze, terrain well defined
1450	G	G			NA, microfiche not at MRSC

APP.#	Q. of CO		TAPE		COMMENTS: a-transparent c/c; b-non-shaded area: * = interpreted from hardcopy
	1	2	GC	TM	
1451	G	F			* a-thin c/c, clear; b-some haze, terrain very well defined
1452	G				* a-thin c/c, clear; b-hazy, terrain mod. defined
1453					* a-thin c/c, clear; b-hazy, terrain very well defined
1454					NA, microfiche not at MRSC
1455					* a-thin c/c, clear; b-dense haze, terrain very well defined
1456					* a-scat. clouds ~40%, clear; b-dense haze, terrain mod. defined
1457	G	G			* a-thin c/c, not clear; b-hazy, terrain very well defined
1458					* b-some haze, terrain very well defined
1459	F	G			* a-thin c/c, clear; b-some haze, terrain very well defined
1460	P	G			a-thin c/c, clear; b-some haze, terrain very well defined
1461	F	F			a-thin c/c and/or blowing snow thru/out, clear; terrain mod. defined
1462	P	F			a-scat. clouds ~40%, clear; b-hazy, terrain very well defined
1463	F	F			a-scat. clouds ~50%, clear; b-some haze, terrain very well defined
1464	G	F			a-thin and scat. clouds thru/out, clear; b-hazy, terrain well defined
1465	P	F			a-thin c/c, not clear; b-dense haze, terrain very well defined
1466					a-thin c/c, clear; b-some haze, terrain very well defined
1467	P	G			a-very thin c/c, clear; b-hazy, terrain very well defined
1468	F	E			microfiche not clear
1469	F	P			a-striated, scat. clouds ~50%, clear; b-hazy, terrain well defined
1470					microfiche not clear
1471	G	G			a-thin c/c, clear; b-dense haze, terrain mod. defined
1472	F	F			b-hazy, terrain very well defined
1473	G	G			a-very thin c/c, clear; b-hazy, terrain very well defined
1474					a-thin c/c, not clear; b-hazy, terrain very well defined
1475					a- thin c/c, not clear; b-dense haze, terrain poorly defined
1476					NA, microfiche not at MRSC
1477	F	G			b-dense haze, terrain mod. defined
1478	E	G			NA, microfiche not at MRSC
1479					NA, microfiche not at MRSC
1480					NA, microfiche not at MRSC
1481					NA, microfiche not at MRSC
1482					NA, microfiche not at MRSC
1483					NA, microfiche not at MRSC
1484					NA, microfiche not at MRSC
1485	F	G			NA, microfiche not at MRSC
1486					NA, microfiche not at MRSC
1487					NA, microfiche not at MRSC
1488					NA, microfiche not at MRSC
1489					NA, microfiche not at MRSC
1490					NA, microfiche not at MRSC
1491		G			NA, microfiche not at MRSC
1492					a-thin c/c, clear; b-dense haze, terrain well defined
1493					a-thin c/c and/or blowing snow, clear; b-some haze, terrain well defined
1494					NA, microfiche not at MRSC
1495	G		D		a-very thin c/c, clear; b-hazy, terrain very well defined
1496					a-thin c/c, clear; b-hazy, terrain very well defined
1497	G				a-thin and scat. clouds, not clear; b-hazy, terrain well defined
1498					a-thin c/c, not clear; b-very dense haze, terrain poorly defined
1499					b-some haze, terrain very well defined
1500					a-thin c/c, clear; b-some haze, terrain very well defined
1501	G				a-thin c/c, clear; b-dense haze, terrain very well defined. (ice break up)
1502					a-thin c/c, clear; b-dense haze, terrain well defined
1503					b-dense haze, terrain very well defined
1504					a-thin c/c, clear; b-some haze, terrain very well defined
1505					a-thin c/c, clear; b-some haze, terrain mod. defined
1506					a-thin c/c, not clear; b-some haze, terrain very well defined
1507					a-thin c/c, clear; b-dense haze, terrain well defined
1508	G				a-thin c/c, not clear; b-dense haze, terrain poorly defined

APP.#	Q. of CO		TAPE		COMMENTS: a-transparent c/c; b-non-shaded area: * = interpreted from hardcopy
	1	2	GC	TM	
1509	G				a-thin c/c, clear; b-dense haze, terrain poorly defined
1510					b-hazy, terrain very well defined
1511					a-thin c/c, not clear; b-dense haze, terrain poorly defined
1512					a-thin c/c, clear; b-dense haze, terrain well defined
1513					a-thin c/c, clear; b-dense haze, terrain very well defined
1514					a-thin c/c, not clear; b-dense haze, terrain poorly defined
1515					a-thin c/c, not clear; b-dense haze, terrain poorly defined
1516					a-scat. clouds ~20%, clear; b-dense haze, terrain mod. defined
1517	G		D		a-thin c/c, clear; b-dense haze, terrain very well defined
1518					a-thin c/c, clear; b-dense haze, terrain mod. defined
1519					a-thin c/c and/or blowing snow, clear; b-some haze, terrain well defined
1520					a-thin c/c, clear; b-some haze, terrain very well defined
1521					NA, microfiche not at MRSC
1522					NA, microfiche not at MRSC
1523					NA, microfiche not at MRSC
1524					NA, microfiche not at MRSC
1525					NA, microfiche not at MRSC
1526					NA, microfiche not at MRSC
1527					NA, microfiche not at MRSC
1528					NA, microfiche not at MRSC
1529					NA, microfiche not at MRSC
1530					a-thin c/c, clear; b-some haze, terrain well defined
1531					a-thin c/c, clear; b-dense haze, terrain well defined
1532					a-thin c/c, not clear; b-dense haze, terrain poorly defined

## Appendix D

### Documentation of In-House Digital Landsat MSS and NOAA Data

## Satellite Digital Data

Appendix D provides a current list of available Landsat MSS and NOAA digital imagery relevant to the study area. The data is resident at various agencies in Winnipeg (Table 34).

Table 34. Contact agencies for digital satellite data, Appendix D.

Four Character Identifier	Contact Agency	Address	Contact Person(s)
MRSC	Manitoba Remote Sensing Centre	Surveys and Mapping 1007 Century Str. Winnipeg, Manitoba R3H 0W4	Mr. Hartley Pokrant Mr. Roy Dixon
DFO1	Department of Fisheries and Oceans	Regional Limnology 501 University Cres. Winnipeg, Manitoba R3T 2N6	Mr. Greg McCullough
MPLS	MacLaren Plansearch Inc.	5 Donald St., Suite 640 Winnipeg, Manitoba R3L 2T4	Mr. Mike McKernan
EMSI	Electro-Magnetic Sensing and Interpretation	754 Carter Ave. Winnipeg, Manitoba R3M 2C9	Mr. David Barber Mr. Klaus Hochheim

These agencies can be contacted to determine the availability, purchasing price, etc. of the imagery. Note that the NOAA digital data at the Manitoba Remote Sensing Centre is being archived on a daily basis during the 'summer' months (May to September). This archive will include data from May 1987 to September 1989.

Table 35. Description of digital data presented in Appendix D.

MSS	Multispectral Sensor data, Landsat 1 - 5
RBV	Return Beam Vidicon data, Landsat 1 - 3
TM	Thematic Mapper data, Landsat 4 & 5
CCT	Computer Compatible Tape
DICS	Digital Image Correction System, refers to Landsat digital products that have been geometrically corrected.

Contact	Track	Frame	Date	LS #	MSS	RBV	TM	BANDS					CCT		Tape No.
Agency			(m/d/yr)					4	5	6	7	X	Standard	DICS	
* = available															
MRSC	31	19	8/3/84	4	*			*	*	*	*		*		PA 3602
MRSC	31	21	10/1/85	5	*			*	*	*	*		*		PA 4008
MRSC	32	22	6/15/84	5	*			*	*	*	*		*		PA 4010
MRSC	33	20	6/27/80	2	*			*	*	*	*		*		PA 2948
MRSC	33	22	8/4/85	4	*			*	*	*	*		*		PA 3886
MRSC	34	19	7/4/79	2	*			*	*	*	*		*		PA 2946
MRSC	34	20	7/4/79	2	*			*	*	*	*		*		PA 2947
MRSC	34	21	8/2/82	3	*			*	*	*	*		*		PA 3639
MRSC	37	20	7/29/73	1	*			*	*	*	*		*		PA 2660
NTS Map number				NOTE : DICS tapes are referenced by NTS map sheet number											
MRSC	53L	SW	6/10/80	2	*			*	*	*	*		*		IS 2105
MRSC	53M	NE	7/16/80	2	*			*	*	*	*		*		US 2114
MRSC	53M	NW	7/16/80	2	*			*	*	*	*		*		IS 2113
MRSC	53M	SW	7/5/78	2	*			*	*	*	*		*		IS 2096
MRSC	54D	NE	7/10/78	2	*			*	*	*	*		*		IS 2316
MRSC	54D	NW	7/10/78	2	*			*	*	*	*		*		IS 2315
MRSC	54D	SE	7/4/79	2	*			*	*	*	*		*		IS 2689
MRSC	54D	SW	7/10/78	2	*			*	*	*	*		*		IS 2303
MRSC	54E	NE	7/10/78	2	*			*	*	*	*		*		IS 2313
MRSC	54E	NW	7/10/78	2	*			*	*	*	*		*		IS 2312
MRSC	54E	SE	7/10/78	2	*			*	*	*	*		*		IS 2319
MRSC	54E	SW	7/10/78	2	*			*	*	*	*		*		IS 2318
MRSC	63H	NE	7/5/79	2	*			*	*	*	*		*		IS 2101
MRSC	63H	NW	7/5/79	2	*			*	*	*	*		*		IS 2100
MRSC	63I	NE	7/5/79	2	*			*	*	*	*		*		IS 2029
MRSC	63I	NW	8/16/76	1	*			*	*	*	*		*		IS 2163
MRSC	63I	NW	7/5/79	2	*			*	*	*	*		*		IS 2023
MRSC	63I	NW	9/27/80	2	*			*	*	*	*		*		IS 2181
MRSC	63I	SE	7/5/79	2	*			*	*	*	*		*		IS 1548
MRSC	63I	SW	7/5/79	2	*			*	*	*	*		*		IS 2089
MRSC	63J	NE	8/16/76	1	*			*	*	*	*		*		IS 2164
MRSC	63J	NE	7/5/79	2	*			*	*	*	*		*		IS 2091
MRSC	63J	NE	9/27/80	2	*			*	*	*	*		*		IS 2173
MRSC	63J	SE	7/5/79	2	*			*	*	*	*		*		IS 2090
MRSC	63J	SW	7/30/79	1	*			*	*	*	*		*		IS 2302
MRSC	63K	NE	6/26/81	2	*			*	*	*	*		*		IS 2309
MRSC	63K	NW	6/26/81	2	*			*	*	*	*		*		IS 2308
MRSC	63K	SE	6/26/81	2	*			*	*	*	*		*		IS 2307
MRSC	63K	SW	6/26/81	2	*			*	*	*	*		*		IS 2306
MRSC	63O	NE	8/1/81	2	*			*	*	*	*		*		IS 2140
MRSC	63O	NW	8/1/81	2	*			*	*	*	*		*		IS 2141
MRSC	63O	SE	8/1/81	2	*			*	*	*	*		*		IS 2122
MRSC	63O	SW	8/1/81	2	*			*	*	*	*		*		IS 2129
MRSC	63P	SE	7/5/79	2	*			*	*	*	*		*		IS 2008
MRSC	63P	SW	7/5/79	2	*			*	*	*	*		*		IS 2007
MRSC	64A	NE	7/10/78	2	*			*	*	*	*		*		IS 2317
MRSC	64A	NW	7/30/76	1	*			*	*	*	*		*		IS 2623
MRSC	64A	SE	7/10/78	2	*			*	*	*	*		*		IS 2305
MRSC	64A	SW	7/21/76	2	*			*	*	*	*		*		IS 2133

Contact	Track	Frame	Date	LS #	MSS	RBV	TM	BANDS					CCT		Tape No.
Agency			(m/d/yr)					4	5	6	7	X	Standard	DICS	
MRSC	64B	NE	7/21/76	2	*			*	*	*	*			*	IS 2121
MRSC	64B	NW	6/14/80	2	*			*	*	*	*			*	IS 2109
MRSC	64B	SE	7/21/76	2	*			*	*	*	*			*	IS 2134
MRSC	64B	SW	6/14/80	2	*			*	*	*	*			*	IS 2106
MRSC	64B	SW	9/1/81	2	*			*	*	*	*			*	IS 2139
MRSC	64C	NE	6/14/80	2	*			*	*	*	*			*	IS 2111
MRSC	64F	SE	6/14/80	2	*			*	*	*	*			*	IS 2112
MRSC	64G	NE	7/5/79	2	*			*	*	*	*			*	IS 2102
MRSC	64G	NE	7/7/79	2	*			*	*	*	*			*	IS 2172
MRSC	64G	NW	8/1/76	1	*			*	*	*	*			*	IS 2336
MRSC	64G	SE	7/7/87	2	*			*	*	*	*			*	IS 2115
MRSC	64G	SW	6/14/80	2	*			*	*	*	*			*	IS 2110
MRSC	64H	NE	7/10/78	2	*			*	*	*	*			*	IS 2314
MRSC	64H	NW	7/12/76	1	*			*	*	*	*			*	IS 2158
MRSC	64H	SE	7/10/78	2	*			*	*	*	*			*	IS 2320
MRSC	64H	SW	7/21/76	2	*			*	*	*	*			*	IS 2120
MRSC	64I	SW	7/7/79	2	*			*	*	*	*			*	IS 2160
MRSC	64J	SE	7/7/79	2	*			*	*	*	*			*	IS 2159
MRSC	64J	SW	7/7/79	2	*			*	*	*	*			*	IS 2161
MPLS	NA	NA	7/22/74	1	*			*	*	*	*		*		PA 3153
MPLS	NA	NA	6/29/75	1	*			*	*	*	*		*		PA 3152
MPLS	NA	NA	8/16/76	1	*			*	*	*	*		*		IS 1796
MPLS	NA	NA	7/19/78	3	*			*	*	*	*		*		PA 3122
MPLS	NA	NA	7/5/79	2	*			*	*	*	*		*		PA 3124
MPLS	NA	NA	6/17/79	2	*			*	*	*	*		*		PA 3123
MPLS	NA	NA	8/10/79	2	*			*	*	*	*		*		PA 3125
MPLS	NA	NA	7/17/84	5	*			1	2	3	4		*		NA
MPLS	NA	NA	9/3/84	5	*			1	2	3	4		*		PA 3185

Contact	Date	NOAA	Orbit No.	Time (GMT)	Tape No.
Agency	(m/d/yr)	Sat No.			
MRSC	5/12/87	9	12452	12:52:13	PA 4077
MRSC	5/13/87	9	12466	20:54:20	PA 4078
MRSC	5/14/87	9	12480	20:44:27	PA 4079
MRSC	5/15/87	9	12495	22:14:33	PA 4080
MRSC	5/17/87	9	12523	21:54:44	PA 4081
MRSC	5/20/87	9	12565	21:19:49	PA 4082
MRSC	5/23/87	9	12607	20:47:50	PA 4083
MRSC	5/24/87	9	12621	20:36:43	PA 4084
MRSC	5/26/87	9	12650	21:56:23	PA 4085
MRSC	5/28/87	9	12678	21:34:43	PA 4086
MRSC	5/29/87	9	12692	NA	PA 4087
MRSC	5/30/87	9	12706	21:12:42	PA 4088
MRSC	5/31/87	9	12720	21:02:00	PA 4089
MRSC	6/1/87	9	12734	20:51:20	PA 4090
MRSC	6/2/87	9	12748	20:40:13	PA 4091
MRSC	6/3/87	9	12763	22:11:10	PA 4092
MRSC	6/4/87	9	12777	21:59:45	PA 4093
MRSC	6/5/87	9	12791	21:49:23	PA 4096
MRSC	6/6/87	9	12805	21:39:04	PA 4095
MRSC	6/8/87	9	12834	NA	PA 4094
MRSC	6/9/87	9	12847	NA	PA 4097
MRSC	6/10/87	9	12861	NA	PA 4098
MRSC	6/11/87	9	12875	NA	PA 4099
MRSC	6/12/87	9	12890	22:15:04	PA 4100
MRSC	6/14/87	9	12918	21:53:46	PA 4101
MRSC	6/17/87	9	12960	21:20:22	PA 4102
MRSC	6/19/87	9	12988	20:58:38	PA 4103
MRSC	6/20/87	9	13002	20:47:59	PA 4105
MRSC	6/23/87	9	13045	21:56:43	PA 4106
MRSC	6/24/87	9	13059	21:44:51	PA 4107
MRSC	6/25/87	9	13073	21:34:02	PA 4108
MRSC	6/26/87	9	13087	21:23:16	PA 4109
MRSC	6/27/87	9	13101	21:07:31	PA 4110
MRSC	6/28/87	9	13115	21:01:49	PA 4111
MRSC	6/29/87	9	13129	20:51:09	PA 4112
MRSC	6/30/87	9	13144	22:22:20	PA 4113
MRSC	7/2/87	9	13172	21:58:58	PA 4114
MRSC	7/7/87	9	13243	22:46:42	PA 4115
MRSC	7/8/87	9	13256	20:54:33	PA 4116
MRSC	7/9/87	9	13270	20:43:33	PA 4117
MRSC	7/10/87	9	13285	22:13:21	PA 4118
MRSC	7/11/87	9	13299	21:59:26	PA 4119
MRSC	7/12/87	9	13313	21:52:03	PA 4120
MRSC	7/13/87	9	13327	21:40:55	PA 4121
MRSC	7/15/87	9	13355	21:19:22	PA 4122
MRSC	7/16/87	9	13369	21:08:37	PA 4123



Contact	Date	NOAA	Orbit No.	Time (GMT)	Tape No.	
Agency	(m/d/yr)	Sat No.				
MRSC	7/17/87	9	13383	20:57:59	PA	4124
MRSC	7/18/87	9	13397	20:47:20	PA	4125
MRSC	7/20/87	9	13426	22:06:17	PA	4126
MRSC	7/21/87	9	13440	21:55:22	PA	4127
MRSC	7/25/87	9	13496	21:12:50	PA	4128
MRSC	7/26/87	9	13510	21:01:50	PA	4129
MPLS	5/24/83	7	9880	21:55:40	PA	2300
MPLS	6/6/83	7	10063	20:57:00	PA	2303
MPLS	6/6/83	6	20492	15:34:00	PA	2302
MPLS	6/16/83	6	20635	14:57:20	PA	2305
MPLS	7/5/83	7	10473	21:47:00	PA	3223
MPLS	7/19/83	7	10671	22:17:40	PA	2352
MPLS	7/27/83	8	1720	15:47:30	PA	2360
MPLS	8/30/83	8	2204	15:20:00	PA	2421
MPLS	9/13/83	8	2403	15:30:40		-
MPLS	9/23/83	8	2545	14:58:40	PA	2422
MPLS	5/1/84	8	5691	15:32:30		-
MPLS	5/8/84	8	5790	14:41:40		-
MPLS	5/11/84	8	5833	15:17:00	PA	2943
MPLS	5/26/84	7	15067	10:44:10		-
MPLS	5/30/84	8	6103	15:06:00		-
MPLS	6/1/84	8	6131	14:22:20		-
MPLS	6/10/84	8	6260	14:27:00		-
MPLS	8/1/84	6	26505	14:27:00	PA	3118
MPLS	8/15/84	7	16217	22:24:20	PA	3141
MPLS	8/23/84	6	26819	15:40:20	PA	3154
MPLS	9/16/84	7	16668	20:46:05		-

## Appendix E

### Documentation of In-House Hardcopy Satellite Data

## Hardcopy Satellite Data

Appendix E provides a current list of available in-house Landsat hardcopy imagery relevant to the study area. The data is resident at various agencies in Winnipeg (Table 36).

Table 36. Contact agencies for hard copy satellite data, Appendix E.

Four Character Identifier	Contact Agency	Address	Contact Person(s)
MRSC	Manitoba Remote Sensing Centre	Surveys and Mapping 1007 Century Str. Winnipeg, Manitoba R3H 0W4	Mr. Hartley Pokrant Mr. Roy Dixon
DFO1	Department of Fisheries and Oceans	Regional Limnology 501 University Cres. Winnipeg, Manitoba R3T 2N6	Mr. Greg McCullough
MPLS	MacLaren Plansearch Inc.	5 Donald St., Suite 640 Winnipeg, Manitoba R3L 2T4	Mr. Mike McKernan
EMSI	Electro-Magnetic Sensing and Interpretation	754 Carter Ave. Winnipeg, Manitoba R3M 2C9	Mr. David Barber Mr. Klaus Hochheim

These agencies can be contacted to determine the availability, purchasing price, etc. of the imagery.

Table 37. Description of hard copy data presented in Appendix E.

MSS	Multispectral Sensor data, Landsat 1 - 5
RBV	Return Beam Vidicon data, Landsat 1 - 3
TM	Thematic Mapper data, Landsat 4 & 5
col 1	Color composite using bands 4, 5 & 7 or 4, 5 & 6
col 2	Color composite using bands 5, 6 & 7
BW	Black and White (print or transparency)
CLR	Color (print or transparency)

Contact	Path	Row	Date (m/d/yr)	MSS	RBV	TM	other	BANDS				Composite		Print		Transparency		Comments * = available
								4	5	6	7	col 1	col 2	BW	CLR	BW	CLR	
MRSC	33	20	8/17/72	*									*					
MRSC	33	20	7/25/73	*				*	*	*	*			*				Cloudy
MRSC	33	20	8/12/73	*							*			*				
MRSC	33	20	8/12/73	*				*	*	*	*			*				
MRSC	33	20	8/30/73	*							*			*				
MRSC	33	20	8/30/73	*				*	*	*	*			*				
MRSC	33	20	2/8/74	*				*	*	*	*			*				
MRSC	33	20	3/3/74	*										*				
MRSC	33	20	9/12/74	*							*			*				
MRSC	33	20	11/5/74	*				*	*	*	*			*				
MRSC	33	20	11/5/74	*							*			*				
MRSC	33	20	8/20/75	*							*			*				
MRSC	33	20	10/5/74	*				*	*	*	*			*				
MRSC	33	20	11/11/75	*				*	*	*	*			*				
MRSC	33	20	11/5/74	*				*	*	*	*			*		*		
MRSC	33	20	3/16/74	*				*	*	*	*			*				Hazy
MRSC	33	20	4/16/75	*							*			*	*			
MRSC	33	20	5/3/76	*				*	*	*	*			*		*		Clear image
MRSC	33	20	6/19/73	*				*	*	*	*			*				
MRSC	33	20	6/19/73	*				*	*	*	*			*				Poor image
MRSC	33	20	8/7/72	*							*			*				Clear image
MRSC	33	20	9/7/75	*							*			*	*			Nelson R. turbid
MRSC	33	20	9/7/75	*							*			*				Clear image
MRSC	34	19	8/18/72	*							*			*				Poor image
MRSC	34	19	10/30/72	*							*			*		*		Churchill open
MRSC	34	19	4/9/73	*							*			*				
MRSC	34	19	6/2/73	*				*	*	*	*			*				Poor image
MRSC	34	19	6/2/73	*				*	*	*	*			*				
MRSC	34	19	6/20/73	*				*	*	*	*			*				
MRSC	34	19	6/20/73	*				*	*	*	*			*				
MRSC	34	19	8/13/73	*							*			*				
MRSC	34	19	2/9/74	*							*			*				
MRSC	34	19	3/17/74	*							*			*				Poor image
MRSC	34	19	5/28/74	*							*			*		*		
MRSC	34	19	7/21/74	*							*			*		*		
MRSC	34	19	11/24/74	*							*			*		*		
MRSC	34	19	6/19/75	*							*			*		*		
MRSC	34	19	4/29/76	*							*			*		*		
MRSC	34	19	5/17/76	*							*			*		*		
MRSC	34	19	11/24/74	*				*	*	*	*			*		*		
MRSC	34	19	12/4/72	*				*	*	*	*			*		*		Cloudy
MRSC	34	19	12/4/72	*				*	*	*	*			*		*		
MRSC	34	19	2/27/74	*				*	*	*	*			*		*		Hazy
MRSC	34	19	3/12/75	*				*	*	*	*			*		*		
MRSC	34	19	5/28/74	*				*	*	*	*			*		*		Clear image
MRSC	34	19	7/16/75	*				*	*	*	*			*		*		Clear image
MRSC	34	19	7/26/74	*				*	*	*	*			*		*		Cloudy
MRSC	34	19	8/8/72	*							*			*		*		Cloudy
MRSC	34	20	8/18/72	*							*			*		*		bands 4.5.6.
MRSC	34	20	12/4/72	*							*		*			*		
MRSC	34	20	4/9/73	*							*			*		*		
MRSC	34	20	7/5/73	*							*			*		*		
MRSC	34	20	2/27/74	*				*	*	*	*			*		*		
MRSC	34	20	10/1/74	*							*			*		*		
MRSC	34	20	10/19/74	*							*			*		*		Churchill R., good
MRSC	34	20	4/26/75	*							*			*		*		Poor image
MRSC	34	20	5/14/75	*							*			*		*		
MRSC	34	20	6/19/75	*							*			*		*		
MRSC	34	20	5/26/76	*							*			*		*		Poor image
MRSC	34	20	10/29/72	*				*	*	*	*			*		*		
MRSC	34	20	11/24/74	*				*	*	*	*			*		*		
MRSC	34	20	11/24/75	*				*	*	*	*			*		*		Ice, clear image
MRSC	34	20	12/4/72	*				*	*	*	*			*		*		
MRSC	34	20	2/14/73	*				*	*	*	*			*		*		
MRSC	34	20	3/12/75	*				*	*	*	*			*		*		Ice, clear image
MRSC	34	20	3/12/75	*				*	*	*	*			*		*		
MRSC	34	20	3/22/74	*				*	*	*	*			*		*		
MRSC	34	20	3/27/73	*				*	*	*	*			*		*		
MRSC	34	20	4/22/74	*				*	*	*	*			*		*		
MRSC	34	20	6/15/74	*				*	*	*	*			*		*		

Contact	Path	Row	Date	MSS	RBV	TM	other	BANDS				Composite		Print		Transparency		Comments	
Agency			(m/d/yr)					4	5	6	7	col 1	col 2	BW	CLR	BW	CLR	* = available	
MRSC	34	20	6/20/73	*					*	*	*					*			
MRSC	34	20	6/20/73	*				*	*	*	*			*					Nelson turbidity
MRSC	34	20	6/20/73	*								*			*				
MRSC	34	20	7/26/73	*				*		*						*			Nelson turbidity
MRSC	34	20	8/18/72	*				*		*						*			
MRSC	34	21	8/31/72	*				*	*	*				*					
MRSC	34	21	4/9/73	*						*	*			*					
MRSC	34	21	8/13/73	*				*	*	*				*					
MRSC	34	21	8/13/73	*						*				*					
MRSC	34	21	11/11/73	*						*				*					Poor image
MRSC	34	21	2/27/74	*						*		*		*			*		
MRSC	34	21	4/4/74	*					*	*				*					Poor image
MRSC	34	21	5/10/74	*					*	*				*					Poor image
MRSC	34	21	7/3/74	*					*	*				*					
MRSC	34	21	10/19/74	*					*	*				*					
MRSC	34	21	2/4/75	*					*	*				*					
MRSC	34	21	5/5/75	*					*	*				*					
MRSC	34	21	8/21/75	*					*	*				*					
MRSC	34	21	5/17/76	*					*	*				*					
MRSC	34	21	11/24/74	*				*	*	*	*			*		*			
MRSC	34	21	12/17/73	*				*	*	*	*			*		*			
MRSC	34	21	12/4/72	*				*	*	*	*			*		*			ice
MRSC	34	21	2/14/73	*				*	*	*	*			*		*			
MRSC	34	21	2/27/74	*				*	*	*	*			*		*			
MRSC	34	21	2/4/75	*				*	*	*	*			*		*			
MRSC	34	21	3/12/75	*				*	*	*	*			*		*			
MRSC	34	21	4/27/73	*				*	*	*	*			*		*			
MRSC	34	21	6/20/73	*				*	*	*	*			*		*			v. turbid rivers
MRSC	34	21	6/20/73	*				*	*	*	*			*		*			
MRSC	34	21	7/21/74	*				*	*	*	*			*		*			Cloudy
MRSC	34	21	7/26/73	*				*	*	*	*			*		*			
MRSC	34	21	8/31/73	*				*	*	*	*			*		*			
MRSC	34	21	8/8/74	*				*	*	*	*			*		*			v. turbid
MRSC	34	21	8/9/77	*				*	*	*	*			*		*			
MRSC	35	19	9/24/72	*				*	*	*	*			*		*			
MRSC	35	19	10/12/72	*				*	*	*	*		*		*		*		
MRSC	35	19	9/1/73	*				*	*	*	*			*		*			
MRSC	35	19	2/10/74	*				*	*	*	*			*		*			
MRSC	35	19	2/10/74	*				*	*	*	*			*		*			
MRSC	35	19	2/28/74	*				*	*	*	*			*		*			
MRSC	35	19	2/28/74	*				*	*	*	*			*		*			
MRSC	35	19	5/29/74	*				*	*	*	*			*		*			
MRSC	35	19	10/2/74	*				*	*	*	*			*		*			
MRSC	35	19	10/2/74	*				*	*	*	*			*		*			
MRSC	35	19	10/9/74	*				*	*	*	*			*		*			
MRSC	35	19	11/25/74	*				*	*	*	*			*		*			
MRSC	35	19	4/27/75	*				*	*	*	*			*		*			
MRSC	35	19	7/29/76	*				*	*	*	*			*		*			
MRSC	35	19	10/12/72	*				*	*	*	*			*		*			color composite,(4,5,6) Print poor.
MRSC	35	19	10/12/72	*				*	*	*	*			*		*			
MRSC	35	19	10/30/72	*				*	*	*	*			*		*			
MRSC	35	19	10/30/72	*				*	*	*	*			*		*			
MRSC	35	19	2/10/74	*				*	*	*	*			*		*			Good image
MRSC	35	19	2/28/74	*				*	*	*	*			*		*			Good image
MRSC	35	19	3/25/76	*				*	*	*	*			*		*			
MRSC	35	19	5/6/75	*				*	*	*	*			*		*			
MRSC	35	19	6/16/74	*				*	*	*	*			*		*			Good image
MRSC	35	19	6/16/74	*				*	*	*	*			*		*			
MRSC	35	19	7/27/74	*				*	*	*	*			*		*			
MRSC	35	19	8/1/72	*				*	*	*	*			*		*			
MRSC	35	19	8/14/73	*				*	*	*	*			*		*			
MRSC	35	20	9/24/72	*				*	*	*	*			*		*			
MRSC	35	20	5/16/73	*				*	*	*	*		*		*		*		
MRSC	35	20	6/3/73	*				*	*	*	*			*		*			
MRSC	35	20	7/9/73	*				*	*	*	*			*		*			
MRSC	35	20	11/12/73	*				*	*	*	*			*		*			
MRSC	35	20	1/23/74	*				*	*	*	*			*		*			
MRSC	35	20	1/23/74	*				*	*	*	*			*		*			
MRSC	35	20	2/10/74	*				*	*	*	*		*		*		*		
MRSC	35	20	2/10/74	*				*	*	*	*		*		*		*		
MRSC	35	20	2/10/74	*				*	*	*	*		*		*		*		
MRSC	35	20	2/20/74	*				*	*	*	*		*		*		*		
MRSC	35	20	4/5/74	*				*	*	*	*		*		*		*		

Contact	Path	Row	Date	MSS	RBV	TM	other	BANDS				Composite		Print		Transparency		Comments
								4	5	6	7	col 1	col 2	BW	CLR	BW	CLR	
Agency			(m/d/yr)															* = available
MRSC	35	20	5/11/74	*						*			*					
MRSC	35	20	6/16/74	*						*			*					
MRSC	35	20	10/9/74	*						*			*					
MRSC	35	20	2/5/75	*						*			*					
MRSC	35	20	4/9/75	*						*			*					
MRSC	35	20	4/27/75	*						*			*					
MRSC	35	20	5/6/75	*						*	*		*					ice / cloud
MRSC	35	20	6/29/75	*						*			*					
MRSC	35	20	7/29/76	*						*			*					
MRSC	35	20	1/31/76	*						*	*		*					
MRSC	35	20	10/30/72	*				*	*	*			*		*			
MRSC	35	20	11/12/73	*				*	*	*			*					
MRSC	35	20	11/2/75	*				*	*	*			*					
MRSC	35	20	11/2/75	*				*	*	*	*		*	*				
MRSC	35	20	12/5/72	*				*	*	*			*		*			
MRSC	35	20	12/6/72	*				*	*	*			*		*			
MRSC	35	20	2/10/74	*				*	*	*			*		*			
MRSC	35	20	3/13/75	*				*	*	*			*		*			
MRSC	35	20	3/18/74	*				*	*	*			*		*			
MRSC	35	20	3/6/75	*							*		*					
MRSC	35	20	3/6/75	*						*			*					Ice/open water
MRSC	35	20	3/6/75	*				*	*	*			*					
MRSC	35	20	3/7/76	*				*	*	*			*					
MRSC	35	20	3/7/76	*							*		*					
MRSC	35	20	4/28/73	*				*	*	*			*		*			
MRSC	35	20	4/5/74	*				*	*	*			*		*			
MRSC	35	20	5/16/73	*				*	*	*			*		*			
MRSC	35	20	5/16/73	*				*	*	*			*		*			
MRSC	35	20	6/16/75	*				*	*	*			*		*			
MRSC	35	20	6/29/75	*				*	*	*			*		*			Good image
MRSC	35	20	6/29/75	*						*			*		*			Very good for Churchill
MRSC	35	20	6/29/75	*						*			*		*			Good image
MRSC	35	20	7/27/73	*				*	*	*			*		*			Clear image, good
MRSC	35	20	8/14/73	*				*	*	*			*		*			
MRSC	35	21	9/24/72	*						*			*					Cloudy
MRSC	35	21	2/15/73	*						*			*					
MRSC	35	21	2/10/74	*						*			*					
MRSC	35	21	5/11/74	*						*			*					
MRSC	35	21	7/4/74	*						*			*					
MRSC	35	21	3/27/75	*						*			*					
MRSC	35	21	4/9/75	*						*	*		*					
MRSC	35	21	5/15/75	*						*	*		*					
MRSC	35	21	12/17/75	*						*			*					
MRSC	35	21	3/7/76	*						*			*					
MRSC	35	21	3/7/76	*						*			*					
MRSC	35	21	1/31/76	*						*	*		*					
MRSC	35	21	10/30/73	*				*	*	*			*		*			Good for freeze up
MRSC	35	21	11/12/73	*				*	*	*			*		*			
MRSC	35	21	12/23/72	*				*	*	*			*		*			
MRSC	35	21	2/15/73	*				*	*	*			*		*			
MRSC	35	21	3/13/75	*				*	*	*			*		*			
MRSC	35	21	3/7/76	*						*			*	*				
MRSC	35	21	3/7/76	*						*			*	*				
MRSC	35	21	3/7/76	*				*	*	*			*		*			
MRSC	35	21	4/28/73	*				*	*	*			*		*			
MRSC	35	21	4/29/75	*				*	*	*			*		*			
MRSC	35	21	5/16/73	*				*	*	*			*		*			
MRSC	35	21	5/16/75	*				*	*	*			*		*			
MRSC	35	21	7/27/73	*				*	*	*			*		*			
MRSC	35	21	7/27/73	*				*	*	*			*		*			
MRSC	35	21	8/16/76	*				*	*	*			*		*			
MRSC	35	21	9/8/82	*				*	*	*			*		*			
MRSC	35	22	10/17/72	*				*	*	*			*		*			
MRSC	35	22	7/27/73	*				*	*	*			*		*			
MRSC	35	22	8/14/73	*				*	*	*			*		*			
MRSC	35	22	11/30/73	*				*	*	*			*		*			
MRSC	35	22	4/23/74	*						*			*		*			
MRSC	35	22	5/11/74	*						*			*		*			
MRSC	35	22	6/16/74	*						*			*		*			
MRSC	35	22	2/23/75	*						*			*		*			
MRSC	35	22	2/23/75	*						*			*		*			
MRSC	35	22	4/9/75	*						*			*		*			
MRSC	35	22	8/13/75	*						*			*		*			

Contact	Path	Row	Date	MSS	RBV	TM	other	BANDS				Composite		Print		Transparency		Comments
Agency			(m/d/yr)					4	5	6	7	col 1	col 2	BW	CLR	BW	CLR	* = available
MRSC	35	22	9/9/75	*				*	*	*	*			*				
MRSC	35	22	11/30/75	*				*	*	*	*			*				
MRSC	35	22	2/27/76	*				*	*	*	*			*				
MRSC	35	22	10/30/72	*				*	*	*	*			*				Freeze up
MRSC	35	22	10/30/72	*				*	*	*	*			*		*		
MRSC	35	22	10/30/73	*				*	*	*	*			*				
MRSC	35	22	10/30/73	*				*	*	*	*			*		*		
MRSC	35	22	11/17/72	*				*	*	*	*			*				
MRSC	35	22	11/17/72	*				*	*	*	*			*		*		
MRSC	35	22	11/7/74	*				*	*	*	*			*				
MRSC	35	22	11/7/74	*				*	*	*	*			*		*		
MRSC	35	22	12/23/72	*				*	*	*	*			*		*		
MRSC	35	22	12/5/72	*				*	*	*	*			*		*		
MRSC	35	22	12/5/72	*				*	*	*	*			*		*		
MRSC	35	22	2/15/73	*				*	*	*	*			*				
MRSC	35	22	2/18/76	*				*	*	*	*			*				
MRSC	35	22	3/13/75	*				*	*	*	*			*		*		
MRSC	35	22	3/17/75	*				*	*	*	*			*				
MRSC	35	22	3/18/74	*				*	*	*	*			*		*		
MRSC	35	22	3/25/76	*				*	*	*	*	*		*		*		
MRSC	35	22	3/25/76	*				*	*	*	*	*		*		*		
MRSC	35	22	3/25/76	*				*	*	*	*	*		*		*		
MRSC	35	22	3/7/76	*				*	*	*	*	*		*		*		
MRSC	35	22	3/7/76	*				*	*	*	*	*		*		*		
MRSC	35	22	3/7/76	*				*	*	*	*	*		*		*		
MRSC	35	22	4/23/74	*				*	*	*	*	*		*		*		
MRSC	35	22	4/28/73	*				*	*	*	*	*		*		*		
MRSC	35	22	4/28/73	*				*	*	*	*	*		*		*		Open water, 'break up'
MRSC	35	22	4/28/73	*				*	*	*	*	*		*		*		
MRSC	35	22	5/16/73	*				*	*	*	*	*		*		*		Ice break up
MRSC	35	22	5/16/73	*				*	*	*	*	*		*		*		
MRSC	35	22	5/16/73	*				*	*	*	*	*		*		*		
MRSC	35	22	5/23/82	*				*	*	*	*	*		*		*		
MRSC	35	22	6/10/82	*				*	*	*	*	*		*		*		Cloudy
MRSC	35	22	6/16/74	*				*	*	*	*	*		*		*		
MRSC	35	22	6/21/73	*				*	*	*	*	*		*		*		Cloudy
MRSC	35	22	7/27/73	*				*	*	*	*	*		*		*		
MRSC	35	22	7/4/74	*				*	*	*	*	*		*		*		
MRSC	35	22	8/1/72	*				*	*	*	*	*		*		*		
MRSC	35	22	8/16/76	*				*	*	*	*	*		*		*		
MRSC	35	22	8/16/76	*				*	*	*	*	*		*		*		Excellent, 2 & 8 mi. channel
MRSC	35	22	8/21/82	*				*	*	*	*	*		*		*		
MRSC	35	22	8/21/82	*				*	*	*	*	*		*		*		Cloudy
MRSC	35	22	9/19/73	*				*	*	*	*	*		*		*		
MRSC	35	22	9/27/80	*				*	*	*	*	*		*		*		
MRSC	35	22	9/27/80	*				*	*	*	*	*		*		*		
MRSC	35	22	9/27/80	*				*	*	*	*	*		*		*		Band 4,5,6 composite, cloudy
MRSC	35	22	9/6/75	*				*	*	*	*	*		*		*		Clear image
MRSC	35	22	9/9/75	*				*	*	*	*	*		*		*		
MRSC	35	22	9/9/82	*				*	*	*	*	*		*		*		
MRSC	36	20	6/22/73	*				*	*	*	*	*		*		*		Poor image
MRSC	36	20	8/15/73	*				*	*	*	*	*		*		*		Hazy
MRSC	36	20	11/13/73	*				*	*	*	*	*		*		*		Churchill R. Ice
MRSC	36	20	3/1/74	*				*	*	*	*	*		*		*		
MRSC	36	20	6/17/74	*				*	*	*	*	*		*		*		
MRSC	36	20	6/17/74	*				*	*	*	*	*		*		*		Land cleared for diversion route
MRSC	36	20	1/24/74	*				*	*	*	*	*		*		*		
MRSC	36	20	12/6/72	*				*	*	*	*	*		*		*		Hazy
MRSC	36	20	2/11/74	*				*	*	*	*	*		*		*		
MRSC	36	20	3/11/73	*				*	*	*	*	*		*		*		
MRSC	36	20	3/19/74	*				*	*	*	*	*		*		*		
MRSC	36	20	3/24/73	*				*	*	*	*	*		*		*		Ice, Churchill R.
MRSC	36	20	3/8/76	*				*	*	*	*	*		*		*		
MRSC	36	20	3/8/76	*				*	*	*	*	*		*		*		
MRSC	36	20	3/8/76	*				*	*	*	*	*		*		*		
MRSC	36	20	4/6/74	*				*	*	*	*	*		*		*		
MRSC	36	20	5/12/74	*				*	*	*	*	*		*		*		Ice break up
MRSC	36	20	7/23/74	*				*	*	*	*	*		*		*		
MRSC	36	20	7/23/74	*				*	*	*	*	*		*		*		Hazy
MRSC	36	20	9/2/73	*				*	*	*	*	*		*		*		
MRSC	36	21	4/11/73	*				*	*	*	*	*		*		*		
MRSC	36	21	7/10/73	*				*	*	*	*	*		*		*		
MRSC	36	21	7/28/73	*				*	*	*	*	*		*		*		Poor image

Contact	Path	Row	Date	MSS	RBV	TM	other	BANDS				Composite		Print		Transparency		Comments
Agency			(m/d/yr)					4	5	6	7	col 1	col 2	BW	CLR	BW	CLR	* = available
MRSC	36	21	8/15/73	*				*	*	*	*			*				
MRSC	36	21	9/2/73	*					*					*				Good image
MRSC	36	21	1/24/74	*								*					*	
MRSC	36	21	2/11/74	*								*					*	
MRSC	36	21	3/19/74	*							*						*	
MRSC	36	21	3/19/74	*						*						*		
MRSC	36	21	3/19/74	*				*	*							*		
MRSC	36	21	3/19/74	*				*								*		
MRSC	36	21	4/6/74	*								*					*	
MRSC	36	21	6/17/74	*								*					*	
MRSC	36	21	1/24/74	*				*	*	*	*			*				
MRSC	36	21	1/24/74	*				*	*	*	*			*			*	
MRSC	36	21	2/11/74	*				*	*	*	*			*		*		
MRSC	36	21	3/19/74	*				*	*	*	*			*				
MRSC	36	21	3/20/73	*				*	*	*	*					*		
MRSC	36	21	3/24/73	*				*	*	*	*			*				
MRSC	36	21	3/24/74	*				*	*	*	*						*	
MRSC	36	21	3/29/73	*				*	*	*	*					*		
MRSC	36	21	3/8/76	*								*			*			
MRSC	36	21	3/8/76	*				*	*	*	*			*				
MRSC	36	21	3/8/76	*				*	*	*	*		*		*			
MRSC	36	21	4/11/73	*				*	*	*	*			*				
MRSC	36	21	4/24/74	*				*	*	*	*			*				
MRSC	36	21	4/29/73	*				*	*	*	*			*				
MRSC	36	21	4/6/74	*				*	*	*	*			*		*		
MRSC	36	21	6/17/74	*				*	*	*	*			*		*		Rat R.
MRSC	36	21	8/15/73	*					*	*	*					*		
MRSC	36	21	9/2/73	*				*	*	*	*			*				
MRSC	36	22	4/11/73	*					*		*			*				
MRSC	36	22	6/22/73	*								*				*		
MRSC	36	22	7/10/73	*				*	*		*			*				
MRSC	36	22	7/28/73	*								*				*		
MRSC	36	22	9/20/73	*								*				*		
MRSC	36	22	11/13/73	*					*		*			*				
MRSC	36	22	1/6/74	*								*				*		
MRSC	36	22	1/24/74	*								*				*		
MRSC	36	22	1/24/74	*						*		*				*		
MRSC	36	22	4/6/74	*					*		*			*				
MRSC	36	22	6/17/74	*							*			*		*		
MRSC	36	22	3/14/75	*					*		*			*				
MRSC	36	22	1/14/76	*					*		*			*				
MRSC	36	22	4/13/76	*					*		*			*				
MRSC	36	22	1/14/76	*				*	*	*	*			*		*		
MRSC	36	22	1/24/74	*				*	*	*	*			*		*		
MRSC	36	22	1/24/74	*				*	*	*	*			*		*		
MRSC	36	22	1/6/74	*				*	*	*	*			*		*		
MRSC	36	22	12/19/73	*				*	*	*	*			*		*		
MRSC	36	22	12/6/72	*				*	*	*	*			*		*		
MRSC	36	22	3/19/74	*				*	*	*	*			*		*		
MRSC	36	22	3/26/76	*				*	*	*	*			*		*		
MRSC	36	22	3/8/76	*							*			*		*		
MRSC	36	22	3/8/76	*				*	*	*	*		*		*		*	
MRSC	36	22	3/8/76	*				*	*	*	*		*		*		*	
MRSC	36	22	4/23/74	*					*		*			*		*		
MRSC	36	22	4/29/73	*				*	*	*	*			*		*		
MRSC	36	22	5/7/75	*				*	*	*	*			*		*		
MRSC	36	22	6/17/74	*				*	*	*	*			*		*		
MRSC	36	22	6/22/73	*				*	*	*	*			*		*		
MRSC	36	22	7/28/73	*				*	*	*	*			*		*		Good image
MRSC	36	22	7/4/74	*				*	*	*	*			*		*		
MRSC	36	22	8/15/73	*				*	*	*	*			*		*		
MRSC	36	22	9/20/73	*				*	*	*	*		*		*		*	
MRSC	36	22	9/20/73	*				*	*	*	*		*		*		*	Good image
MRSC	37	20	8/21/72	*				*	*	*	*			*		*		
MRSC	37	20	6/23/73	*				*	*	*	*			*		*		
MRSC	37	20	7/29/73	*				*	*	*	*			*		*		
MRSC	37	20	9/3/73	*				*	*	*	*			*		*		Cloudy
MRSC	37	20	9/21/73	*				*	*	*	*			*		*		
MRSC	37	20	4/7/74	*							*			*		*		
MRSC	37	20	4/7/74	*							*			*		*		
MRSC	37	20	4/25/74	*							*			*		*		
MRSC	37	20	7/10/74	*				*	*	*	*			*		*		



Contact	Path	Row	Date	MSS	RBV	TM	other	BANDS				Composite		Print		Transparency		Comments
								4	5	6	7	col 1	col 2	BW	CLR	BW	CLR	
Agency			(m/d/yr)															* = available
MRSC	37	20	2/7/75	*								*						Hazy
MRSC	37	20	2/11/76	*								*						
MRSC	37	20	5/2/76	*								*						Ice breakup
MRSC	37	20	6/7/76	*								*						Cloudy
MRSC	37	20	5/24/77	*								*				*		
MRSC	37	20	7/17/77	*								*				*		
MRSC	37	20	9/9/77	*								*				*		
MRSC	37	20	5/11/87	*								*				*		Ice breakup
MRSC	37	20	11/22/75	*					*	*	*	*		*				
MRSC	37	20	12/7/72	*					*	*	*	*		*				
MRSC	37	20	12/7/72	*					*	*	*	*		*		*		
MRSC	37	20	2/12/74	*					*	*	*	*		*		*		
MRSC	37	20	2/2/74	*					*	*	*	*		*		*		
MRSC	37	20	2/2/74	*					*	*	*	*		*		*		
MRSC	37	20	3/25/73	*					*	*	*	*		*		*		
MRSC	37	20	3/9/76	*					*	*	*	*		*		*		
MRSC	37	20	3/9/76	*					*	*	*	*		*		*		
MRSC	37	20	3/9/76	*					*	*	*	*		*		*		
MRSC	37	20	4/20/75	*					*	*	*	*		*		*		Excellent, ice break up
MRSC	37	20	4/25/74	*					*	*	*	*		*		*		
MRSC	37	20	4/30/73	*					*	*	*	*		*		*		
MRSC	37	20	4/30/73	*					*	*	*	*		*		*		
MRSC	37	20	4/7/74	*					*	*	*	*		*		*		
MRSC	37	20	5/8/75	*					*	*	*	*		*		*		Excellent, ice break up
MRSC	37	20	5/8/75	*					*	*	*	*		*		*		
MRSC	37	20	5/8/75	*					*	*	*	*		*		*		
MRSC	37	20	7/29/73	*					*	*	*	*		*		*		SIL
MRSC	37	20	7/29/73	*					*	*	*	*		*		*		Good image
MRSC	37	20	9/21/73	*					*	*	*	*		*		*		N. part of SIL good
MRSC	37	20	9/21/73	*					*	*	*	*		*		*		
MRSC	37	21	8/21/72	*					*	*	*	*		*		*		
MRSC	37	21	9/26/72	*					*	*	*	*		*		*		Hazy
MRSC	37	21	1/30/73	*					*	*	*	*		*		*		bands 4,5,6
MRSC	37	21	1/30/73	*					*	*	*	*		*		*		
MRSC	37	21	1/30/73	*					*	*	*	*		*		*		
MRSC	37	21	3/25/73	*					*	*	*	*		*		*		
MRSC	37	21	4/30/73	*					*	*	*	*		*		*		
MRSC	37	21	4/30/73	*					*	*	*	*		*		*		
MRSC	37	21	6/23/73	*					*	*	*	*		*		*		
MRSC	37	21	6/23/73	*					*	*	*	*		*		*		
MRSC	37	21	7/29/73	*					*	*	*	*		*		*		
MRSC	37	21	9/21/73	*					*	*	*	*		*		*		
MRSC	37	21	2/12/74	*					*	*	*	*		*		*		
MRSC	37	21	2/12/74	*					*	*	*	*		*		*		
MRSC	37	21	3/20/74	*					*	*	*	*		*		*		
MRSC	37	21	4/7/74	*					*	*	*	*		*		*		
MRSC	37	21	4/25/74	*					*	*	*	*		*		*		
MRSC	37	21	4/25/74	*					*	*	*	*		*		*		
MRSC	37	21	5/13/74	*					*	*	*	*		*		*		
MRSC	37	21	6/18/74	*					*	*	*	*		*		*		
MRSC	37	21	8/11/74	*					*	*	*	*		*		*		
MRSC	37	21	10/22/74	*					*	*	*	*		*		*		
MRSC	37	21	2/7/75	*					*	*	*	*		*		*		
MRSC	37	21	3/20/75	*					*	*	*	*		*		*		
MRSC	37	21	4/20/75	*					*	*	*	*		*		*		
MRSC	37	21	5/8/75	*					*	*	*	*		*		*		
MRSC	37	21	5/8/75	*					*	*	*	*		*		*		
MRSC	37	21	7/10/75	*					*	*	*	*		*		*		
MRSC	37	21	2/11/76	*					*	*	*	*		*		*		
MRSC	37	21	3/9/76	*					*	*	*	*		*		*		
MRSC	37	21	3/9/76	*					*	*	*	*		*		*		
MRSC	37	21	3/9/76	*					*	*	*	*		*		*		
MRSC	37	21	4/23/76	*					*	*	*	*		*		*		
MRSC	37	21	5/2/76	*					*	*	*	*		*		*		
MRSC	37	21	5/2/76	*					*	*	*	*		*		*		
MRSC	37	21	5/20/76	*					*	*	*	*		*		*		
MRSC	37	21	7/1/80	*					*	*	*	*		*		*		
MRSC	37	21	1/30/73	*					*	*	*	*		*		*		
MRSC	37	21	1/30/73	*					*	*	*	*		*		*		
MRSC	37	21	4/7/74	*					*	*	*	*		*		*		
DFO1	35	20	3/13/75	*					*	*	*	*		*		*		

Contact	Path	Row	Date	MSS	RBV	TM	other	BANDS				Composite		Print		Transparency		Comments
								4	5	6	7	col 1	col 2	BW	CLR	BW	CLR	
Agency			(m/d/yr)															* = available
DFO1	36	20	8/15/73	*						*	*		*		*			Cloudy
DFO1	36	20	8/15/73	*								*	*		*			
DFO1	36	20	8/15/73	*				*	*	*	*		*		*			
DFO1	36	20	9/2/73	*							*		*		*			
DFO1	36	20	9/2/73	*				*	*	*	*		*		*			
DFO1	36	20	11/13/73	*				*	*	*	*		*		*			Ice
DFO1	36	20	11/13/73	*						*	*		*		*			
DFO1	36	20	11/13/73	*				*	*	*	*		*		*			
DFO1	36	20	1/24/74	*				*	*	*	*		*		*			
DFO1	36	20	1/24/74	*						*	*		*		*			
DFO1	36	20	2/11/74	*				*	*	*	*		*		*			Clear
DFO1	36	20	2/11/74	*						*	*		*		*			
DFO1	36	20	3/1/74	*				*	*	*	*		*		*			
DFO1	36	20	4/6/74	*				*	*	*	*		*		*			
DFO1	36	20	5/12/74	*						*	*		*		*			Excellent
DFO1	36	20	5/12/74	*				*	*	*	*		*		*			
DFO1	36	20	5/12/74	*				*	*	*	*		*		*			
DFO1	36	20	5/12/74	*				*	*	*	*		*		*			
DFO1	36	20	6/17/74	*						*	*		*		*			
DFO1	36	20	6/17/74	*						*	*		*		*			
DFO1	36	20	6/17/74	*						*	*		*		*			
DFO1	36	20	7/23/74	*				*	*	*	*		*		*			
DFO1	36	20	10/22/74	*				*	*	*	*		*		*			Cloudy
DFO1	36	20	10/30/74	*				*	*	*	*		*		*			Good view of Churchill River
DFO1	36	20	10/30/74	*						*	*		*		*			
DFO1	36	20	5/7/75	*				*	*	*	*		*		*			poor
DFO1	36	20	7/30/76	*				*	*	*	*		*		*			Diversion route open
DFO1	36	20	10/27/78	*						*	*		*		*			
DFO1	36	20	10/27/78	*						*	*		*		*			Bands 4,5,6
DFO1	36	20	10/27/78	*				*	*	*	*		*		*			
DFO1	36	20	10/27/78	*				*	*	*	*		*		*			Hazy
DFO1	36	20	4/14/81	*						*	*		*		*			Some haze
DFO1	36	20	5/20/81	*						*	*		*		*			
DFO1	36	21	9/2/73	*						*	*		*		*			Bands 4,5,6 V. good
DFO1	36	21	9/2/73	*						*	*		*		*			
DFO1	36	21	9/10/80	*						*	*		*		*			Good view of diversion
DFO1	37	20	12/8/72	*				*	*	*	*		*		*			Some Haze over N. SIL
DFO1	37	20	4/30/73	*				*	*	*	*		*		*			
DFO1	37	20	6/23/73	*						*	*		*		*			
DFO1	37	20	7/29/73	*				*	*	*	*		*		*			Negative image
DFO1	37	20	7/29/73	*				*	*	*	*		*		*			positive image
DFO1	37	20	9/3/73	*				*	*	*	*		*		*			
DFO1	37	20	9/3/73	*						*	*		*		*			Cloudy
DFO1	37	20	9/3/73	*						*	*		*		*			Bands 4,5,6
DFO1	37	20	9/21/73	*						*	*		*		*			
DFO1	37	20	9/21/73	*				*	*	*	*		*		*			
DFO1	37	20	2/12/74	*				*	*	*	*		*		*			Clear
DFO1	37	20	2/12/74	*						*	*		*		*			
DFO1	37	20	2/12/74	*				*	*	*	*		*		*			
DFO1	37	20	4/7/74	*				*	*	*	*		*		*			
DFO1	37	20	4/7/74	*						*	*		*		*			
DFO1	37	20	4/25/74	*				*	*	*	*		*		*			
DFO1	37	20	4/25/74	*						*	*		*		*			Excellent
DFO1	37	20	4/25/74	*						*	*		*		*			good
DFO1	37	20	5/13/74	*						*	*		*		*			Excellent
DFO1	37	20	5/13/74	*				*	*	*	*		*		*			
DFO1	37	20	5/13/74	*				*	*	*	*		*		*			good
DFO1	37	20	8/11/74	*				*	*	*	*		*		*			Cloudy
DFO1	37	20	8/29/74	*				*	*	*	*		*		*			Cloudy
DFO1	37	20	8/29/74	*						*	*		*		*			
DFO1	37	20	9/16/74	*				*	*	*	*		*		*			Cloudy
DFO1	37	20	4/20/75	*				*	*	*	*		*		*			
DFO1	37	20	5/8/75	*						*	*		*		*			Excellent
DFO1	37	20	5/8/75	*				*	*	*	*		*		*			
DFO1	37	20	5/8/75	*				*	*	*	*		*		*			
DFO1	37	20	5/8/75	*				*	*	*	*		*		*			
DFO1	37	20	7/10/75	*						*	*		*		*			
DFO1	37	20	7/10/75	*						*	*		*		*			Excellent image
DFO1	37	20	7/19/75	*				*	*	*	*		*		*			clear
DFO1	37	20	8/24/75	*				*	*	*	*		*		*			Cloudy
DFO1	37	20	4/5/76	*						*	*		*		*			Haze
DFO1	37	20	4/23/76	*						*	*		*		*			Haze

Contact	Path	Row	Date	MSS	RBV	TM	other	BANDS				Composite		Print		Transparency		Comments
								4	5	6	7	col 1	col 2	BW	CLR	BW	CLR	
DFO1	37	20	5/11/76	*									*					* = available
DFO1	37	20	5/20/76	*									*					Ice cover, SIL
DFO1	37	20	5/29/76	*									*					Ice
DFO1	37	20	6/7/76	*									*			*		Ice
DFO1	37	20	7/31/76	*				*	*				*					Good
DFO1	37	20	10/11/76	*									*					
DFO1	37	20	10/11/76	*						*				*				
DFO1	37	20	2/5/77	*						*			*					
DFO1	37	20	5/24/77	*						*			*					Excellent image
DFO1	37	20	5/24/77	*						*			*					Bands 4,5,6
DFO1	37	20	5/24/77	*				*	*	*			*					
DFO1	37	20	5/24/77	*				*	*	*			*					
DFO1	37	20	7/17/77	*						*			*					Bands 4,5,6
DFO1	37	20	7/17/77	*						*			*					
DFO1	37	20	11/15/78	*						*			*					Cloud over S. SLI
DFO1	37	20	1/26/79	*						*			*					
DFO1	37	20	3/3/79	*						*			*					Some haze
DFO1	37	20	4/26/79	*						*			*					Ice/open water
DFO1	37	20	5/14/79	*						*			*					
DFO1	37	20	7/7/79	*						*			*					
DFO1	37	20	7/7/79	*						*			*					
DFO1	37	20	8/3/79	*						*			*					Southern Indian Lake (SIL) clear
DFO1	37	20	8/3/79	*						*			*					SIL clear
DFO1	37	20	9/11/80	*						*			*					
DFO1	37	20	9/11/80	*						*			*					SIL largely clear
DFO1	37	20	2/2/81	*						*			*					
DFO1	37	20	6/8/81	*						*			*					Ice in N. SIL
DFO1	37	20	7/14/81	*						*			*			*		
DFO1	37	20	8/1/81	*						*			*			*		* Churchill R. banks exposed
DFO1	37	20	8/9/81	*						*			*			*		cloud/haze
DFO1	37	20	9/6/81	*						*			*			*		cloudy
DFO1	37	21	9/21/73	*						*			*					
DFO1	37	21	9/21/73	*				*	*	*			*					
DFO1	37	21	8/29/74	*						*			*					Poor, scattered cloud
DFO1	37	21	8/29/74	*						*			*					Bands 4,5,6
DFO1	37	21	7/10/75	*						*			*					
DFO1	37	21	5/2/76	*						*			*					
DFO1	37	21	5/29/76	*						*			*					Good, haze to west
DFO1	37	21	10/11/76	*						*			*					Bands 4,5,6
DFO1	37	21	12/31/76	*						*			*					
DFO1	37	21	2/5/77	*						*			*					
DFO1	37	21	5/24/77	*						*			*					
DFO1	37	21	5/19/78	*						*			*					Good
DFO1	37	21	4/26/79	*						*			*					
DFO1	37	21	5/14/79	*						*			*					Good
DFO1	37	21	9/11/80	*						*			*					Bands 4,5,6 Cloud over Rat R.
DFO1	37	21	9/11/80	*						*			*					
DFO1	37	21	11/4/80	*						*			*					V. good
DFO1	37	21	11/4/80	*						*			*					
DFO1	37	21	8/1/81	*						*			*					some cloud
DFO1	38	20	8/21/72	*				*	*	*	*		*			*		
DFO1	38	20	8/21/72	*				*	*	*	*		*			*		
DFO1	38	20	8/22/72	*				*	*	*	*		*			*		
DFO1	38	20	12/8/72	*				*	*	*	*		*			*		Haze over SIL
DFO1	38	20	5/1/73	*				*	*	*	*		*			*		poor
DFO1	38	20	7/30/73	*				*	*	*	*		*			*		
DFO1	38	20	9/22/73	*				*	*	*	*		*			*		
MPLS	32	22	5/14/84	*						*			*					6 = band 3 (Landsat 4 & 5)
MPLS	32	23	7/9/84	*						*			*					6 = band 3 (Landsat 4 & 5)
MPLS	33	22	4/19/84	*						*			*					6 = band 3 (Landsat 4 & 5)
MPLS	34	19	8/18/72	*				*	*	*	*		*			*		
MPLS	34	19	10/12/72	*				*	*	*	*		*			*		
MPLS	34	19	7/27/73	*				*	*	*	*		*			*		Useful for ice studies
MPLS	35	21	7/27/73	*				*	*	*	*		*			*		
MPLS	35	21	3/13/75	*				*	*	*	*		*			*		Useful for ice studies
MPLS	35	21	3/13/75	*				*	*	*	*		*			*		
MPLS	35	22	12/23/72	*				*	*	*	*		*			*		
MPLS	35	22	4/28/73	*				*	*	*	*		*			*		
MPLS	35	22	11/7/74	*				*	*	*	*		*			*		
MPLS	35	22	8/16/76	*				*	*	*	*		*			*		
MPLS	35	22	9/27/80	*				*	*	*	*		*			*		

Contact	Path	Row	Date	MSS	RBV	TM	other	BANDS				Composite		Print		Transparency		Comments
Agency			(m/d/yr)					4	5	6	7	col 1	col 2	BW	CLR	BW	CLR	* = available
MPLS	36	22	7/28/73	*				*	*	*	*					*		
MPLS	36	22	9/20/73	*				*	*	*	*					*		
MPLS	36	22	9/20/73	*								*			*			
MPLS	36	22	9/20/73	*								*			*			
MPLS	37	20	7/29/73	*				*	*	*	*					*		
MPLS	37	20	9/21/73	*				*	*	*	*					*		
EMSI	34	20	5/12/84	*						*						*		Landsat 5, band 3
EMSI	36	21	5/5/77	*						*						*		
EMSI	36	21	5/7/75	*						*						*		
EMSI	36	20	5/7/75	*						*						*		
EMSI	33	22	5/27/86	*								*				*		Landsat 5, bands 2,3,4
EMSI	35	22	7/4/74	*								*				*		
EMSI	36	20	5/20/81	*						*						*		
EMSI	34	21	8/6/83	*								*				*		Landsat 4, bands 1,2,4
EMSI	33	22	5/27/86	*			*					*				*		Landsat 5, bands 2,3,4
EMSI	36	20	6/17/74	*								*				*		
EMSI	37	20	6/24/78	*								*				*		
EMSI	36	20	6/25/81	*								*				*		

## Appendix F

### Dates of Development of Hydro Projects

WORKSHEET INDICATING DATES OF DEVELOPMENT OF HYDRO PROJECT **						
STUDY AREA	PROJECT DEVELOPMENT			RELEVANT DATES		
Project Name	Completed	Under Const.	Potential (1)	Initiation of Const.	Completed Const.	Impoundment Completed
<b>1 LAKE WINNIPEG REGULATION</b>						
2 mile Channel	*			1971	76/10	76/08
8 mile Channel	*			72/06	75/09-10	76/07
Kisipachewuk Channel Improvements	*			73/05	75/10	76/07
Ominawin Bypass Channel	*			72/08 (dredge)	75/07	76/07
Kiskitto dam & dykes	*			73/02	74/06	76/07
Kiskitto-Black Duck Channel and Control	*			73 spring	74/03	76/09
Stan Creek Diversion	*			73 spring	74/06	76/07
L. Winnipeg Regulation Control Struct.	*			73/03	74/12	76/07
Main Dam	*			74/07	74/12	76/07
East Nelson Control			*	---	---	---
<b>2 UPPER NELSON RIVER</b>						
Jenpeg Generating Station	*			72/05	77/06-79/11	76/07
Whitemud Generating Station			*	---	---	---
Red Rock Generating Station			*	---	---	---
Kelsey Generating Station (3)	*		*	57/06	60/06-72/10	60/05-11
<b>3 UPPER CHURCHILL RIVER</b>						
Bloodstone Generating Station			*	---	---	---
Granville Generating Station			*	---	---	---
<b>4 DIVERSION ROUTE FROM CHURCHILL RIVER (RAT / BURNTWOOD RIVER)</b>						
South Bay Channel	*			73/10	76/06	76/09
Karsakuwigamak Bypass Channel	*			74/10	75/04	76/09
Notigi Control Structure	*			74/05	76/09	76/09
Notigi Main Dam	*			74/06	76/09	76/09
Notigi Dykes	*			74/06	76/09	76/09
<b>5 SOUTHERN INDIAN LAKE</b>						
Missi Falls Control Structure	*			74/02	75/11	76/09
Missi North Channel Dam	*			75/11	76/07	76/09
Missi South Channel Dam	*			73/08	76/07	76/09
<b>6 LOWER CHURCHILL RIVER</b>						
<b>7 LOWER NELSON RIVER</b>						
Birthday Generating Station			*	---	---	---
Gull Generating Station			*	---	---	---
Kettle Generating Station	*			1966	74/11	71/09
Long Spruce Generating Station	*			72/10	77/10-79/08	78/01-02 (2)
Limestone Generating Station		*		1976	?	?
Conawapa Generating Station			*	---	---	---
Gillam Island Generating Station			*	---	---	---
<b>8 BURNTWOOD RIVER</b>						
Notigi Generating Station			*	---	---	---
Wuskwatim Generating Station			*	---	---	---
Manasan Generating Station			*	---	---	---
First Rapids Generating Station			*	---	---	---
* date at which post impoundment stage stabilized	(1) Studied but not committed					
	(2) Not raised to final Licence Limit until Nov. 79					
	(3) Units 1-5 completed 1960-61; unit 6 in 69; unit 7 in 72; but potential for at least three additional units					
** Source - Peter Abel, Manitoba Hydro, 820 Taylor, Winnipeg, MB.						

**Appendix G**  
**List of Contacts**

AGENCY	CONTACT NAME	TELEPHONE NUMBER
Department of Mines and Energy		
- Aggregate Resources	Mr. Robert Young	945-6507
- Mineral Resources	Mr. Mark Fedikow	-6562
Manitoba Remote Sensing Centre (MRSC)	Mr. Bill Best	945-6597
"	Mr. Hartley Pokrant	-6595
"	Mr. David Busch	-6595
"	Mr. Roy Dixon	-6594
Canada Centre for Remote Sensing (CCRS)	Ms. Jean Game	(613) 952-2717
"	Mr. Jeff Harris	998-5915
"	Mr. Bud McKibbin	998-3101
Ontario Centre for Remote Sensing (OCRS)	Mr. Richard Mussakwski	(416) 965-8411
"	Mr. Vern Singhroy	965-8411
INCO Limited, Mississauga Ont.	Mr. Dr. J.A. Allum	(416) 822-3322
INCO Limited, Thompson, MB.	Mr. John Ashton	(204) 677-5500
Manitoba Surveys and Mapping Branch, Map Sales.	Mr. Terry Armstrong	-6666
"	Ms. Sue-Ann Norton	-6666
Manitoba Hydro	Mr. Bernie Schilalac	474-3175
"	Mr. Peter Abel	-3733
"	Mr. Alf Carriere	-3664
"	Mr. Coleman Wong	-4008
"	Mr. D. Windsor	-3390
Manitoba Provincial Fisheries Branch	Mr. B. Knutsen	945-6810
Department Fisheries and Oceans	Mr. Greg McCullough	983-5203
"	Mr. Bob Hecky	-5217
"	Mr. Pierre Richard	-5130
Canadian Wildlife Service	Mr. Peter Boothroyd	-5261
Manitoba Provincial Forestry Branch	Mr. G. Doudet	945-7954
Water Resources Branch (Manitoba)	Mr. T. Weber	-6398
"	Mr. N. Mudry	-6395
"	Mr. F. Penner	-7404
Environment Canada, Water Quality (Regina, Sask.)	Mr. Peter Seidyl	(306) 780-5858
Manitoba Provincial Wildlife Branch	Mr. L. Bowles	945-7757
Geography Dept. University of Manitoba	Mr. Larry Stein	474-8706
Manitoba Soil Surveys	Mr. R.E. Smith	474-6112
UMA Engineering Ltd.	Mr. Tom Wingrove	284-0580
Acres International Ltd.	Mr. John McPherson	786-8751
Hildebrant-Young & Associate	Mr. David Young	632-4460
UNIES Ltd.		633-6363
ID Engineering	Mr. Bill Harper	477-1270
Qauternary Consultants	Mr. Sid Kroeker	453-3642
McLaren Plansearch	Mr. M. McKernan	477-6650
Indian Affairs and Northern Dev.	Mr. K. Kloete	983-7315 or 983-4148
Northern Flood Committee	Mr. J. Keeper	944-9772
Manitoba Dept. Northern Affairs		945-2511



## Glossary

**Analog** - A form of data display in which values are shown in graphic form, such as curves. Also a form of computing in which values are represented by directly measurable quantities (ie. voltage).

**Angstrom (Å)** - A unit of length equal to one hundred-millionth ( $10^{-8}$ ) of a centimeter, used to specify radiation wavelengths.

**Atmospheric window** - Bands of the electromagnetic spectrum which offer maximum transmission and minimal attenuation through the atmosphere.

**Attenuation** - In physics, any process in which the flux density (power, intensity, etc...) of a parallel beam of energy decreases with increasing distance from the energy source.

**Bandwidth** - The number of cycles per second between the limits of a frequency band.

**Classification** - The process of assigning individual pixels of a multispectral image to categories, generally on the basis of spectral reflectance characteristics.

**Digital** - a form of data display in which values are shown in numerical form. An image consists of numerical values combined to create a visual display.

**Electromagnetic radiation (EMR)** - Energy propagated through space or through material media in the form of an advancing interaction between electric and magnetic fields. The sun is the source of EMR used by most remote sensors.

**Electromagnetic spectrum (EMS)** - the ordered array of known electromagnetic radiations extending from X-rays to microwave radiation.

**False color** - The use of one color to represent another; (ie. the use of red emulsion to represent infrared light in color infrared film).

**Focal length** - The distance measured along the optical axis from the optical center (rear nodal point) of the lens to the plane of critical focus of a very distant object. Used in conjunction with altitude to determine scale.

**Frequency** - Number of oscillations per unit time or number of wavelengths that pass a point per unit time.

**Hardcopy** - Photocopy or paper rendition of digital data.

**Image** - is used when EMR, emitted or reflected from a scene is not directly recorded on film. Used to differentiate a digital image from a photograph.

**Infrared** - pertains to energy in the .7 - 100  $\mu\text{m}$  wavelength region of the EMS. In remote sensing three infrared regions are identified near infrared (6.7 - 1.3  $\mu\text{m}$ ), middle- infrared (1.3 - 3.0  $\mu\text{m}$ ), and thermal infrared at (7.0 - 15.0  $\mu\text{m}$ ).

**Linear stretch** (or contrast stretch) - Improving the contrast of images by digital processing. The original range of digital values is expanded to utilize the full contrast range of the recording film or display device.

**Micrometer** ( $\mu\text{m}$ ) - a unit length equal to one-millionth of a meter, ( $10^{-6}$ ).

**Microwave** - EMR having wavelengths between 1mm and 1m or 300 - 0.3 GHz in frequency, bounded at 1mm by far infrared and at 1m. by high-frequency radio waves.

**Multispectral** - Generally used for remote sensing in two or more spectral bands, such as visible and IR.

**Nadir** - that point on the ground vertically beneath the perspective center of the sensor.

**Nanometer** (nm) - one-billionth of a meter, ( $10^{-9}$ ).

**Orbit** - the path of a body or particle under the influence of a gravitational or other force. For instance, the orbit of a celestial

body is its path relative to another body around which it revolves.

**Overlap** - the area common to two successive photos along the same flight strip; the amount of overlap is expressed as a percentage of photo area.

**Panchromatic** - used for films that are sensitive to broadband (e.g. entire visible part of the spectrum) EMR.

**Photograph** - A picture formed by the action of light on a base material coated with a sensitized solution, chemically treated to fix the image points at the desired density. Usually taken to mean the direct action of EMR on the sensitized material. Often referred to as photo.

**Pitch** - rotation of a remote sensing platform about the horizontal axis normal to its longitudinal axis, which causes a nose-up nose-down attitude.

**Pixel** (picture element) - a data element having both spatial and spectral aspects. The spatial variable defines the apparent size of the resolution cell (ie., the area on the ground represented by the data values), the spectral variable defines the intensity of the spectral response for that cell at a particular wavelength or range of wavelengths of EMR.

**Quantization** - To replace the dynamic variables of a system by the corresponding quantum mechanical operators in order to calculate the behavior of the system.

**Radar** - Acronym for radio detection and ranging. A method, system or technique, including equipment components, for using beamed, reflected, and timed EMR to detect, locate, or track objects, to measure the altitude and to acquire a terrain image. In remote sensing of the Earth's or a planetary surface, it is used for measuring and, often, mapping the scattered properties of the surface.

**Radiometer** - An instrument for quantitatively measuring the intensity of EMR in some band of wavelengths in any part of the EM spectrum.

**Remote sensing** - is the science and art of obtaining information about an object, area, or phenomenon, through the analysis of data acquired by a device that is not in contact with the object, area, or phenomenon under investigation.

**Roll** - rotation of a remote sensing platform about the longitudinal axis to cause a 'wing-up or wing-down' attitude.

**Scanner** - Any device that scans, and thus produces an image.

**Spatial** - pertaining to, or involving the nature of area; ie. information conveyed by spatial variations of spectral response present in a scene.

**Spectral reflectance** - The reflectance of electromagnetic energy at specified wavelength intervals.

**Spectral reflectance curve** - A graph of the spectral reflectance as a function of wavelength, expressed as a characteristic of an object.

**Spectral signature** - quantitative measurement of the properties of an object at one or several wavelength intervals.

**Spectrum** - In physics, any series of energies arranged according to wavelength (or frequency).

**Sun-synchronous** - An Earth satellite orbit in which the orbital plane is near polar and the altitude such that the satellite passes over all places on Earth having the same latitude twice daily at the same local sun time.

**Temporal** - referring to time. ie; factors that change the spectral characteristics of a feature over time.

**Wavelength** - Velocity/frequency. The mean distance between maxima of a roughly periodic pattern. Specifically, the least distance between particles moving in the same phase of oscillation in a wave disturbance. Optical and IR wavelengths are measured in nanometers, micrometers, and angstroms.

## List of Acronyms

- AVHRR - Advanced Very High Resolution Radiometer.  
c/c - cloud cover.  
CCRS - Canada Center for Remote Sensing.  
CCT - Computer Compatible Tape.  
DICS - Digital Image Correction System.  
EMR - Electromagnetic radiation.  
EMS - Electromagnetic spectrum.  
f - Focal length.  
FLIR - Forward Looking Infrared  
GC - Geocoded.  
HRV - High Resolution Visible scanner.  
IR - Infrared.  
MEIS - Multi-Detector Electro-Optical Imaging Scanner.  
MRSC - Manitoba Remote Sensing Center.  
MSS - Multispectral Scanner.  
NASA - National Aeronautics and Space Administration.  
nm - Nanometer.  
NOAA - National Oceanographic and Atmospheric  
Administration.  
PASS - Prince Albert Satellite Station.  
QCR - Quick Color Recorder.  
RBV - Return Beam Vidicon.  
SAR - Synthetic Aperture Radar.  
SLAR - Side Looking Airborne Radar.  
SPOT - "Systeme Pour l'Observation de la Terre".  
TIR - Thermal Infrared.  
TM - Thematic Mapper.  
 $\mu\text{m}$  - Micrometer.  
WRS - World Reference System.

## Selected Readings

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- Ecological Report Series. 1987. Annotated Bibliography for Churchill-Nelson River Diversion Region. Contract report by MacLaren Plansearch Inc. 1987. Remote Sensing is referenced in this bibliography under: Water Quantity, abstract # 15, 24, 26, 34; Limnology, abstract # 20; Wildlife, abstract # 4, 11, 13, 16, 17; Forestry, abstract # 5; Other, abstract # 26, 28; Multidisciplinary, abstract # 2, 3, 19, 55. 250 pp.
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